



**City of Saint John**

# **Trails and Bikeways Strategic Plan**

**April 16, 2010**

Ref No.: SJ09040

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# 1 Executive Summary

## Context

Active transportation (AT) and active living have become a focus of many municipalities throughout Canada. The Saint John approach to active mobility, a trails and bikeways network, is both a recreational and commuter network. The focus of this network is active residents using the trail and bikeway network for any form of human powered transportation such as walking, cycling, skate boarding, wheelchairs, rollerblading, snowshoeing and cross-country skiing.

The City of Saint John trails and bikeways are comprised of three components:

1. Urban/suburban sidewalks and trails
2. Bike routes
3. Local trail systems

This study focuses on how to link the urban/suburban sidewalks and trails to the bike routes to create a comprehensive trail and bikeways network that connects Saint John. The end goal of this network is to provide non-motorized access to key destinations around the City including the local trail and parks system

The long terms goals and objectives of the Trail and Bikeways Plan is an active community that has a choice of mobility options within the City.

## Goals

The long-term goal of the Trails and Bikeways Strategic Plan is to promote a sustainable and healthy lifestyle by providing opportunities for active lifestyles and mobility options for all of the City's residents.

## Objectives

The Trail and Bikeways Plan serves three key purposes:

1. To identify key recreational and active transportation and corridors
2. To provide recommendations for implementation and development of the Saint John trails and bikeway network
3. To provide direct input into the development of the Saint John Municipal Plan process.

## Guiding Principles

The Trails and Bikeways Plan is guided by four guiding principles

- Safety
- Accessibility
- Connectivity and Walkability
- Aesthetics

These principles are representative of the long-term active living objectives for the Trails and Bikeways network.

## **The Network**

The location of the key elements in the City's Trails and Bikeway network was developed through an analysis of the existing network of active transportation infrastructure, trails, roadways and destinations within the City.

This 183 km network is classified into Neighbourhood routes, Community routes, Citywide corridors and Recreational loops that use existing and proposed trails and links to create a comprehensive connectivity web for all of Saint John. This analysis was supplemented with feedback from community stakeholders and residents, which was incorporated into the development of the routes.

## **Design Standards and Costing**

Design standards for both trails and bikeways were developed based on the City of Saint John existing road specifications. The standards provide guidelines for the integration of active mobility into the City's existing infrastructure. The cost associated with integrating this infrastructure was assessed for the identified citywide corridors. It is recommended that the citywide corridors, the spine of the trails and bikeway network, be prioritized for the initial 5–10 year (short term) project implementation. The cost estimates provide probable construction cost associated with the bike infrastructure only. The citywide routes all provide a sidewalk on at least one side of the street. It should be noted that the study does state that sidewalks on both sides of the street are ideal for long-term active mobility within the City. The 5 projects have been identified as the short-term implementation projects.

### **Priority 1: Connect North-end to Uptown**

Estimate of probable construction cost:

Bike lane: \$60,000 (bike lanes and signage only)

Intersection upgrade costs: \$400,000

Total: \$460,000

### **Priority 2: Connect Manawagonish to Douglas**

Estimate of probable construction cost:

Bike lane: \$60,000 (bike lanes and signage only)

Intersection upgrade costs: \$100,000

Total: \$160,000

### **Priority 3: Rothesay Avenue**

Estimate of probable construction cost:

Bike lane: \$700,000 (paved shoulders, bike lanes, signage only)

Intersection upgrade costs: \$400,000

Total: \$1,100,000

### **Priority 4: Loch Lomond**

Estimate of probable construction cost:

Bike lane: \$416,000 (paved shoulders, bike lanes and signage only)

Intersection upgrade costs: \$400,000

Total: \$816,000

### **Priority 5: Rockwood Connector**

Estimate of probable construction cost:

Bike lane: \$10,000 (bike lanes and signage only)

## Project Recommendations

The following recommendations outline key tasks to achieve an effective Trails and Bikeways plan for the City.

### 1.1 System Connectivity and Planning

#### **Recommendation 1: Complete comprehensive local trail Master Plans**

The City of Saint John covers a large geographic area, and within this area there are numerous local trail systems. The number and location of systems are too many to inventory in the scope of this study. However, these systems are an essential recreation destination and many contribute to the greater connectivity of the City. A key finding of this study is the importance of these systems in the context of neighbourhood active living. It is recommended that primary local trail system destinations be further studied to develop a comprehensive inventory and master plan. Some key local trail destinations are:

- Rockwood Park
- Little River Reservoir
- Shamrock Park
- Blueberry Hill
- Seaside Park
- Dominion Park
- Mispic Park
- Tucker Park
- Irving Nature Park

#### **Recommendation 2: University/Hospital**

The university and the hospital are one of the largest single concentrations of employment in Saint John. The location of the university and hospital has forced many of the students and employees to drive. It is recommended that a trail/corridor be located to link the proposed University Avenue Community route north to the hospital and university, also creating a link to the north-end of Rockwood Park. A potential connection could be off the end of Royal Parkway.





### **Recommendation 3: Foster partnerships to develop Marsh Line trail**

The proposed Marsh Line trail has been identified as a citywide corridor. This solution is a long-term project. This corridor would provide an essential off road spine to the entire Trails and Bikeways network providing key access to residential and commercial areas while providing an excellent off road system for all levels of network user. The City should actively work with local landowners and trail groups to establish the Marsh Line trail as the spine for the eastern portion of the Trails and Bikeways network.

## **1.2 Administration**

### **Recommendation 4: Establish a recreation and active transportation advisory committee**

An advisory committee will allow key stakeholders to come together to make decisions regarding the network. We recommend Saint John Transit, Parking Commission, Recreation and Leisure Services, Planning, Active Transportation Saint John and Municipal Operations and Engineering become the basis for this advisory committee. This advisory group could also include walking and running clubs, birding, hiking groups, kayak and water sports groups, as well as winter sports groups.

### **Recommendation 5: Designate a single point for the administration of the implementation of trails and bikeways corridors and programs.**

A single point of management and administration is required to work with and liaise with traffic, planning, and recreation departments<sup>1</sup>. This person should be a key member of the active transportation and recreation advisory committee. In many municipalities this position is typically housed with either the traffic department or recreation department. The position oversees the implementation and development of the active mobility infrastructure for the municipality.

## **1.3 Funding**

### **Recommendation 6: Integrate Trail and Bikeways implementation and development into municipal capital budget**

The City of Saint John has a system of disconnected and discontinuous trail and bikeway infrastructure. The existing infrastructure is well used however; the future operation, maintenance, and expansion of the system is highly dependent on future municipal investment.

## **1.4 Policy Considerations**

### **Recommendation 7: Integrate active transportation and recreation into the Municipal Development Plan process**

The existing Municipal Development Plan for the City of Saint John has two key sections that should include active recreation and transportation. The Transportation section of the Municipal Development Plan should recognize active modes of transportation as key elements to the overall transportation system and corridor requirements. Also, the Land Use section should integrate the need for recreational and active transportation corridors through lands for public purposes. These changes should be reflected in the Subdivision By-law, municipal specifications and Zoning By-law.

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<sup>1</sup> Alliance for Biking and Walking (2010) *Bicycling and Walking in the United States, 2010: Benchmarking Report*. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)

**Recommendation 8: Land for Public Purposes park dedication for linear infrastructure such as trails**

The City of Saint John should allow, through their Municipal Plan review, the dedication of park space as required under the Community Planning Act, for linear parks, trails and greenways in new development. This should be at the discretion of the development officers, to allow the municipality to link parts of the City through parkways and off-street trail systems.

**Recommendation 9: Integrate connectivity requirements into Subdivision By-law**

Pedestrian connectivity is essential for community character, to promote less car use and support active living. We recommend the integration of fused-grid, or some similar connectivity requirements into the Subdivision By-law for new developments in Saint John. These connectivity requirements should be utilized to minimize pedestrian dead ends and calm vehicle traffic on residential streets.

**Recommendation 10: Add Bike lane infringements to the Traffic By-law**

We recommend adding a clause to the Traffic By-law to restrict parking and stopping within delineated bike lanes or pedestrian corridors to enable policing of these infringements. Active transportation, bicycles and bike lanes also need to be added to the definitions of this by-law.

**Recommendation 11: Review of the Skateboarding By-law**

Skateboarding has been seen as a nuisance in many cities, however it has become a key mode of transportation for many of the youth of today. This by-law should be reviewed to enable skateboarders to utilize the active transportation infrastructure provided along streets.

**1.5 Network Development**

**Recommendation 12: Integrate the Trails and Bikeways network with Transit**

The existing transit system in Saint John provides excellent support for the proposed trails and bikeways network. Most people will only walk 500 meters to a destination. By integrating the network with transit it will promote more walking and less traffic.

In addition, the existing bike racks on the buses allows for cyclist to commute long distances using both cycling and transit, again reducing single-occupancy vehicles. The City and Transit should work together to integrate these systems and provide for “bike and ride” infrastructure at many of the “park and ride” facilities that already exist.

**Recommendation 13: Implementation of the Bike Parking Plan for Uptown**

Uptown Saint John is a primary destination in the City of Saint John. The Bike Parking Plan for the Uptown of Saint John, completed by Hardy Stevenson and Associates Ltd. in 2009, provides a high profile starting point for the promotion and integration of bicycles into the transportation system in Saint John. The study states that the probable costs of construction to implement both phases of this plan are approximately \$60,000 – \$92,000. This will provide a combination of 180 bike parking spaces and bike lockers in Uptown Saint John.

**Recommendation 14: Piggyback Plan implementation with infrastructure projects**

To reduce the cost of this plan, any proposed infrastructure work should integrate the Trails and Bikeways guidelines for sidewalk, trail, and bike lane development into their construction. The proposed active transportation and recreation committee should work closely with the Municipal Traffic, Public Works, and the Provincial government to incorporate trail and bike infrastructure on construction projects throughout the City. These pedestrian and bike components should meet the guidelines outlined in the Trails and Bikeways plan.

**Recommendation 15: Public Washrooms**

Public washrooms are lacking in most communities in Canada. We did not identify one public washroom along the entire Trails and Bikeways network during our assessment. Although not essential for accessibility, safety, connectivity or aesthetics, public washrooms provide for a more effective and user-friendly network. The City of Saint John should incorporate public washrooms into the overall fabric of the Trails and Bikeway network.

**1.6 Community Education****Recommendation 16: Education Campaign**

The Trails and Bikeways Plan must be supported with an education campaign. The campaign should begin with the release of the plan and build on this momentum. The education campaign should be developed in concert with the mapping and wayfinding strategy to create a cohesive “brand” to the Trails and Bikeways network in the City.<sup>2</sup>.

Future education campaigns should continue to work with local organizations, schools, community centres and other safety courses to provide education on trails and bikeways infrastructure access and how to properly utilize the infrastructure. This education should include specific target “how to ride” programs to teach proper cycling etiquette and safety for on street riding.

**Recommendation 17: Provide mapping and wayfinding**

It was clear during the consultation process that Saint John has a significant inventory of local trails and active living opportunities, however, there is no one source of information on these resources. Providing information on active mobility requires a branding strategy that integrates wayfinding and signage, hardcopy route and destinations maps, and on-line interactive maps. The maps should illustrate how residents and tourists can find and use both the active transportation and active living resources of the City. In addition, one should be able to download the maps onto a PDA or other personal device.

**1.7 Operations and Maintenance****Recommendation 18: Cycling Infrastructure Maintenance and Cleaning**

Year round maintenance was identified as the main obstacle to use of bike lanes within the City. During the public consultation it was highlighted that bike lanes were not kept clear of debris during the normal biking season (late April – October). The issue of debris in bike lanes was also said to obscure lane markers and force cyclists into vehicle traffic to avoid debris. Regular cleaning of bicycle lanes is required to promote use of the active transportation infrastructure<sup>3,4</sup>.

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<sup>2</sup> Alliance for Biking and Walking (2010) *Bicycling and Walking in the United States, 2010: Benchmarking Report*. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)

<sup>3</sup> Alliance for Biking and Walking (2010) *Bicycling and Walking in the United States, 2010: Benchmarking Report*. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)

**Recommendation 19: Winter Maintenance**

Winter maintenance is a major barrier to the use of the Trails and Bikeways network. The existing Winter Services Management Plan is comprehensive and covers the majority of the proposed urban routes and corridors. It is recommended that the proposed routes and corridors in residential areas with schools, medical centres or community facilities should be serviced first. Citywide corridors should be serviced next, to open key pedestrian transportation, followed by Community routes and then Neighbourhood routes.

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<sup>4</sup> US Department of Transportation (2003) Bikability Check List. Available from:  
<http://www.epa.gov/dced/scorecards/bikabilitychecklist.pdf>



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## Appendices

- Appendix A — Consultation Summary
- Appendix B — Best Practices Summary
- Appendix C — Proposed Network Maps
- Appendix D — Estimates of Probable Construction Costs

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## 2 Introduction

### 2.1 Active Transportation and Active Living

Active transportation (AT) and active living have become a focus of many municipalities throughout Canada. The Saint John approach to active mobility, a trails and bikeways network, is both a recreational and commuter network. The focus of this network is active residents using the trail and bikeway network for any form of human powered transportation such as walking, cycling, skate boarding, wheelchairs, rollerblading, snowshoeing and cross-country skiing.

Planning for AT and recreational corridors is not a new phenomenon. Many cities throughout the world are incorporating active transportation infrastructure into their communities. Long-term planning is essential for the effective and efficient implementation of active mobility and living strategies. In many communities these strategies are being used to market to tourists interested in active vacation opportunities.

Like any other transportation network, the trails and bikeways network is comprised of a series of interlinking corridors and destinations. It is important that these corridors and destinations provide “universally accessible” infrastructure for the City through thoughtful and careful design solutions. An important consideration in developing the overall network is connectivity<sup>5</sup>. Networks that have a large number of roads and trail intersections provide greater transportation choice, making mobility options like walking more feasible. Overall connectivity is a critical factor in the adoption of active modes of transportation and will provide more interest for recreational users<sup>6</sup>.

Integration of active mobility into a community's way-of-life requires an approach focusing on two main initiatives: development of the community's trails and bikeways infrastructure and education<sup>7</sup>. A community can have excellent infrastructure, but residents need to be educated on the use and benefits of this infrastructure. In most communities, social norms, such as using the car to go to the corner store, are entrenched. These social norms can only be changed through education.

Trails and bikeways infrastructure can also reduce the transportation-related reliance on fossil fuels and promote healthy lifestyles. The link between fossil fuel combustion and global warming, with automobiles contributing over 30% of the greenhouse gases produced in Canada, illustrates the importance of an active transportation and connectivity network. In addition, the increasing health-related issues of our aging population are exacerbated by the sedentary lifestyle of many North Americans. The Canadian Diabetes Association reports that two thirds of all Canadian children and 63% of all Canadians are not active enough to lead a healthy lifestyle<sup>8</sup>.

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5 Victoria Transport Policy Institute (2007) Roadway Connectivity: Creating More Connected Roadway and Pathway Networks. Available from: <http://www.vtpi.org/tdn/tdm116.htm>

6 IBID

7 Alliance for Biking and Walking (2010) Bicycling and Walking in the United States, 2010: Benchmarking Report. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)

8 Active Healthy Kids Canada (2007) Older But Not Wiser: Canada's Future at Risk: Canada's Report Card on Physical Activity for Children & Youth – 2007. Available from: <http://martin.electicblogs.ca/documents/2007%20Full%20Report%20Card.pdf>

The City of Saint John trails and bikeways are comprised of three components:

1. Urban/suburban sidewalks and trails,
2. Bike routes, and
3. Local trail systems.

This study focuses on how to link the urban/suburban sidewalks and trails to the bike routes to create a comprehensive trail and bikeways network that connects Saint John. The end goal of this network is to provide non-motorized access to key destinations around the City including the local trail and parks system.

## 2.2 Background

### 2.2.1 Community Context

Saint John is a city of 68,000 people located in southern New Brunswick. The Municipality of Saint John covers 315 sq km. This coastal community has developed around a strong industrial history that has shaped the geography of the City. As with many older cities, Saint John was historically reliant on its port for much of its economic prosperity.

The existing form of the City consists of numerous neighbourhoods, segmented by NB Route 1 (The Saint John Throughway) and the Saint John River. The Uptown core provides a key destination with several other commercial and entertainment destinations throughout the City. The City has a necklace of parks linked by their own localized trails systems, and the “crown jewel” of Saint John, Rockwood Park, provides for a wide range of recreational and commuter opportunities.

Figure 1: Context Map



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### **2.2.2 Climate Change**

The IPCC (Intergovernmental Panel on Climate Change) has concluded that the climate is changing. These shifts in the global climate will impact the climate in Saint John. It is very difficult to predict the shifts in the local climate, but it is known that the weather patterns will become more variable and will likely increase the intensity of storms. Saint John's location on the coast and Saint John River increases the community's potential risk of localized flooding along the river, and increased flooding due to the number of rainfall events and sea level rise. In addition, a shifting climate may impact the seasonal use of the trails and bikeway infrastructure. The development of this recreational infrastructure should consider adaptive climate change solutions during the detailed design stage. The development of this infrastructure will help the City reduce its overall impact on greenhouse gas emissions.

### **2.2.3 Community Process**

Discussions with key stakeholders were held in late 2009 and early 2010 along with a series of four Open Houses, held in January 2010 in each of the City's four wards. Attendance at each meeting ranged between 5 and 25 attendees. The Open House format included a brief presentation on the goals of the project, an open discussion, and question and answer session with the Public. The events also allowed for individual discussions between members of the consulting team and residents. A survey was also circulated at the Open Houses to gain additional feedback on current attitudes towards active transportation in the City. The following plan is a result of the findings and discussion during this process (See Appendix A).

### **3 Goals and Objectives**

The long terms goals and objectives of the Trail and Bikeways Plan is an active community that has a choice of mobility options within the City.

#### **3.1 Goal**

The long-term goal of the Trails and Bikeways Strategic Plan is to promote a sustainable and healthy lifestyle by providing opportunities for active lifestyles and mobility options for all of the City's residents.

#### **3.2 Objectives**

The Trail and Bikeways Plan serves three key purposes:

1. To identify key recreational and active transportation corridors
2. To provide recommendations for implementation and development of the Saint John trails and bikeway network
3. To provide direct input into the development of the Saint John Municipal Plan process.

## 4 Guiding Principles

The guiding principles provide a framework for the development of the Trails and Bikeways Plan. These principles are representative of the long-term active living objectives for the Trails and Bikeways network. These principles are based on the best practices from around North America (see Appendix B). The four guiding principles are:

- Safety
- Accessibility
- Connectivity and Walkability
- Aesthetics

### Safety Principle:

- The design of all trails and bikeways infrastructure must address both real and perceived safety concerns.

### Connectivity and Walkability Principle:

- The trails and bikeways network must attempt to reconnect the pedestrian grid throughout the community. In new developments, models such as fused grid design (see Appendix B) should be incorporated to ensure pedestrian connectivity.

### Accessibility Principle:

- The trails and bikeways network should provide a safe environment for all users through well-maintained infrastructure. This infrastructure must be considerate of wheelchairs, strollers and slow moving pedestrians. The network should be designed, built and maintained as a community system to promote active living and healthy communities. This requires year round maintenance.

### Aesthetics Principle:

- The trails and bikeways network should provide a linear system of green space that draws people to and from various destinations. These corridors should provide for attractive and safe recreational opportunities. The aesthetics of an area is also achieved by providing vegetation and areas to rest along corridors. These routes should be places that are interesting, attractive and ultimately make people feel comfortable moving through the space.

## 5 The Network

The location of the key elements in the City's Trails and Bikeway network was developed through an analysis of the existing network of active transportation infrastructure, trails, roadways and destinations within the City. Mapping and development plans were also reviewed to determine key linkages to be constructed as future development occurs in undeveloped areas of Saint John.

A key consideration for the trails and bikeways network is the current development and circulation pattern in the City and the effect that both the Saint John River and NB Route 1 / Saint John Throughway have in forming a barrier in the north-south and east-west directions. In addition, the large land base of the City has led to a dispersed development pattern creating distinct neighbourhoods and large transportation distances between established areas.

The proposed Saint John Trails and Bikeway network is comprised of a combination of trails and links that are combined to create an effective connectivity network. This network is classified into Neighbourhood routes, Community routes and Citywide corridors and Recreational loops that use existing and proposed trails and links to create a comprehensive connectivity web for all of Saint John. The Network Map illustrates the key routes and corridors that provide the minimum trails and bike network for the City. As new development occurs new opportunities may arise to create more connections throughout the City. A good trails and bikeways plan relies on options for the user to maintain interest and provide as many connections to destinations around the city.

Routes were reviewed based on the principles of connectivity, safety, accessibility and aesthetics. This analysis was supplemented with feedback from community stakeholders and residents, which was incorporated into the development of the routes.

### 5.1.1 Neighbourhood Routes – 68 km

Intent: To promote a healthy and active lifestyle and to provide the opportunity for residents to move around their neighbourhood without a motorized vehicle.

### 5.1.2 Community Routes – 29 km

Intent: to provide connections from neighbourhoods to key destinations and to the rest of the connectivity network.

### 5.1.3 Citywide Corridor – 37 km

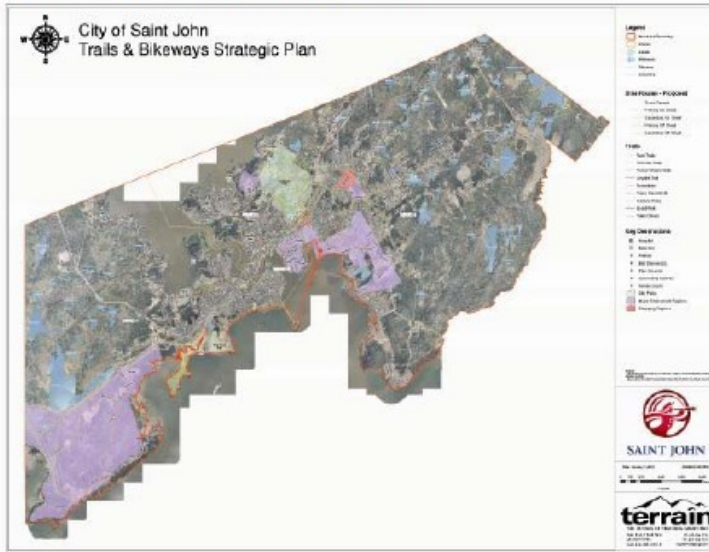
Intent: To provide a central spine for active modes of transportation from one end of the city to the other.

### 5.1.4 Recreational Loops - 49 km

Intent: To identify potential riding and walking loops for recreational and sport riders.



**Map 1: Proposed Network (See Appendix C)**



## 6 Design Guidelines

The Trails and Bikeways network should be approached as a system of green corridors; as such, aesthetics, safety, connectivity, and accessibility are essential to the success of the infrastructure. These elements are important in the long-term design of the city to promote active living. The following high-level guidelines provide a list of design elements that should be considered when developing corridors within Saint John. These guidelines address different aspects of active transportation routes, each with the intent of making a better, more liveable, workable, balanced, healthy and vibrant community.

Research and consultation identified key categories to focus on achieving better active transportation corridors. These are:

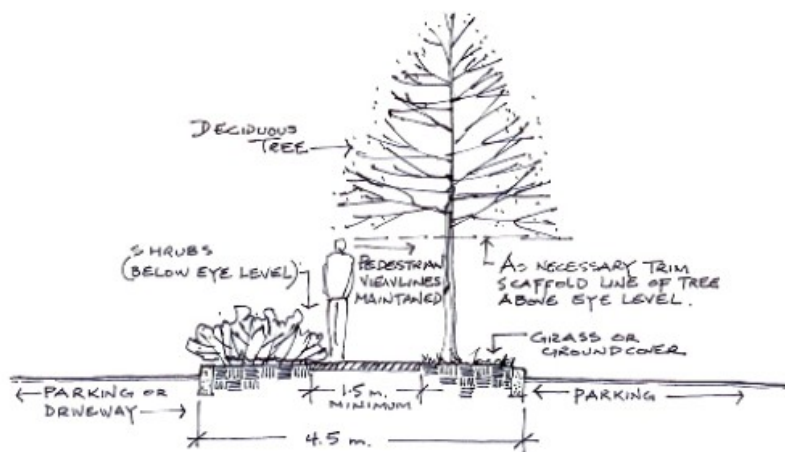
- Safety
- Connectivity and Walkability
- Accessibility
- Aesthetics

### 6.1 Safety

Safety elements are:

- Well marked visible crosswalks
- Pedestrian lighting
- Hand rails
- Separation distance from traffic
- Highly visible routes
- Well defined pedestrian versus vehicle space
- Public phones

Figure 2: An Example of a space designed for pedestrian safety



Considerations:

- Visibility is necessary at all intersections and mid-block crosswalks to create a safe environment. Visibility and aesthetics need to be considered together. Areas that focus on just visibility generally create unfriendly pedestrian environments<sup>9</sup>.
- Lighting on routes is essential for bikers and pedestrians. In many instances bikers will be served by roadway lighting; however, pedestrians generally lack adequate lighting to provide for comfortable and safe walking environments. Lighting designed to light both traffic and pedestrian routes should be incorporated<sup>10</sup>.
- Natural surveillance is key on trails and bikeways to create safe environments. This can be achieved by creating opportunities for “eyes on the space.”
- Providing horizontal separation distance between the sidewalk and travel way will promote a safe and comfortable pedestrian environment. This separation distance can be created as planting strips or through the use of colour and/or texture change.

## 6.2 Connectivity and Walkability

Connectivity and Walkability elements are:

- Short block lengths
- Low traffic speeds
- Grid pattern of pedestrian connections
- Creating safe shared community spaces
- Painted and marked crosswalks at all route and corridor intersections

Considerations:

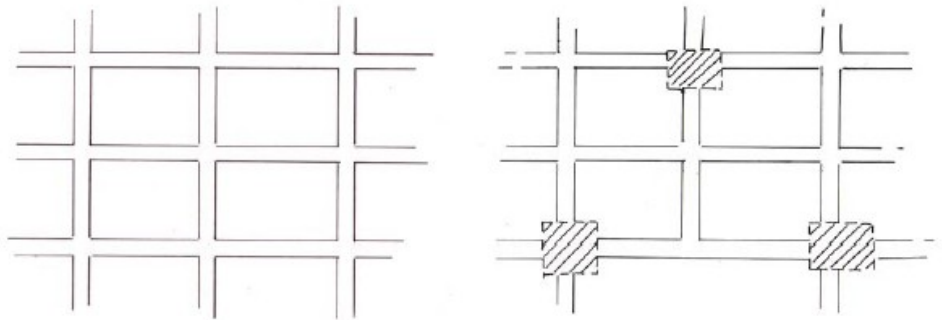
- Block length should not exceed 170 m. Ideal block length is 100 m.
- Reduce the number of dead ends in a development. This can be achieved using fused grid, woonerf or similar method for maintaining pedestrian linkages
- When developing or approving a new “destination” ensure connectivity issues are addressed (i.e. connection through parking lots)
- Neighbourhood streets can be designed as continuous shared space that promotes the use of the streets by active forms of transportation
- A well-designed active mobility community will have over 60 pedestrian accessible intersections per square kilometre<sup>11</sup>.

**Figure 3A: Example of a typical city grid versus grid design that maintains pedestrian and bike connectivity while calming vehicle traffic.**

9 Royal Canadian Mounted Police (1998) An Introduction to Crime Prevention Through Environmental Design for Architects, Planners and Builders. Available from: <http://www.rcmp-grc.gc.ca/pdfs/cpted.pdf>

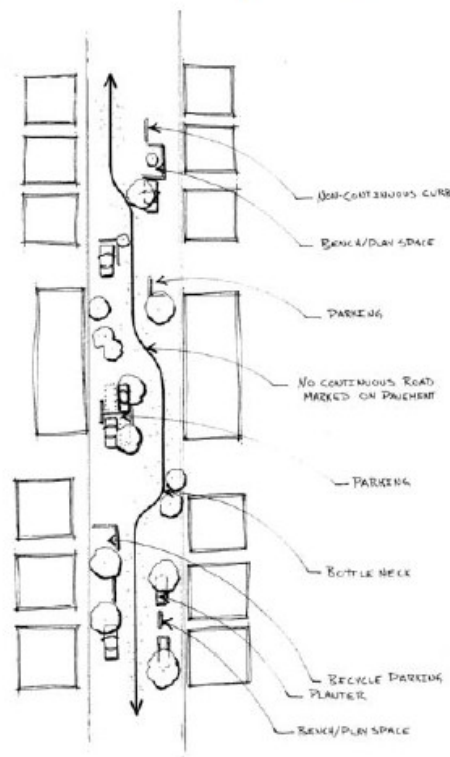
10 Schmitz, A. and J. Scully (2006) Creating Walkable Places: Compact Mixed-use Solutions. Urban Land Institute, Washington, D.C.

11 Victoria Transport Policy Institute (2007) Roadway Connectivity: Creating More Connected Roadway and Pathway Networks. Available from: <http://www.vtpi.org/tdm/tdm116.htm>



Adapted from: Grammenos, F. and Pollard, D. (2005) Re-evaluating the Grid. Canadian Mortgage and Housing Corporation.

**Figure 3B: Example of Woonerf Shared Space Design**



### 6.3 Accessibility

Accessibility elements are:

- 1.5 m wide curb cuts
- Restrict slopes to 5% where possible with a maximum of 2% cross slope
- Public washrooms
- Sidewalks minimum 1.5 m wide (1.8 m sidewalks may be considered where snowplowing is an issue)
- Trails minimum 1.5 m wide
- Use of texture change and Urban Braille/Tactile Paving
- Well maintained infrastructure
- Winter maintenance

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- Benches and rest areas for slower moving pedestrians

Figure 4: The images below illustrate an “accessible” curb cut and a refuge island to provide a rest area for people who move slowly.



Considerations:

- Provide curb cuts that are at least 1.5 m wide
- Grade of sidewalks and trails should be limited to less than 5 % where possible. When the grade is over 5 % hand railings should be provided. In addition, areas of rest should be placed every 9 m on slopes over 8% or within 7 m of the end of a steep (over 8%) slope sections.
- Sidewalk and trail should be a minimum 1.5 m in width. These widths should be greater in areas with higher use. This will allow for wheelchairs, strollers and seniors with walkers to use the sidewalks at the same time<sup>12</sup>.
- Public washrooms should be provided at regular intervals for both children and the elderly.
- Robust surface material that can withstand frost heaving should be used for construction. Poorly maintained materials will limit accessibility of a route.
- Create texture changes at intersection and curb edges for the visually impaired (Urban Braille).
- Refuge islands should be provided on long crosswalks for elderly and people who are slower crossing
- Maintenance is essential for accessibility of mobility-impaired pedestrians.

## 6.4 Aesthetics

Aesthetic elements are:

- Benches
- Street trees
- Public washrooms
- Garbage cans
- Pedestrian lighting standards
- Sitting walls
- Planters
- Public art
- Interactive features (chess tables, hopscotch)
- Texture and colour changes in paving materials
- Framing and maintaining views
- Stair seats
- Raised sidewalks
- Wayfinding elements such as signage or lighting standards

<sup>12</sup> US Department of Transportation (2004) Designing Sidewalks and Trails for Access: Part II of II: Best Practices Design Guide. Available on: <http://www.fhwa.dot.gov/environment/sidewalk2/>

**Figure 5: An example of a landscaped rest area integrated with an urban trail and wayfinding signage.**



**Design Considerations:**

- Design elements should be provided to create a comfortable walking environment. This also aids in creating separation distance between traffic and pedestrians<sup>13</sup>.
- Views along a route should be protected and enhanced. This can be done by providing interpretive signage or by providing benches for rest areas in key locations<sup>14</sup>.
- Landscaping and planters should be used to create visual intrigue and to create separation distance in areas where visibility is essential. Texture and colour change can also aid in the definition of pedestrian space.
- Cleanliness/maintenance is essential to the aesthetics of any space. This can be promoted using garbage cans, and lighting areas that are not visible at night.
- Route design elements should be used to strengthen wayfinding along trail and bikeway routes<sup>15</sup>. This can be achieved by using the same colours, textures, construction materials, signage and design elements along the routes.
- When determining planting strip and separation distances, consider the need for snowplowing and storage.

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13 Florida Department of Transportation (1995) Walkable Communities: 12 Steps for an Effective Program. [cited Available from: [http://www.dot.state.fl.us/safety/ped\\_bike/brochures/pdf/12STEPS.PDF](http://www.dot.state.fl.us/safety/ped_bike/brochures/pdf/12STEPS.PDF)]

14 Madden, K. (2005) How To Turn A Place Around: A Handbook For Creating Successful Public Spaces. Projects For Public Spaces, Inc. New York, New York

15 Royal Canadian Mounted Police (1998) An Introduction to Crime Prevention Through Environmental Design for Architects, Planners and Builders. Available from: <http://www.rcmp-grc.gc.ca/pdfs/cpted.pdf>

## 7 Design Standards

### 7.1 Trails and Sidewalks

Trails and sidewalks provide the backbone of the Trails and Bikeway network; therefore, the design of this infrastructure is vitally important to the success of the network.

#### 7.1.1 Trails

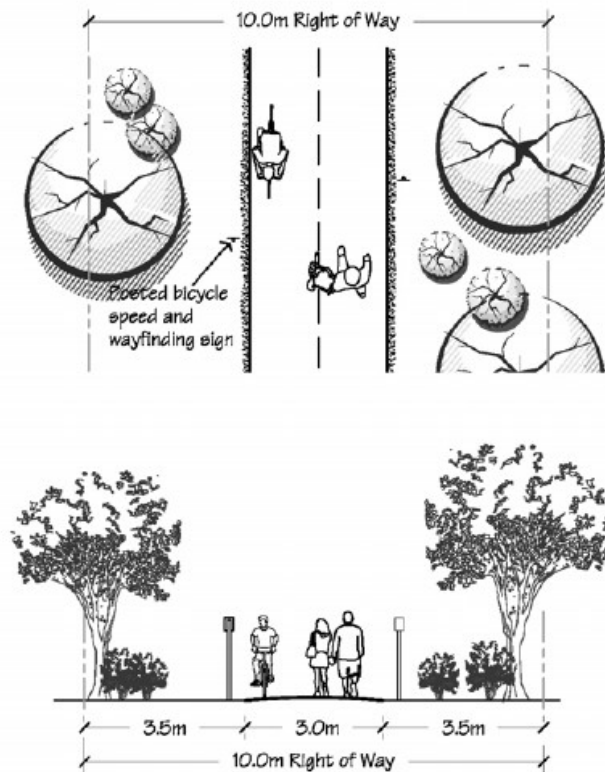
The identified trail standards below outline the foundation trail types for the Trails and Bikeways plan. Use-specific trails such as mountain bike trails were not reviewed and design standards have not been identified. Use-specific trails typically require site-specific design elements that are matched to user experience and fitness levels.

**Table 3: Summary of Trail Design Considerations**

Use	Width	Surface material	Grade	Clearing width
Multi-use	2 – 5 m	Crusher dust/asphalt	0 – 5 % not exceeding 10 % for more than 20 m	4 – 10 m
Walking/hiking	1.25 m	Crusher dust/gravel	Less than 20 %	2.25 m
Bike trail	2.5 – 3.5 m	Crusher dust/asphalt	0 – 5 % not exceeding 10 % for more than 20 m	4.5 – 7.5 m

Sources: City of Surrey, San Diego Riverway Trails Plan, Allegheny County Parks, City of Kwartha Lakes Plan, City of Guelph

**Figure 6: Multi-use trail minimum standard**

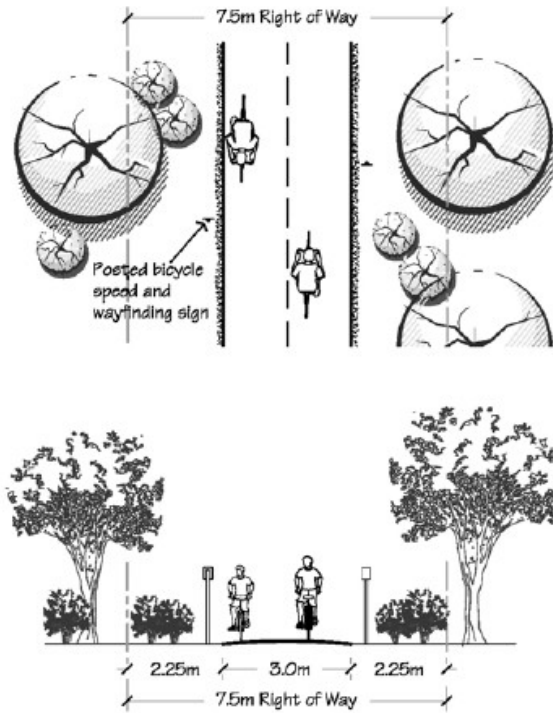


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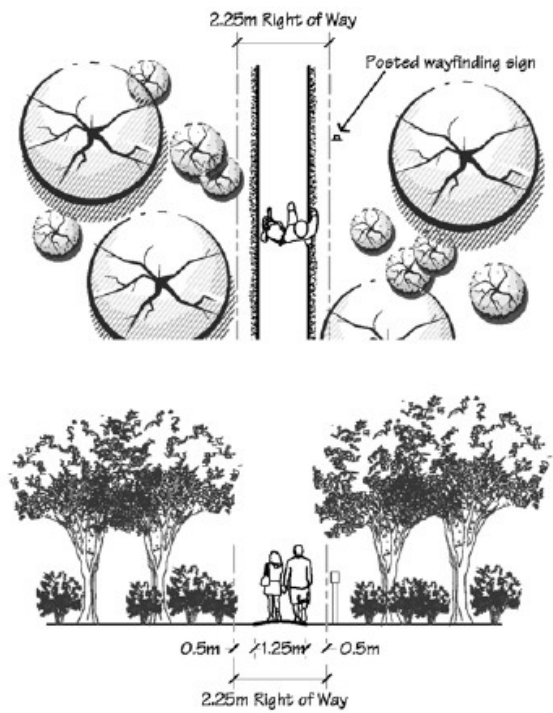
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**Figure 7: Off-road bike trail minimum standard**



**Figure 8: Walking/hiking trail minimum standard**



### 7.1.2 Sidewalks

Sidewalks should be a minimum 1.5 metres wide. Sidewalks in the city cores vary but can be up to 3 metres in width to provide for on-street sales, patios, and pedestrians.

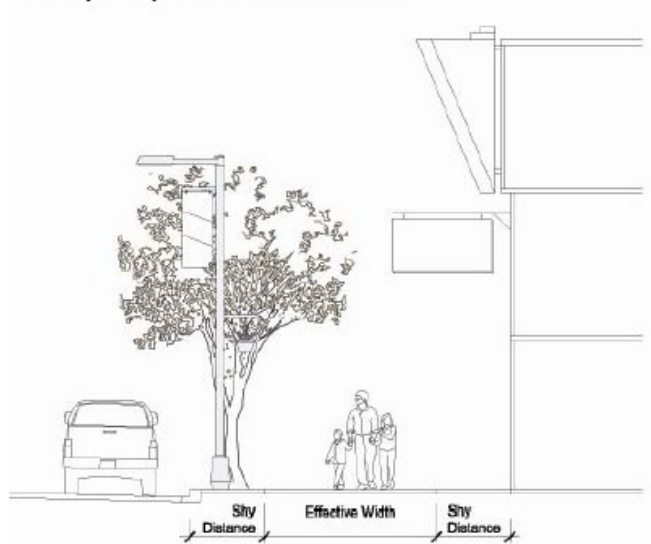
**Table 2: Summary of Sidewalk Design Considerations**

Use	Width (minimum)	Surface Material	Cross-Grade	Effective Width
Suburban Commercial	1.5 m	Concrete	Max 2%	~ 1.2 m
Suburban Residential	1.5 m	Concrete	Max 2%	~ 1.2 m
Urban Commercial	2.25 m	Concrete	Max 2%	~ 1.5 m
Urban Residential	1.8 m	Concrete	Max 2%	~ 1.5 m

Sources: American Planning Association, 2006. Planning and Urban Design Standards. John Wiley and Sons, Hoboken New Jersey

The design width of a sidewalk is the entire area that is designed to function for the pedestrian. This will include the travel way (sidewalk) and an area of separation between the sidewalk and traffic, usually a planting strip. Design widths should range from 2.0 metres in residential areas up to 3 metres in the Uptown area.

**Figure 9: Example of pedestrian sidewalk use**



Sidewalk design should address the entire design width including any encroachments on the sidewalk such as street trees, signage and areas of refuge. Separation distance, created by a 0.5 m wide minimum-planting strip or the use of bollards or hand railings, promotes a comfortable walking environment. A well-designed sidewalk will provide rest areas for people that cannot walk long distances.

Where sidewalks do not have a planting strip, design elements should be used to create separation from traffic and provide for visual enhancement of the area. This can include the use of texture strip and furniture.

The grade of a sidewalk is important in the overall accessibility of a route. The ideal grade of a sidewalk is less than 5%. Any sidewalk over 5% should have a hand railing and the maximum grade should not exceed 8% if possible. Any sidewalk with a grade over 5% should have a level area (rest area) every 9 m<sup>16</sup>.

## 7.2 Streets

The proposed design standards are based on a review of the existing City of Saint John typical cross sections and on the best practice review.

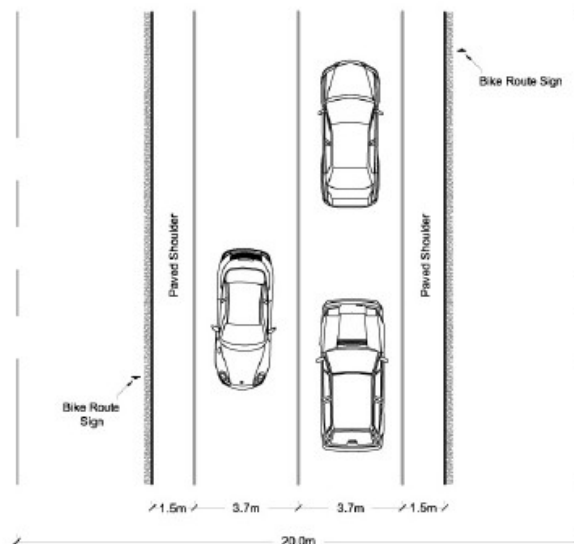
**Table 1: Summary of Bike Lane Standards**

Use	Width	Location	Traffic Volume	Traffic Speed
Shared-lane	Bike and car lane combined, minimum 4 m with 4.25 m ideal.	Residential areas	Low (less than 3000 vehicles / day)	Low
Paved shoulder	1.2 minimum paved shoulder with 1.5 ideal. A minimum 3.5 m car travel lane	Rural routes	Moderate	Moderate - high
Share lane with on street parking	Minimum 1.6 m door zone with additional 3 – 3.5 lane width	Town core and core commercial areas	High	Low
Dedicated Bike lane	1.5 m minimum, 2.0 m with high traffic volumes or high-speed traffic. Vehicle lane 3 – 3.5 m	Arterial routes	High	Moderate - high

Sources: City of Surrey, San Diego Riverway Trails Plan, Allegheny County Parks, City of Kwartha Lakes Plan, City of Guelph

**Figure 10: 20 m rural road standard**

Suggested use: Neighbourhood routes and low volume Community Routes

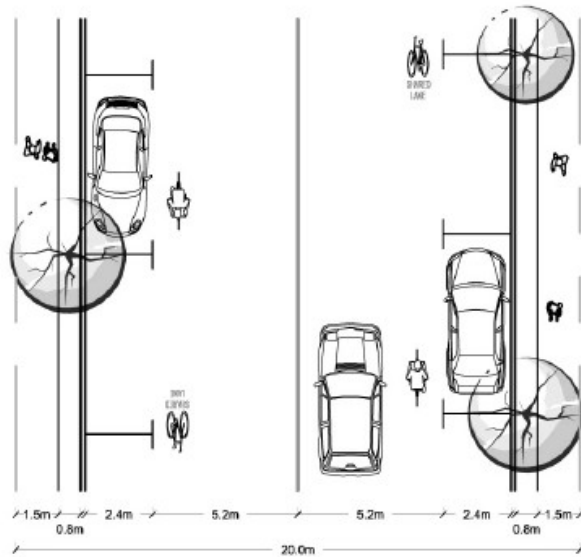


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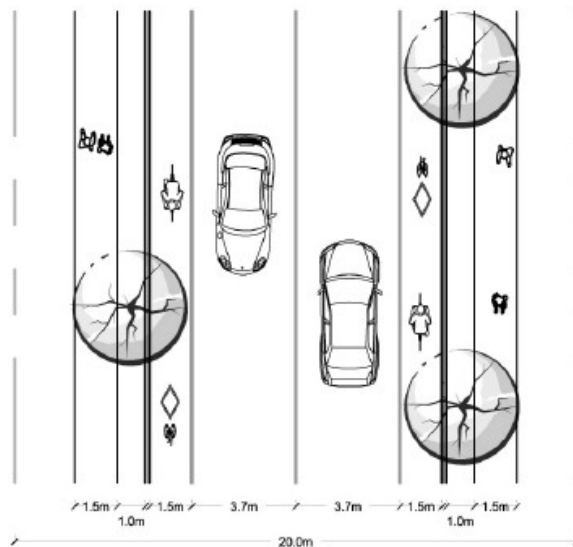
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<sup>16</sup> US Department of Transportation (2001) Designing Sidewalks and Trails for Access: Part II of II: Best Practices Design Guide. Available on: <http://www.fhwa.dot.gov/environment/sidewalk2/>

**Figure11: 20 m local with shared lane with on street parking standard**  
 Suggested use: Neighbourhood routes and low speed Community Routes



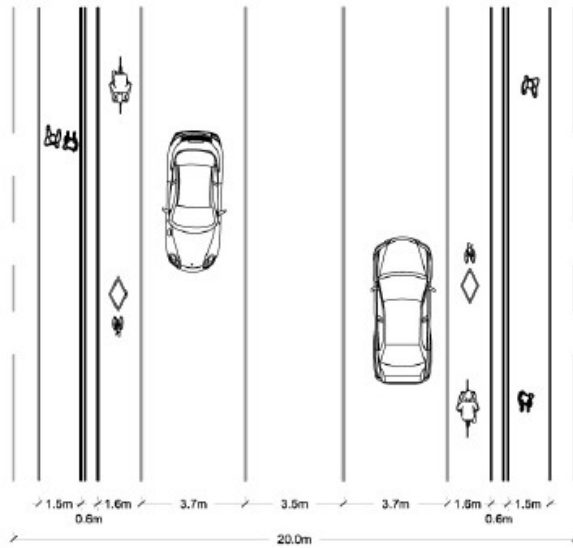
**Figure12: 20 m local with dedicated lane standard**  
 Suggested uses: Community routes and Citywide corridors and high volume Neighbourhood routes





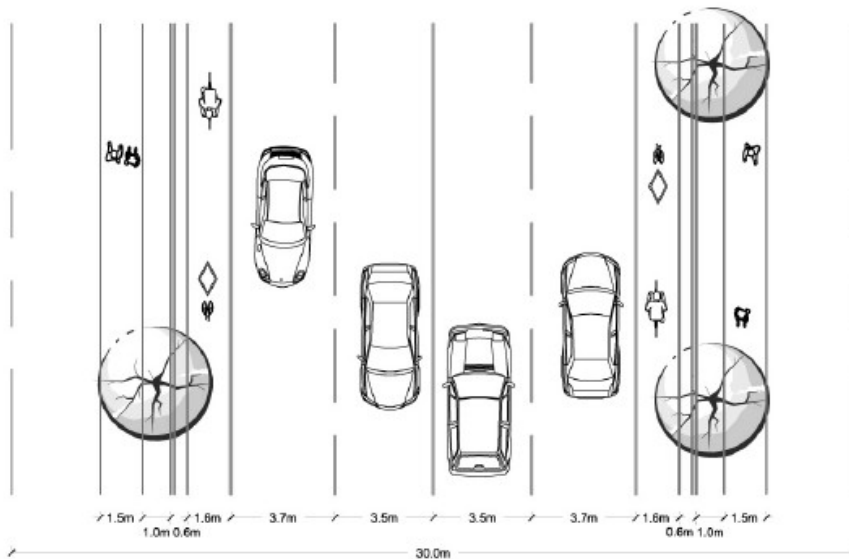
**Figure13: 20 m collector 3 lane standard**

Suggested uses: High volume Community routes and Citywide corridors



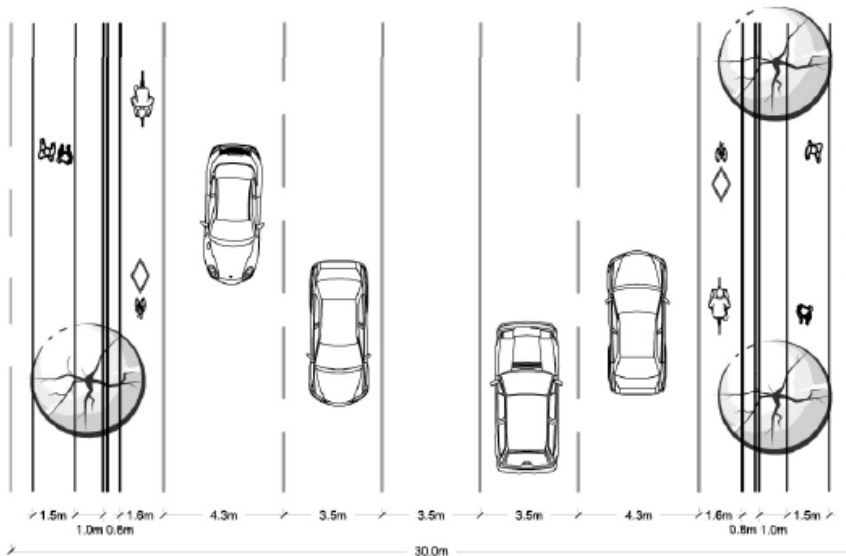
**Figure 14: 30 m 4 lane standard**

Suggested uses: High volume Community routes and Citywide corridors



**Figure 15: 30 m 5 lane standard**

Suggested uses: High volume Community routes and Citywide corridors



### 7.3 Intersections

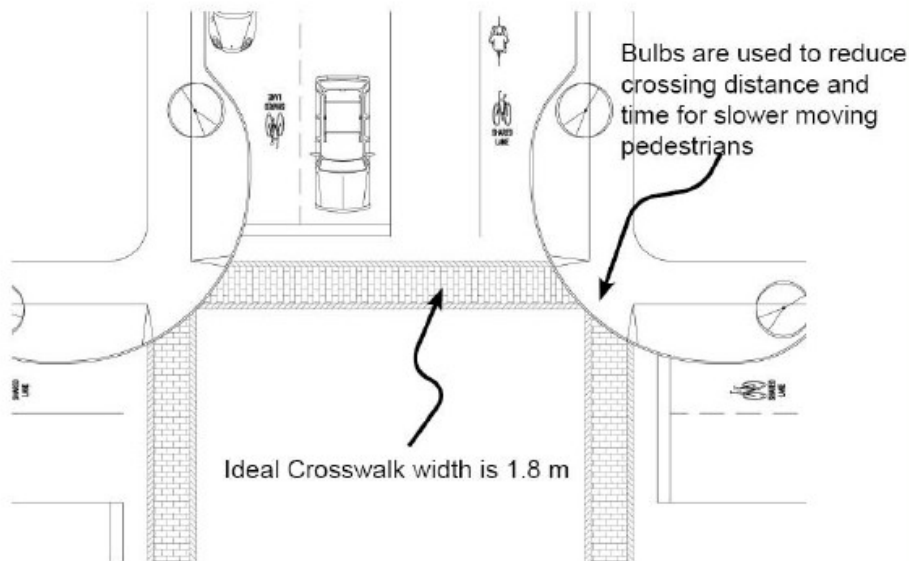
Intersections are a key conflict area between vehicle and active mobility traffic. Safety is the key concern for intersection design. These design standards propose intersections based on best practices while considering the guiding principles for the trails and bikeways network. The following design standards are based on Transportation Association of Canada Guidelines and design elements essential for good active mobility networks. It should be noted that the proposed intersections were developed to maximize active recreation and transportation use. These intersection standards should be used as a guide and may need to be modified for site-specific applications.

#### 7.3.1 Crosswalks

The width of a crosswalk should be at least 1.8 m with either vertical (zebra stripes) or horizontal lines<sup>17</sup>. For the trails and bikeways network, we are proposing that crosswalks along Citywide corridors be colour and textured crosswalks. Community routes and Neighbourhood routes should have major intersections with coloured and textured crosswalks, and intersections with the trails and bikeways network should be coloured and textured for wayfinding purposes. Other intersections along the Community and Neighbourhood routes would be determined based on TAC standards for crosswalk requirements.

<sup>17</sup> US Department of Transportation (2001) Designing Sidewalks and Trails for Access: Part II of II: Best Practices Design Guide. Available on: <http://www.fhwa.dot.gov/environment/sidewalk2/>

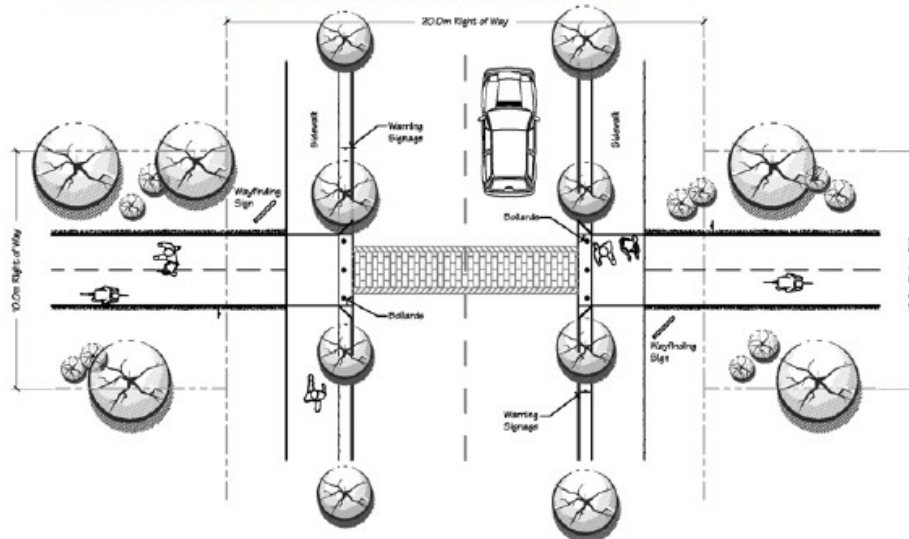
Figure 20: Example of an accessible designed crosswalk



### 7.3.2 Trail /Street Intersection

A significant conflict area can occur where trails cross streets. These areas should be treated like a mid-block crossing, requiring appropriate signage and pedestrian lights. The following diagram illustrates a typical trail/street crossing design. This design uses the same accessibility and safety elements as the proposed crosswalk above.

Figure 21: Example of a Multi-use trail/street crossing



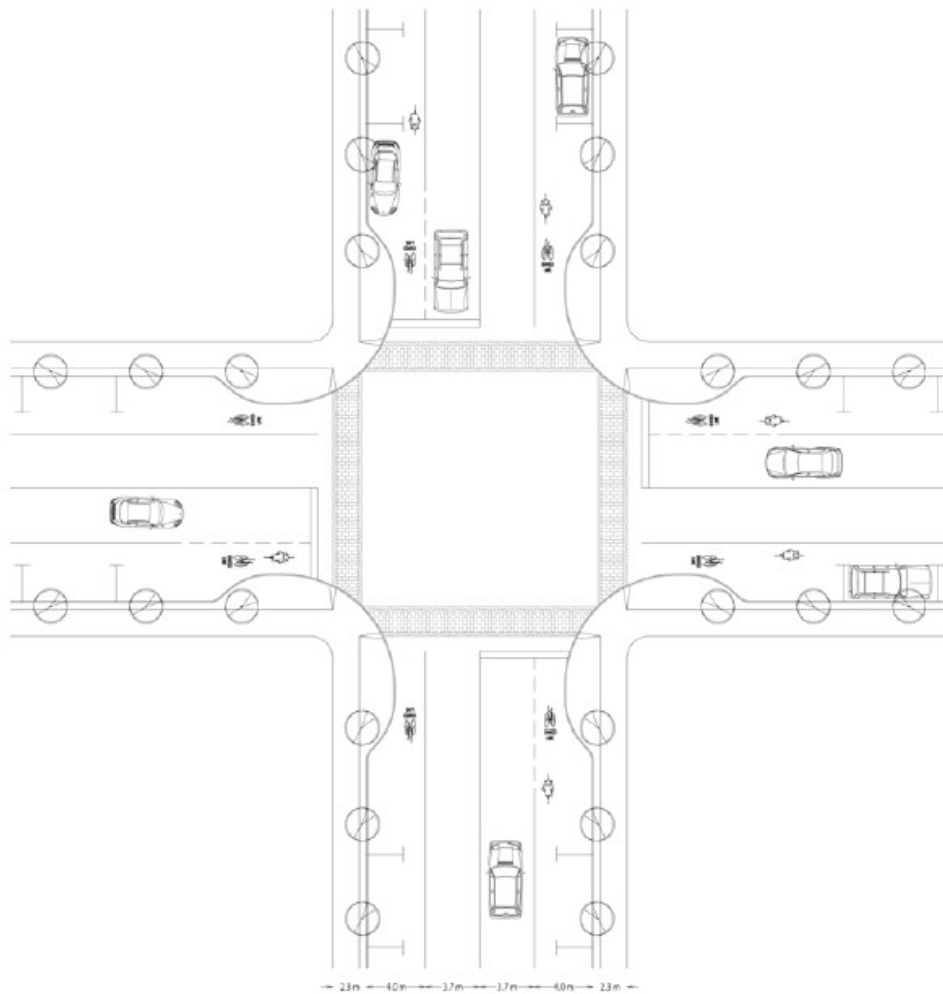
### 7.3.3 Street Intersections

#### Typical low to moderate volume Intersection

The key active transportation elements in this intersection include highly visible textured crosswalks, painted bike lanes near intersections (10 m), bike awareness

signage, wide accessible textured curb cuts for the mobility challenged and visually impaired, and bulbosed curbs to reduce crossing distance at the intersection.

**Figure 22: Example of a typical low to moderate volume intersection**



**High Volume Intersection – Bike Boxes**

“Bike Boxes” are an effective tool for moving bicycles through high volume intersections. Bike boxes should be used with bike signals. TAC provides examples and standards for bike signal indications<sup>18</sup>. This approach, although best practice, has one key challenge associated with right turn movements on a red creating conflict with cyclist. The following figures illustrate options for “bike box” intersections for the City of Saint John, and show a design solution to address right hand vehicle movements with bike boxes.

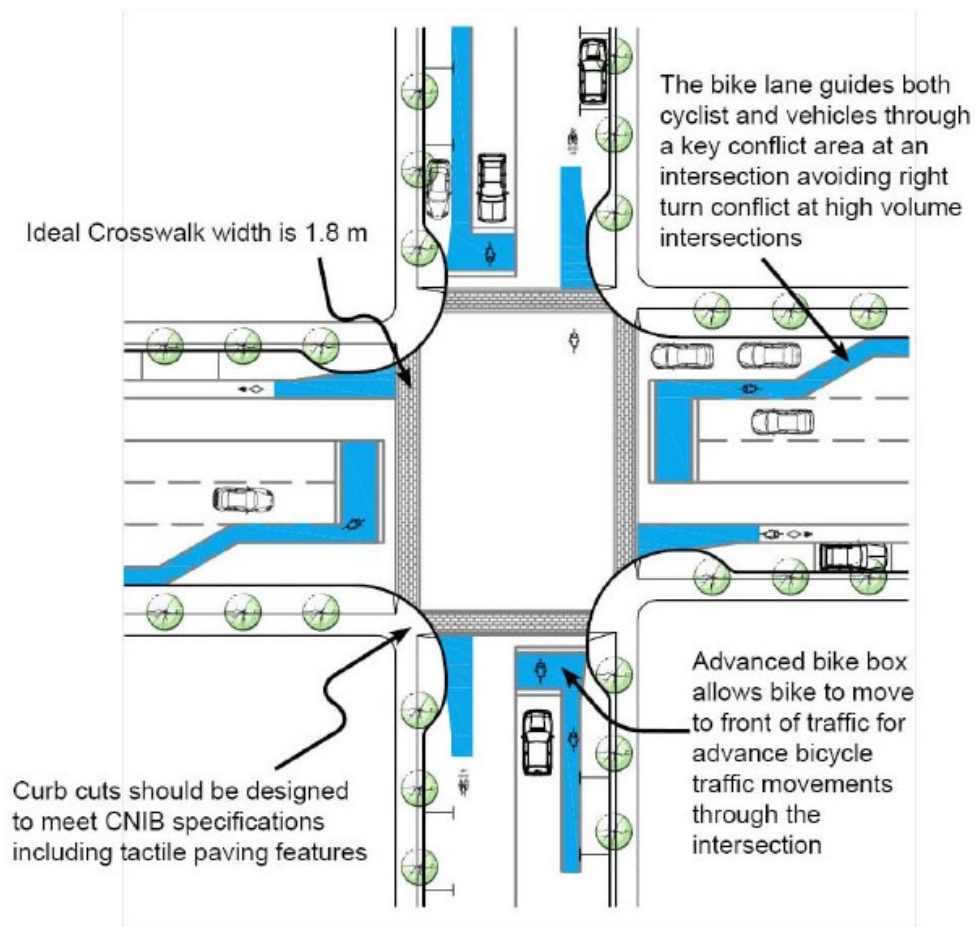
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<sup>18</sup> Transportation Association of Canada (2008) Manual of Uniform Traffic Control Devices for Canada. Available from: [www.tac-atc.ca](http://www.tac-atc.ca)



Figure 23: Example of a typical High Volume Intersection with Bike Boxes



**Figure 24: Example of a bike box with cyclist controlled signals**



## 7.4 Signage

### 7.4.1 Trail Signage

Trail and wayfinding signage should be used to create a cohesive “branding” and look to the trails and bikeways network. Mapping is also important to promote increased knowledge and use of this infrastructure. Trail signage is essential to link local trail systems to the greater trails and bikeway network.

#### Trailhead Information Sign/ Kiosk / You Are Here signs

Trailhead signage/kiosk should be used at the main access points to all local trail systems and parks. These stationary maps should provide information about the entire system as well as location and directional information about the local trail. The kiosks can be used as bulletin boards for community events associated with a bikeway and trail system. These are typically used to provide location and directional information.

**Figure 25: Example of kiosk signage**



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**Access signs**

Access signs are used to identify access point to local trail systems and to demark an entrance to a trail or bike route. These are used at secondary access points and can include information about the trail system rules.

**Figure 26: Example of trailhead access signs**



**Mileage markers/ Identification signs (trail logos)**

The markers, as with the access signs, should be designed to reflect the entire City of Saint John trails and bikeways network. These markers are used along a route to provide wayfinding for trail/route users. The signs should clearly identify the route and distance postings. The example from Winnipeg below provides an example of effective well-designed markers.

**Figure 27: Example of mileage markers and trail identification signage**



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### Interpretive signs

Interpretative signs are used for educational purposes along trails and routes. The interpretative signs can be tied directly to the route mapping and can aid in wayfinding. The development of interpretive signage provides an opportunity for partnerships with local trail system or naturalist groups.

**Figure 28: Example of Interpretive signage areas**



### 7.4.2 Bike Signage

Bike lanes are a major component of the proposed trails and bikeway network; as such it is important that signage and lane markings are incorporated into the long-term active transportation network development. Effective signage and lane marking can be achieved through standard road sign and pavement marking. TAC provides standards and examples of signage and lane markings for bike routes<sup>19</sup>.

**Figure 29: Examples of effective TAC standard bike signage**



### 7.5 Lighting

Pedestrian lighting is very important for safety and extending the time of use of trails and bikeways infrastructure. Pedestrian lighting differs from traffic lighting in that it provides direct illumination for pedestrians to:

- Clearly distinguish the edges and intersections of the trail or sidewalk and any potential obstacles or hazards
- Highlight crosswalks
- Minimize shadows and illuminate areas adjacent to the travel way
- Safety and perceived safety

<sup>19</sup> Transportation Association of Canada (1998) Bikeway and Traffic Control Guidelines for Canada. Available from: [www.tac-atc.ca](http://www.tac-atc.ca)



Pedestrian scaled, pole-mounted lighting, bollard lighting, or other low, glare-controlled fixtures mounted on building or landscape walls should be used to light pedestrian walkways. Bollard-type lighting should be no more than 1.2 metres high, with pole-mounted lighting at 4.5 metres or less. Pedestrian areas should be illuminated to an 8.6 average maintained lux level. The spacing of light standards should be determined by the site characteristics such as ambient light levels and walkway obstacles.



## **8 Bottlenecks and Conflict Areas**

There are several key bottlenecks throughout the proposed trails and bikeways network. This study has completed an initial assessment of these areas, however detailed study and design is required to develop a solution for trails and bikeways integration in these areas. It should be noted that solutions for Rothesay Avenue, Marco Polo Bridge and Reversing Falls Bridge are essential for the implementation of the citywide trails and bikeways plan.

### **8.1 Rothesay Avenue**

Rothesay Avenue is the ideal location for the East/West citywide corridor. This route would provide access to the network from the east side of Saint John, as well as provide the ideal linkage to the Rothesay Road area. The topography and nature of the area lends itself to an effective active transportation corridor. For Rothesay Avenue to work as an active transportation corridor, the roadway would need to be reduced to a 3-lane cross-section. A detailed traffic impact study is required to review the potential traffic implications.

### **8.2 Marco Polo Bridge – East/West Connection to Rothesay Avenue**

The Marco Polo Bridge is a major barrier to east- west bicycle movements. Cyclists need to get from Harbour Passage (near the skateboard park) to East Saint John. The main bottleneck occurs where City Road, Thorne Avenue and Rothesay Avenue all come together.

Cyclists have been observed taking the unofficial route adjacent to the Railway to access Forrest Street. Currently, the route is partially paved however it is pocked with potholes. This area has the potential for an alternative to bridge modifications in the area.

### **8.3 Reversing Falls Bridge**

The Reversing Falls Bridge creates the greatest barrier between the west side and the Uptown area. Due to right-of-way restrictions, it is proposed to designate the existing sidewalks as multi-use trails to allow for both pedestrian and bicycle traffic to cross the bridge. Further study needs to be completed to develop a solution to get bicycle and pedestrian traffic onto Douglas Avenue. These modifications should be part of the Fall View Park Master Plan.

### **8.4 Courtenay Bay**

The greatest issue with the Causeway is traffic speeds. There is adequate room for bicycles. The causeway should be furthered studied for strategies to slow traffic and to integrate separated bike lanes by creating raised bike lanes areas on both sides of the Causeway.

### **8.5 Main Street Viaduct**

The Main Street Viaduct is a long-term proposed route into the Uptown Core. The current 6-lane cross-section does not seem to be required considering the volume of traffic. A proposed solution for this area would be to reduce the Viaduct to a 4-lane cross section, utilizing the additional space to develop a greenway corridor into the Uptown core, and linking the North and West sides of the City with the Uptown area. This would allow for multi-use trails and a linear greenway for the City of Saint John.

## 9 Costing and Prioritization

The trails and bikeways strategic plan has identified 29 Citywide Corridor segments, 14 Community Route segments, and 50 Neighbourhood Route segments. The cost estimates (see appendix) outline the estimated probable cost of construction for: 1) bike lane and signage and intersection upgrades, and; 2) full plan implementation costs, which includes sidewalk and trail construction. The prioritization of segments is based on a citywide connectivity approach to the trails and bikeways plan development. Also, it is recommended that a "low hanging fruit" approach be taken to the trails and bikeways plan with the short term goal (5 –10 years) of installing the low cost bikeways infrastructure for the Citywide corridors, the medium term goal (11 – 15 years) for completing the bikeways for the Community routes, and long term goal (16 – 20 years) of completing the neighbourhood bike infrastructure. Best practice suggest that sidewalks on both sides of the street is ideal for pedestrian use, however; it is recommended that the bike lane only solution be implemented with the additional sidewalks solution applied as funds become available for pedestrian infrastructure upgrades. This is a 25-year vision for the City's trails and bikeways.

The following priority projects are to act as demonstration projects for the trails and bikeway networks. The prioritized projects are only a guide to the plan implementation. As funds become available for particular projects or road construction or improvements are proposed the trails and bikeways plan implementation should piggyback with the projects for construction and cost efficiency. It should also be noted, as stated in Section 7, there are several bottlenecks and conflict areas, which will require further detailed study and design. The estimates of probably construction costs are capital construction costs and do not include maintenance or engineering costs. (A breakdown of the estimates of probable cost of construction can be found in Appendix D)

### **Priority 1: Connect North-end to Uptown - Initial Construction (segments 8A to 15A and 16A -18 A)**

Estimate of probable construction cost:  
 Bike lane: \$60,000 (bike lanes and signage only)  
 Intersection upgrade costs: \$400,000  
 Total: \$460,000

The first project should be used as a demonstration project to illustrate the need, and use for active transportation infrastructure in the City. This citywide spine will connect the university and hospital with Uptown and the associated neighbourhoods in this area. This corridor has existing sidewalks on either both or one side for the entire corridor. There are four intersections that may need upgrades to integrate bike boxes due to traffic volumes. These intersections are University and Milledgeville, Somerset and Churchill, Adelaide and Main, and Main and Douglas.

### **Priority 2: Connect Manawagonish to Douglas (1A – 7A)\***

Estimate of probable construction cost:  
 Bike lane: \$60,000 (bike lanes and signage only)  
 Intersection upgrade costs: \$100,000  
 Total: \$160,000

The Manawagonish to Douglas section will link West Side Saint John to the Uptown core. This will connect a key residential area to the Uptown core and to the university/hospital citywide corridor. There is one intersection that may need integrated bike boxes at Main Street and Manawagonish.

**Priority 3: Rothesay Avenue (27A – 28 A)\***

Estimate of probable construction cost:

Bike lane: \$700,000 (paved shoulders, bike lanes, signage only)

Intersection upgrade costs: \$400,000

Total: \$1,100,000

Rothesay Avenue is the final segment of the main citywide spine. These segments have been identified as a bottleneck/conflict area that will require further study. It is expected that the one-mile interchange will divert some traffic from the area possibly making it more bike route friendly. Four intersections have been identified that will likely require integrated bike box infrastructure. These include City and Haymarket Square, Rothesay and Thorne, Rothesay and Russell, and Rothesay and Macallister.

**Priority 4: Loch Lomond (20A – 26 A)**

Estimate of probable construction cost:

Bike lane: \$415,582.02 (paved shoulders, bike lanes and signage only)

Intersection upgrade costs: \$400,000

Total: \$816,000

The Loch Lomond corridor will provide access to the existing residential neighbourhoods and connect this predominantly residential area to the Uptown core. There are two key intersections, which may require bike box upgrades, Commerce and Loch Lomond and Macallister and Loch Lomond

**Priority 5: Rockwood Connector (19A)**

Estimate of probable construction cost:

Bike lane: \$10,000 (bike lanes and signage only)

Rockwood Park is the primary outdoor recreational destination in Saint John. This segment will create a direct connection between connect Rockwood Park and the Uptown area and provide a key corridor to capture the neighborhoods in the area.

**Estimates of probable construction cost assumptions:**

The following assumptions were made when costing the 5 prioritized projects:

- No allowance for inspection and replacement of existing underground infrastructure prior to construction
- Estimates are based on the intersection, trail and road standards identified in this report
- Maintenance costs
- Existing ROW widths from aerial photography
- Existing ROW width adequate for desired cross-section
- Existing traveled way centered in ROW
- No land acquisition required
- Tree planting frequency 10m each side for trails
- Bike Lane marker every 50m both sides
- Bike box upgrades do not require full intersection construction, price assumes traffic signal heads c/w signal modules (bulbs with bicycle symbol) and associated wiring/mounting equipment, upgraded traffic controllers (c/w items such as surge protection) cabinet and new underground wiring conduits if sufficient space is not available in existing

(see Appendix D: Estimate of Probable Cost of Construction Assumptions for a list of



project specific assumptions)

## 10 Recommendations

Studies illustrate that in North America a city can expect up to 4% of the population to bike and approximately 10 % of the population to walk for commuting, transportation, and recreational purposes. It is also shown that to have an active city, a municipality requires three key active mobility strategy elements:

- Policies and provisions,
- Education, and
- Advocacy<sup>20</sup>.

The following recommendations outline key tasks to achieve an effective trails and bikeways plan for the City.

### 10.1 System Connectivity and Planning

#### **Recommendation 1: Complete comprehensive local trail Master Plans**

The City of Saint John covers a large geographic area, and within this area there are numerous local trail systems. The number and location of systems are too many to inventory in the scope of this study. However, these systems are an essential recreation destination and many contribute to the greater connectivity of the City. A key finding of this study is the importance of these systems in the context of neighbourhood active living. It is recommended that primary local trail system destinations be furthered studied to develop a comprehensive inventory and master plan. Some key local trail destinations are:

- Rockwood Park
- Little River Reservoir
- Shamrock Park
- Blueberry Hill
- Seaside Park
- Dominion Park
- Mispic Park
- Tucker Park
- Irving Nature Park

#### **Recommendation 2: University/Hospital**

The university and the hospital are one of the largest single concentrations of employment in Saint John. The location of the University and Hospital has forced many of the students and employees to drive. It is recommended that a trail/corridor be located to link the proposed University Avenue Community route north to the hospital and university, also creating a link to the north-end of Rockwood Park. A potential connection could be off the end of Royal Parkway.

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<sup>20</sup> Alliance for Biking and Walking (2010) Bicycling and Walking in the United States, 2010: Benchmarking Report. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)



**Recommendation 3: Foster partnerships to develop Marsh Line trail**

The proposed Marsh Line trail has been identified as a citywide corridor. This solution is a long-term project. This corridor would provide an essential off road spine to the entire Trails and Bikeways network providing key access to residential and commercial areas while providing an excellent off road system for all levels of network user. The City should actively work with local landowners and trail groups to establish the Marsh Line trail as the spine for the eastern portion of the Trails and Bikeways network.

**10.2 Administration**

**Recommendation 4: Establish a recreation and active transportation advisory committee**

An advisory committee will allow key stakeholders to come together to make decisions regarding the network. We recommend Saint John Transit, Parking Commission, Recreation and Leisure Services, Planning, Active Transportation Saint John and Municipal Operations and Engineering become the basis for this advisory committee. This advisory group could also include walking and running clubs, birding, hiking groups, kayak and water sports groups, as well as winter sports groups.

**Recommendation 5: Designate a single point for the administration of the implementation of trails and bikeways corridors and programs.**

A single point of management and administration is required to work with and liaise with traffic, planning, and recreation departments<sup>21</sup>. This person should be a key member for the active transportation and recreation advisory committee. In many municipalities this position is typically housed with either the traffic department or recreation department. The position oversees the implementation and development of the active mobility infrastructure for the municipality.

**10.3 Funding**

**Recommendation 6: Integrate Trail and Bikeways implementation and development into municipal capital budget**

The City of Saint John has a system of disconnected and discontinuous trail and bikeway infrastructure. The existing infrastructure is well used however; the future operation, maintenance, and expansion of the system is highly dependent on future municipal investment.

<sup>21</sup> Alliance for Biking and Walking (2010) *Bicycling and Walking in the United States, 2010: Benchmarking Report*. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)

#### 10.4 Policy Considerations

##### **Recommendation 7: Integrate active transportation and recreation into the Municipal Development Plan process**

The existing Municipal Development Plan for the City of Saint John has two key sections that should include active recreation and transportation. The Transportation section of the Municipal Development Plan should recognize active modes of transportation as key elements to the overall transportation system and corridor requirements. Also, the Land Use section should integrate the need for recreational and active transportation corridors through lands for public purposes.

These changes should be reflected in the Subdivision By-law, municipal specifications and Zoning By-law. The Subdivision By-law should list active transportation and recreation corridors as an option for park dedication requirements. In addition, bike-parking requirements for new developments should be added to the zoning by-law. These changes should be addressed during the current Municipal Development Plan review process.

##### **Recommendation 8: Land for Public Purposes park dedication for linear infrastructure such as trails**

The City of Saint John should allow through their municipal plan review, the dedication of park space as required under the Community Planning Act, for linear parks, trails and greenways in new development. This should be at the discretion of the development officers, to allow the municipality to link parts of the city through parkways and off-street trail systems.

##### **Recommendation 9: Integrate Fused-grid/connectivity requirements into Subdivision By-law**

Pedestrian connectivity is essential for community character, to promote less car use and support active living. We recommend the integration of fused-grid, or some similar connectivity requirements into the Subdivision By-law for new developments in Saint John. These connectivity requirements should be utilized to minimize pedestrian dead ends and calm vehicle traffic on residential streets.

##### **Recommendation 10: Add Bike lane infringements to the Traffic By-law**

We recommend adding a clause to the Traffic By-law to restrict parking and stopping within a delineated bike lanes or pedestrian corridors to enable policing of these infringements. Active transportation, bicycles and bike lanes also need to be added to the definitions of this by-law.

##### **Recommendation 11: Review of the Skateboarding By-law**

Skateboarding has been seen as a nuisance in many cities, however it has become a key mode of transportation for many of the youth of today. This by-law should be reviewed to enable skateboarders to utilize the active transportation infrastructure provided along streets.

#### 10.5 Network Development

##### **Recommendation 12: Integrate the Trails and Bikeways network with Transit**

The existing transit system in Saint John provides excellent support for the proposed trails and bikeways network. Most people will only walk 500 meters to a destination. By integrating the network with transit it will promote more walking and less traffic.



In addition, the existing bike racks on the buses allows for cyclist to commute long distances using both cycling and transit, again reducing single-occupancy vehicles. The City and Transit should work together to integrate these systems and provide for “bike and ride” infrastructure at many of the “park and ride” facilities that already exist.

**Recommendation 13: Implementation of the Bike Parking Plan for Uptown Saint John:**

Uptown Saint John is a primary destination in the City of Saint John. The Bike Parking Plan for the Uptown of Saint John, completed by Hardy Stevenson and Associates Ltd. in 2009, provides a high profile starting point for the promotion and integration of bicycles into the transportation system in Saint John. The study states that the probable costs of construction to implement both phases of this plan are ~ \$60,000 – \$92,000. This will provide a combination of 180 bike parking spaces and bike lockers in Uptown Saint John.

**Recommendation 14: Piggyback Trails and Bikeways corridor development with planned infrastructure projects**

To reduce the cost of this plan, any proposed infrastructure work should integrate the Trails and Bikeways guidelines for sidewalk, trail and bike lane development into their construction. The proposed active transportation and recreation committee should work closely with the Municipal Traffic, Municipal Ops. & Eng. and the Provincial government to incorporate trail and bike infrastructure on construction projects throughout the City. These pedestrian and bike components should meet the guidelines outlined in the Trails and Bikeways plan.

**Recommendation 15: Public Washrooms**

Public washrooms are lacking in most communities in Canada. We did not identify one public washroom along the entire Trails and Bikeways network during our assessment. Although not essential for accessibility, safety, connectivity or aesthetics, public washrooms provide for a more effective and user-friendly network. The City of Saint John should incorporate public washrooms into the overall fabric of the Trails and Bikeway network.

**10.6 Community Education**

**Recommendation 16: Education Campaign**

The Trails and Bikeways Plan must be supported with an education campaign. The campaign should begin with the release of the plan and build on this momentum. The education campaign should be developed in concert with the mapping and wayfinding strategy to create a cohesive “brand” to the Trails and Bikeways network in the City.<sup>22</sup>

Future education campaigns should continue to work with local organizations, schools, community centres and other safety courses to provide education on trails and bikeways infrastructure access and how to properly utilize the infrastructure. This education should include specific target “how to ride” programs to teach proper cycling etiquette and safety for on street riding.

**Recommendation 17: Provide mapping and wayfinding**

It was clear during the consultation process that Saint John has a significant inventory of local trails and active living opportunities, however, there is no one source of information on these resources. Providing information on active mobility requires a branding strategy that integrates wayfinding and signage, hardcopy route and

22 Alliance for Biking and Walking (2010) Bicycling and Walking in the United States, 2010: Benchmarking Report. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)



destinations maps, and on-line interactive maps. The maps should illustrate how residents and tourists can find and use both the active transportation and active living resources of the City. In addition, one should be able to download the maps onto a PDA or other personal device.

## 10.7 Operations and Maintenance

### **Recommendation 18: Cycling Infrastructure Maintenance and Cleaning**

Year round maintenance was identified as the main obstacle to use of bike lanes within the City. During the public consultation it was highlighted that bike lanes were not kept clear of debris during the normal biking season (late April – October). The issue of debris in bike lanes was also said to obscure lane markers and force cyclists into vehicle traffic to avoid debris. Regular cleaning of bicycle lanes is required to promote use of the active transportation infrastructure<sup>23,24</sup>.

### **Recommendation 19: Winter Maintenance**

Winter maintenance is a major barrier to the use of the Trails and Bikeways network. The existing Winter Services Management Plan is comprehensive and covers the majority of the proposed urban routes and corridors. It is recommended that the proposed routes and corridors in residential areas with schools, medical centres or community facilities should be serviced first. Citywide corridors should be serviced next, to open key pedestrian transportation, followed by Community routes and then Neighbourhood routes.

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<sup>23</sup> Alliance for Biking and Walking (2010) *Bicycling and Walking in the United States, 2010: Benchmarking Report*. Available from: [www.peoplepoweredmovement.org](http://www.peoplepoweredmovement.org)

<sup>24</sup> US Department of Transportation (2003) *Bikability Check List*. Available from: <http://www.epa.gov/dced/scorecards/bikabilitychecklist.pdf>

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