ACTIVE TRANSPORTATION PLAN

ORILLIA
INCORPORATED 1867




Final

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MMM GROUP

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EXECUTIVE SUMMARY

The City of Orillia has developed a comprehensive Active Transportation Plan to guide the City over the next 15+ years in implementing a city-wide active transportation network. The AT Plan also includes design guidelines as well as supporting policies and programs to encourage walking and cycling. The City initiated this study in September, 2010 and established a study team, led by the Planning and Development Department, which consulted with residents and stakeholders over the course of the study.

The City of Orillia has developed a comprehensive Active Transportation Plan to guide the City over the next 15+ years in implementing a city-wide active transportation network.

Vision & Objectives

An active transportation plan should be guided by a defined vision and objectives. The following vision for Orillia's AT Plan was prepared in the initial stage of the study and confirmed through the public and stakeholder consultation process.

A Vision for Active Transportation

"The City of Orillia is a pedestrian and cycling supportive community that encourages safe, active transportation for both utilitarian and recreational travel through:

- *Ensuring where feasible and appropriate, that streets accommodate pedestrians and cyclists;*
- *Establishing promotional and educational policies and programs in partnership with City employees and key stakeholders throughout the community; and*
- *Implementing a City-wide visible and connected active transportation and recreation network of on and off-road facilities designed with safety and connectivity in mind that are comfortable, convenient and accommodate the needs of existing and future users."*

The Study Process

MMM Group Limited was retained by the City to assist staff in the development of a comprehensive AT Plan to identify links and extensions of existing trails, as well as new connections throughout the City. The AT Plan is also designed to identify priorities for network implementation and appropriate levels of funding for operations and maintenance. The AT study approach included the following three main phases:

The AT Plan is also designed to identify priorities for network implementation and appropriate levels of funding for operations and maintenance.

Phase 1: Background Analysis – The first phase in the study included the assessment of background information with a focus on compiling and analyzing information related to active transportation. The first phase also identified the purpose and approach for the study, as well as a consultation and communication strategy; highlighted some of the benefits to walking, cycling and active transportation; and examined innovative and best practices in pedestrian and cycling facility design from across North America and internationally. Phase 1 included a Bike Rally and consultation session in September, 2010.

Phase 2: Inventory Analysis and Network Development – Based on the technical assessments and background information review conducted in Phase 1, an inventory of potential trails, bike lanes, and routes was developed in Phase 2. The first Public Information Centre

was held during Phase 2. This phase also included the confirmation of candidate routes, field investigation and identification of a hierarchy of routes and facility types. This phase concluded with a draft Active Transportation Plan.

Phase 3: Implementation Plan – The final phase of the AT Plan study involved preparing a draft implementation plan and confirming the route hierarchy. Design, maintenance, operational and educational guidelines were prepared during Phase 3. This phase concluded with a second Public Information Centre, finalizing the Active Transportation Plan, and presenting the AT Plan to Council.

The Role of Consultation

A communication and consultation strategy was developed at the outset of the Active Transportation Plan study in order to provide a framework for engaging stakeholders and members of the public. The strategy included an online survey, two mobile displays, participation at a bike rally, active involvement with a Steering Committee, two half-day stakeholder workshops, a day-long Active Transportation and Health workshop sponsored by the Simcoe Muskoka District Health Unit and the City of Orillia, and two Public Information Centres (PICs).

A communication and consultation strategy was developed at the outset of the Active Transportation Plan study in order to provide a framework for engaging stakeholders and members of the public.

SUMMARY OF INPUT

As a result of consultation, a number of key messages were identified:

- Active transportation in Orillia should include both recreational and utilitarian networks;
- The Active Transportation Plan should include recommendations to support a more connected and integrated system of on and off-road pedestrian and cycling facilities;
- Safety and maintenance should be key considerations when identifying improvements; and
- Walking, cycling and other active transportation modes can provide significant environmental, health and economic benefits and improve the quality of life of all Orillia residents.

HOW WE INCORPORATED YOUR COMMENTS

Public and stakeholder consultation was instrumental in the development of the AT Plan. Written comments, input provided through the online survey, and suggestions that participants added to the draft route maps at the PICs, all contributed to the decision making process that has led to the development of the Orillia Active Transportation Plan.

THE NETWORK DEVELOPMENT APPROACH

A series of steps were used to establish the recommended active transportation network and associated facility types, and to suggest a phased implementation strategy and cost estimate for the Orillia Active Transportation Plan. The active transportation network development approach included the following steps:

1. Collect and Assemble Background Information - The network development process began with the consolidation and digital mapping of all previously planned active transportation facilities (pedestrian and cycling) in the City of Orillia. These included both on and off-road facilities provided by the municipal representatives on the Steering Committee.
2. Review Consolidated Base Mapping with Steering Committee - Base mapping was reviewed with the Steering Committee with the goal of clearly understanding current conditions as well as any previously approved plans in place for facilities (including facilities within the road-right of way as well as those outside of the road right-of-way).
3. Develop Route Selection Principles - A set of qualitative principles was developed to guide the selection of routes for consideration at the Candidate Routes level. These principles were reviewed and revised with the Steering Committee throughout the study as necessary. Note that these principles should also be referred to in the future when changes to the route network are being contemplated, and again as part of the preliminary design stage to ensure that the route still satisfies these principles.

A series of steps were used to establish the recommended active transportation network and associated facility types, and to suggest a phased implementation strategy and cost estimate for the Orillia Active Transportation Plan.

4. Prepare Candidate Route Mapping using the following inputs -
    - Consolidated base mapping
    - Route selection principles
    - Consultation with the Steering Committee
    - Expertise of the Study Team
    - Desktop analysis using Simcoe County's High Resolution Aerial Imagery, aerial imagery and streetview images (where available) in Google Earth
5. Direct input to the proposed network and route selection principles – Municipal staff were consulted and input was provided by the Steering Committee. In addition, input was received from the public at the first Public Information Centre held in December and through responses from an online questionnaire.
6. Field Review and assess Candidate Routes – Once developed, the candidate routes identified for the AT Plan were reviewed and assessed in the field by the study team. The field investigation steps included:
    - Travel and collect information for each candidate route (ground-proof in the field): and
    - Apply the route selection criteria, information collected in the field combined with the technical expertise of the study team, plus input from the Steering Committee and the public.
7. Accept or reject each candidate route based on Step 6 and map the recommended route network.
8. Suggest an appropriate Facility Type – For each accepted route based on the results of Steps 1 through 7 and consideration of a number factors including:
    - Location/Setting (urban area vs. rural area, within road right-of-way vs. outside of road right-of-way - e.g. in a park or utility corridor);
    - Facility Type Noted in any Relevant Environmental Assessment (where applicable);
    - Planned Facility Types; provided by local municipal representatives on the Steering Committee (where applicable);
    - Current Road Cross Sections;

- Curbed vs. shoulder and ditch;
- Permitted on-street parking vs. prohibition of on-street parking;
- Single lane in each direction vs. multiple lanes in each direction. For example in urban areas where there may be a 4 or 5 five lane roadway with a wide enough curb lane and a posted speed of 50 km/h, a signed route with Sharrow lane markings would be viewed as a suitable facility type, allowing for cyclists to share the lane with vehicles and for vehicles to appreciate the anticipated travel patterns of cyclists on the roadway;
- Current lane widths - in particular those locations where other data collected suggested that a bicycle lane would be preferred and that field observations revealed the potential to add bicycle lanes through simply repainting lane markings. It should be noted that in areas where there is a wide enough curb lane for vehicles and cyclists to share, the preference would be to recommend a higher order facility such as a standard on buffered bike lane (1.5 m bike lane and 0.5 m buffer). However, where the recommended minimum of 1.5 m for a designated bike lane is not available a lower order facility type such as a signed route with or without shared lane markings and signage should be considered.
- Current Character of the Corridor;
- Land uses along corridor/type of destinations along the route or nearby the route);
- Distance from key destinations not directly on proposed corridor;
- Number of road intersections and/or private entrances along corridor;
- Facility type that is being connected to (where they currently exist/where applicable);
- Current Traffic Characteristics;
- Traffic volume (where data is available and was provided);
- Commercial vehicle / heavy vehicle / transit vehicle percentage (where data is available and was provided);
- Posted speed limit;
- Operating speed and speed differential between cyclists and motor vehicles;

- Field observations;
- Right-of-way width;
- Distance to nearest proposed route; and
- Technical expertise of the study team.
- The observations by the study team were then balanced by comments received from the City and the Steering Committee, as well comments received from the public and local stakeholders.

9. Review the Suggested Facility Types with the Steering Committee – Input regarding the draft candidate routes as well as the proposed AT related recommendations from the City were gathered through direct discussions with the Steering Committee. The public and local stakeholders were able to provide their comments on the proposed network through a second Public Information Centre in May, 2011. Results from the online questionnaire were also revisited during this stage of the study.
10. Implementation/Phasing Plan – The implementation and phasing plan for the Orillia AT network was developed to guide the short, medium and long-term development of the proposed routes and facilities throughout the City. In addition, policies and recommendations were developed to guide the future development and implementation of active transportation facilities. Further detail on the implementation and phasing plan for the City can be found in Chapter 6 of the report.
11. Direct Input on the Draft AT Network and Plan Recommendations – Input regarding the draft candidate routes as well as the proposed AT related recommendations for the City were gathered through direct discussion with the Steering Committee. The public and local stakeholders were able to provide their comments on the proposed network through the second public information centre. Results from the online questionnaire were also used during this stage of the study.

The proposed active transportation network is a key outcome of this study, and consists of both on and off-road active transportation facilities.

The Plan has been designed to be flexible in order to adapt to constraints, opportunities and Council decisions and funding priorities.

Implementation

The Plan has been designed to be flexible in order to adapt to constraints, opportunities and Council decisions and funding priorities. Phase 1 projects, pending Councils approval, are recommended to be implemented in the first five years. The phased implementation plan proposed in the AT Plan is intended to be a guideline for City staff and Council to consider when scheduling and budgeting annual active transportation and trails related projects.

The plan proposes three phases for implementation:

1. Short-term (Phase 1: 0-5 years);
2. Mid-term (Phase 2: 6-10 years); and
3. Long-term (11 - 15 + years).

Table EX-1 identifies the proposed 15+year Implementation Plan by facility type and implementation phase, and **Figure EX-1** illustrates the draft route network and facility types.

The Active Transportation Plan includes a set of proposed actions for the active transportation network and implementation. The proposed actions relate to City practices, policies, by-laws and initiatives relevant to walking and cycling in Orillia. **Table EX-2** lists the proposed actions included in the AT Plan and outlines the implementation schedule for each action, as well as associated network and program costs for the long term Implementation Plan.

The phased implementation plan proposed in the AT Plan is intended to be a guideline for City staff and Council to consider when scheduling and budgeting annual active transportation and trails related projects.

MEASURES OF SUCCESS

Implementation of the Active Transportation Plan is expected to begin in 2012. It is recommended that the City implement the active transportation network infrastructure plan on an annual basis in accordance with the proposed phasing and available capital funding, as directed by Council.

Collecting data to evaluate the different and changing aspects of pedestrian and cyclist behaviour will assist in evaluating the effectiveness and overall contribution of various activities to achieve the stated vision and goals of the AT Plan.

Next Steps

There are a number of recommended steps that the City of Orillia should take in 2011 to advance the AT Plan, including announcing completion of the AT Plan study, distributing copies of the final report to partners and other agencies, and beginning network implementation.

The Orillia Active Transportation Plan presented in this report is the product of the hard work and effort of many people. On behalf of the study team, members of the public and all those who contributed to this Plan, it is hoped that the Active Transportation Plan provides the City and its partners with the tools and guidance necessary to improve conditions for walking and cycling in Orillia.

Table EX-1 - 15+ Year Implementation Cost Summary

Component	Facility[1,2]	Short Term (0-5 Years)	Mid Term (6-10 Years)	Long Term (11 15+ Years)	Total
AT Network	Multi Use Trail[3]	$ 2,281,950	$ 1,715,900	$ 1,907,600	**$ 5,905,450**
	Bike Lane[4]	$ 654,115	$ 440,000	$ 801,800	**$ 1,895,915**
	Paved Shoulder	$ 165,517	$ -	$ 501,347	**$ 666,864**
	Signed Route	$ 44,990	$ 19,880	$ 3,190	**$ 68,060**
AT Related Structures	Bridge - Hwy 12 at Hwy 11	$ -	$ -	$ -	**$ 1,396,443**
	Bridge - Atherley Narrows	$ -	$ -	$ -	**$ 1,040,130**
Operations and Support Costs	Outreach	$ 125,000	$ 125,000	$ 125,000	**$ 375,000**
	TOTAL	**$ 3,271,572**	**$ 2,300,780**	**$ 3,338,937**	**$ 11,347,862**

Notes:

1 - For on-road routes the length indicated assumes facilities on both sides of the road. For example 1.0 Km of roadway will have a Bike Lane on both sides of the roadway.

2 - Future roads, where known, were taken into consideration when developing the network.

3- $250,000 is the cost attributed for Boulevard Multi-Use Trails per Km, $150,000 is the cost for Multi-Use Trails through Parks and Open Space per Km.

4- $200,000 is the cost attributed for a new bike lane as part of a road re-construction per Km, $12,000 is the cost of repainting/signing projects per Km.

5- Costs for the implementation of network facilities within City rights-of-way and on City-owned lands will be assumed by the City of Orillia. Costs for the implementation of network facilities within Provincial and County rights-of-way will be subject to future partnership negotiations between the City and County/Province on a route by route basis.

CITY OF ORILLIA
ACTIVE TRANSPORTATION PLAN
FIGURE EX -1 - DRAFT AT ROUTE NETWORK AND FACILITY TYPES

LEGEND

- Existing Multi-Use Trail (Soft Surface)
- Existing Multi-Use Trail (Hard Surface)
- Existing Bike Lane
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Existing Parks and Open Space Trails
- Potential/Existing Connections to Adjacent Municipality
- Publicly Accessible Parking Lots
- Parks
- Local Road
- Major Road
- Highway

TOWNSHIP OF SEVERN

LAKE COUCHICHING

LAKE SIMCOE

TOWNSHIP OF ORO-MEDONTE

A Plot-Size version of the DRAFT AT Route Network is provided in the back of the draft report in the back page insert.

N W E S

0 375 750 1,500 Metres

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	RECOMMENDED ACTIONS	IMPLEMENTATION SCHEDULE			SUGGESTED INVESTMENT
	✓ Implementation Phase → Continued in this Phase	PHASE 1	PHASE 2	PHASE 3	
	Section 4 The Proposed Active Transportation Network				
4-1	Adopt the Active Transportation Plan including the route selection principles.	✓			Existing Resources
4-2	Implement the active transportation network generally consistent with the route alignments and facility types proposed in the Active Transportation Plan.	✓	→	→	Future $
4-3	Recognize that the proposed active transportation network will change over time by adding missing links and opportunities offered by unopened road allowance, hydro rights-of-way, open green space and future roadway improvements.	✓	→		Existing Resources
	Section 5 – Design Guidelines				
5-1	Apply prevailing recognized and best available guidelines and standards in the planning, design, construction, maintenance and operations of active transportation facilities.	→	→	→	Existing Resources
5-2	Refer to the suggested guidelines set out in the Orillia AT Plan, TAC Bikeway Traffic Control Guideline and the MTO Bikeway Planning and Design Guidelines when implementing the AT Plan.	→	→	→	Existing Resources
	Section 6 – Implementation Strategy				
6-1	The City should adopt in principle the 15+ year active transportation network implementation plan identified in the AT Plan and amend schedule E in the City's Official Plan (when next updated) to align with the AT Route network in this Plan.	✓	→		Existing Resources
6-2	The City's Planning and Development Department should coordinate active transportation network implementation with the City's Parks and Recreation capital programs, as well as the capital works program for Simcoe County.	✓	→	→	Existing Resources
6-3	The City should create an Active Transportation Advisory Committee. It is proposed that this AT Committee include at least one member of Council, City staff, interested residents and other stakeholders as determined by the City.	✓	→	→	$5,000 / year
6-4	The City should initially assign the responsibility of "Active Transportation Coordinator" to an existing staff position. This staff member should be responsible for the "championing" of AT related issues, initiatives and programming throughout the City. It may be necessary in the future to consider adding and additional staff position to assist in this staff role.	✓	→	→	$5,000 / year
6-5	The "Active Transportation Coordinator" should be responsible for the implementation and follow-up of the AT Plan at the City level and provide updates on the progress of the study when necessary to Council on annual basis.	✓	→	→	Existing Resources
6-6	The AT Coordinator and AT Advisory Committee should review the proposed five-step process tool as a means of guiding the implementation of active transportation facilities in the City of Orillia and adapt it as necessary.	✓	→	→	Existing Resources
6-7	The AT Coordinator and City staff should consult with Simcoe County to ensure that the proposed active transportation network is contiguous with any pedestrian and cycling facilities outlined in County Plans.	✓	→	→	Existing Resources
6-8	The AT Plan should be reviewed and given consideration when addressing local municipal roads, and other capital infrastructure projects that are identified and scheduled within the City of Orillia.	✓	→	→	Existing Resources
6-9	That the City should recognize that adjustments to the proposed network plan in the AT Plan will occur from time to time and that this is consistent with a goal of ensuring the Plan is flexible and can respond to changes and new opportunities.	✓	→	→	Existing Resources
6-10	Work to encourage AT (pedestrian & cycling) friendly streetscaping, urban design and AT oriented land development in collaboration through planning and design studies and development reviews.	✓	→	→	Existing Resources
6-11	Explore land use planning initiatives and policy development such as mixed land use, higher density urban areas and pedestrian and cyclist friendly streetscapes to promote / facilitate an increased quality of life and liveability throughout the City of Orillia.	✓	→	→	Existing Resources
6-12	Continue to increase pedestrian and cycling connectivity to key destinations and develop continuous links to public transit and trails as well as shorter blocks.	✓	→	→	Existing Resources
6-13	The City should adopt a Pedestrian Charter to help facilitate and promote the development of a walkable and pedestrian friendly environment.	✓			Existing Resources
6-14	The City should promote the development of residential communities with mixed land uses including development in close proximity to schools and transit to decrease time spend travelling and increase the likelihood of walking and cycling to key destinations throughout the community.	✓	→	→	Existing Resources
6-15	The City should consider elements of active transportation planning when addressing land use planning and design considerations throughout the City. These could include the design of street, additional pedestrian and cycling routes, trail development and transit planning.	✓	→	→	Existing Resources

RECOMMENDED ACTIONS		IMPLEMENTATION SCHEDULE			SUGGESTED INVESTMENT
✓ Implementation Phase → Continued in this Phase		PHASE 1	PHASE 2	PHASE 3	
Section 7 - Recommended Actions and Next Steps					
7-1	Implement the Recommended Actions identified in the AT Plan as per the suggested schedule contingent on the available capital funding and Council authorization.	✓	→	→	Contingent on available Capital Funding
7-2	Develop and distribute newsletters and / or digital newsletters to promote and educate the public on AT opportunities, recommendations for routes and destinations and updates on available and safe routes. These initiatives are proposed to be undertaken as a combined effort by the Health Unit as well as the local area municipalities.	✓	→	→	Joint costs w/ Simcoe Muskoka Health Unit
7-3	Utilize educational programming and materials to promote and inform people of the benefits of AT on the health, environment, economy and tourism of Orillia. The coordination of these programs and materials will be coordinated and development by the Health Unit in collaboration with the local area municipalities.	✓	→	→	Joint costs w/ Simcoe Muskoka Health Unit
7-4	Work with the Safe Routes to School Program to develop an Active and Safe Routes to School program for Orillia.	✓			School Boards
7-5	The City and its partners should apply the principles of CBSM (Community-based Social Marketing) in their respective marketing and promotional efforts related to the AT Plan.	✓	→	→	TBD
7-6	A comprehensive approach should be put in place by the Health Unit and the City to encourage students and employees to walk or cycle to school or work, and to combine these modes with transit (where available) for longer distance trips.	✓	→	→	Joint costs w/ Simcoe Muskoka Health Unit

ACKNOWLEDGEMENTS

The City of Orillia Active Transportation Plan Team would like to express their appreciation to the following individuals that contributed to the development of this Plan, as well as the many other stakeholders and members of the public who through their input, contributed to the development of the Active Transportation Plan.

City of Orillia Study Team and AT Steering Committee

Jeff Duggan
Intermediate Planner
City of Orillia

Marcia Feddes
Manager of Parks
City of Orillia

Jill Lewis
Senior Planner
City of Orillia

Jack Green
Manager of Transportation
City of Orillia

Ian Sugden
Director of Planning and Development
City of Orillia

Michael Martyn
Manager of Programs/Cultural Development
City of Orillia

Lori Hunter
Public Health Nurse
Simcoe Muskoka District
Health Unit

Ann Kennett
Trails for Life Committee
City of Orillia

Chris Tomasini
Trails for Life Committee
City of Orillia

Murray Wood
Resident
City of Orillia

Consultant Study Team

Dave McLaughlin, MCIP, RPP,
Consultant Project Manager,
MMM Group Limited

Pam Foster, MCIP, RPP,
Senior Planner,
MMM Group Limited

Jay Cranstone, OALA, CSLA,
Senior Landscape Architect,
MMM Group Limited

Claire Basinski, B.ES,
Transportation Planner,
MMM Group Limited

Samuel Baptiste, BURPL,
Transportation Planner,
MMM Group Limited

1.0 INTRODUCTION

The City of Orillia is committed to developing and implementing an Active Transportation Plan that embodies a comprehensive strategy to promote and increase awareness of active transportation. The active transportation study proposes a set of policies and a detailed on- and off-road network that facilitates both recreational and utilitarian transportation, and increases connectivity within the City and to neighbouring townships.

The City of Orillia is committed to developing and implementing an Active Transportation Plan that embodies a comprehensive strategy to promote and increase awareness of active transportation.

1.1 WHAT IS AN ACTIVE TRANSPORTATION (AT) PLAN

The City of Orillia has developed a comprehensive Active Transportation Plan that builds upon, and supports and strengthens Orillia's existing trails and active transportation planning initiatives. The Orillia Active Transportation Plan (AT Plan) consists of a network of both on and off-road trails designed to connect the neighbourhoods of Orillia and promote active transportation and active recreation.

The City initiated this study in September 2010 under the direction of a study team of stakeholders led by the City's Planning and Development Department. The AT Plan focuses on non-motorized

modes of transportation (hiking, cycling, walking, etc.) throughout the City.

Active transportation as defined in the context of the AT Plan includes the following four components:

- **Active Commuting** - which involves journeys to and from work and school;
- **Active Workplace Travel** - which includes trips during working hours such as the delivery of materials or attending meetings;
- **Active Destination Oriented Trips** - which includes trips to and from shops, visiting friends and running errands; and,
- **Active Recreation** - which involves the use of an active transportation mode for fitness or recreational pursuits, such as hiking or cycling.

1.2 BENEFITS OF ACTIVE TRANSPORTATION

The Orillia Active Transportation Plan (AT Plan) consists of a network of both on and off-road trails designed to connect the neighbourhoods of Orillia and promote active transportation and active recreation.

There exists a clear body of evidence that walking and cycling provide significant health, transportation, environmental and economic benefits. Municipalities in Ontario and throughout North America are implementing initiatives to promote and encourage walking and cycling as feasible alternatives to the private automobile for short-distance trips and as a method of promoting a more active and healthy lifestyle.

1.2.1 Health and Fitness Benefits

Walking and cycling provide an enjoyable, convenient and affordable means of exercise and recreation. Research suggests the most effective fitness routines are moderate in intensity, individualized and incorporated into our daily activities.

In 2001, approximately $2.8 billion was spent on health care due to physical inactivity in Canada, which could be reduced by $280 million if physical activity was increased by 10%[1]. Our health system is

[1] Go for Green, The Business Case for Active Transportation: the Economic Benefits of Walking and Cycling, March 2004.

shifting from protecting people from hazards in the environment to developing healthy environments in which people can live. Evidence suggests that improved cycling and trail facilities lead to increased bicycle and trail use[2]. Increased physical activity such as walking and cycling could help to reduce the risk of coronary heart disease, premature death, high blood pressure, obesity, type 2 diabetes, depression and colon cancer. A more active population in the City of Orillia can reduce the cost of medical care, decrease workplace absenteeism, increase social cohesion, well-being and a sense of belonging for individuals within the community and maintain the independence of older adults.

Sedentary lifestyles have serious consequences for public health. The most visible is the sharp rise in obesity across Canada in recent years. Almost half of Canadians aged 12 and over report being physically inactive and 26% of youth between the age of 2 and 17 years old are overweight or obese (Statistics Canada, 2005). In Canada, the prevalence of obesity has more than doubled in the last 20 years (Katzmarzyk & Mason, 2006). Obesity is associated with serious health conditions, notably increased risks of diabetes and cardiovascular diseases. Physical inactivity contributes substantially to the global burden of disease, death and disability. Increasing walking and cycling, and reducing Canadians' reliance on cars, can increase physical activity levels, lower the risk of obesity, lower the risk of hospitalizations from asthma and address other health conditions such as heart disease, some cancers and type 2 diabetes caused by inactivity.

A more active population in the City of Orillia can reduce the cost of medical care, decrease workplace absenteeism, and maintain the independence of older adults.

Improving active transportation methods such as walking and cycling and reducing automobile traffic can help make communities more liveable by creating an environment that is pleasant and safe with reduced noise and pollution. This can help to encourage more social interaction within a neighbourhood and create a stronger sense of community. Active transportation modes can provide a form of mobility for people who do not have regular access to an automobile

[2] Bridging the Gaps: How the Quality and Quantity of a Connected Bikeway Network Correlates with Increasing Bicycle Use, July 27, 2005, Mia Burke and Roger Geller

and have limited transportation choices. Making strategic investments in both infrastructure and outreach to support walking and cycling in daily commuting habits, fitness and active recreation can help to promote a healthy and active lifestyle for Orillia residents and can have other valuable benefits.

1.2.2 Transportation Benefits

Walking and cycling are both popular recreational activities and a means of transportation that are efficient, affordable and accessible. They are the most energy efficient modes of transportation, and generate no pollution. The transportation benefits of walking and cycling include reduced road congestion and maintenance costs, less costly infrastructure, increased road safety and decreased user costs. For distances up to 10 km in urban areas, cycling can be the fastest of all modes from door to door.

Walking and cycling are both popular recreational activities and a means of transportation that are efficient, affordable and accessible. They are the most energy efficient modes of transportation, and generate no pollution.

Canadians make an average of 2,000 car trips per year over distances less than 3 km. Surveys show that 66% of Canadians would like to cycle more than they presently do. Seven in ten Canadians say they would cycle to work if there "were a dedicated lane which would take me to my workplace in less than 30 minutes at a comfortable pace"[3]. These facts clearly demonstrate the potential for increasing the number of trips by bicycle. There is strong evidence that given complete networks of safe, high-quality cycling routes, a significant number of people will cycle. The value of such complete networks is demonstrated in many communities particularly Portland, Oregon, Davis, California and Boulder, Colorado. With between 10% and 20% of trips by bicycle, these communities have the highest levels of bicycle usage in North America. This high level of cycling is facilitated by mature networks, which include bike lanes on almost all of their arterial roads and extensive off-road commuter bicycle paths. Residents can simply get on their bicycles with confidence knowing there will always be a safe route to their destination (British Columbia Cycling Coalition Budget Submission, 2007).

[3] Ontario Trails Strategy, Ministry of Health Promotion, 2005, Province of Ontario

The addition of even a small volume of traffic to a congested road can create enormous delays for all users. In fact, at capacity conditions, increasing traffic by 5% can reduce speeds by up to 25%. Congestion costs in Ontario were estimated to be $6.4 billion annually and could grow by an additional $7 billion annually by 2021 without increased investment in alternative modes of transportation[4]. Shifting a little traffic off busy roads can create substantial time savings for individuals as well as for time-sensitive commercial vehicles.

Typical roadway funding requirements include maintenance costs, safety and enhancement costs plus the addition of roadway capacity through lane widening or additions. Furthermore, the costs for road construction, reconstruction and maintenance are usually paid for by road users through property and gas taxes.

A roadway can carry seven to 12 times as many people per lane per hour by bicycle compared to that of motor vehicles in urban areas operating at similar speeds. It is also much cheaper to provide paved shoulders on a road for cyclists than to provide two additional motor vehicle travel lanes. A small portion of a municipality's transportation budget can be used to facilitate high levels of bicycle use.

A roadway can carry seven to 12 times as many people per lane per hour by bicycle compared to that of motor vehicles in urban areas operating at similar speeds.

Another benefit of reduced car use is a decrease in the number of parking spaces required. For example, encouraging more people to walk and cycle to work could lead to a reduction in the number of parking spaces required at a place of employment. Bicycle parking facilities could be provided in an existing surface or underground parking lot with no additional parking lot expansion required.

1.2.3 Environmental Benefits

Walking and cycling are energy-efficient, non-polluting modes of travel. Short distance motor vehicle trips are the least fuel efficient and generate the most pollution per kilometre. These trips have the greatest potential of being replaced by walking or cycling trips and integrated walking-transit and cycling-transit trips.

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[4] Transportation Demand Management Strategy, City of Ottawa – TravelWise (Transportation, Utilities and Public Works), April, 2003

Reducing the number of motor vehicles on the road decreases the number of pollutants that are emitted into the atmosphere by motor vehicles. Motor vehicles, roads and parking facilities are major sources of water pollution and hydrologic disruptions due to such factors as road de-icing, air pollution settlement, roadside herbicides, road construction along shorelines, and increased impervious surfaces. Motor vehicles generate various types of unwanted noise that cause disturbance and discomfort to residents. This includes engine acceleration, tire/road contact, braking, horns and vehicle theft alarms. Bicycles are not disruptive to communities from a noise perspective. Automobile dependent communities require more land for road rights-of-way and parking than communities that are not as reliant on the automobile. Making communities less auto-dependent by providing infrastructure for alternative transportation modes, such as walking, cycling and public transit, can reduce the amount of land required to construct new communities, thus creating more compact subdivisions that make more efficient use of available land. Given the important role that cycling plays in reducing emissions of air pollutants and greenhouse gases, and fostering good health directly, it is important to create bicycle connectivity that has the potential to create a desirable cycling environment. A literature and best practices review suggests that the number of beginner or infrequent cyclists increases when:

Short distance motor vehicle trips are the least fuel efficient and generate the most pollution per kilometre. These trips have the greatest potential of being replaced by walking or cycling trips and integrated walking-transit and cycling-transit trips.

- Neighbourhoods and communities accommodate a cycling network that includes bike lanes and off-road cycling or multi-use trails;
- Roads with speeds over 60km/h have separated lanes or wider paved shoulders that are part of the road, not sidewalk, infrastructure;
- Roads with speeds between 50-60 km/h have marked bicycle lanes;
- Roads with speeds under 40 km/h are shared;
- Priority is given to cyclists in intersections;
- Residents have access to trip end facilities such as secure long-term bicycle parking (e.g. lockers), secure short-term bicycle parking (e.g. bicycle racks), and showers in commercial buildings; and

- All streets, roadways, and designated bike routes are maintained to be free of deterrents to bicycling (such as potholes, debris, and overgrown landscaping).

1.2.4 Economic Benefits

A study published by Go for Green in March of 2004 establishes a convincing Business Case for Active Transportation in the report entitled "The Economic Benefits of Walking and Cycling"[5]. These benefits include a reduction in:

- Road construction, repair and maintenance costs;
- Costs due to air pollutants and greenhouse gas emissions;
- Health care costs due to increased physical activity and reduced respiratory and cardiac disease;
- Fuel, repair and maintenance costs to users;
- Costs due to increased road safety;
- External costs due to traffic congestion;
- Parking subsidies;
- Costs due to air pollution; and
- Costs due to water pollution.

Benefits also include:

- The positive economic impact of bicycle tourism;
- The positive economic impact of bicycle sales and manufacturing;
- Increased property values along greenways and trails and in pedestrian and cycling friendly neighbourhoods; and
- Increased productivity and a reduction of sick days and injuries in the workplace.

There is ample evidence to show that on and off-road AT facilitation provide significant economic benefits for adjacent landowners and local businesses. Trails provide benefits to the local economy during both construction and operation. Trail construction results in direct benefits such as jobs, including the supply and installation of

There is ample evidence to show that on and off-road AT facilitation provide significant economic benefits for adjacent landowners and local businesses.

[5] The Business Case for Active Transportation, Go for Green, Better Environmentally Sound Transportation – BEST, March 2004

materials. Following construction, benefits emerge in the form of expenditures by trail users.

A few examples include:

- The Adanac Bikeway in Vancouver was completed in 1993 and bicycle volumes increased 225% during the period from 1992 to 1996;
- Trails in New Brunswick employ around 1,500 people for an average of six months per year;
- 70% of Bruce Trail users cite the trail as the main reason for visiting the area, and they spend an average of about $20 per user per visit within a 10 km corridor on either side of the trail;
- In 2002, Quebec hosted 190,000 bicycle tourists who spent an average of $112 per day and an average of 6.5 nights compared to $52 per day and an average of 3.1 nights spent by other tourists;
- In Ontario, the Eastern Ontario Trails Alliance estimated that at the end of a ten year build-out period, 320 km of their system, constructed at a cost of $5.4 million, will generate approximately $36 million in annual economic benefits in the communities through which it passes, and create/sustain over 1,100 jobs; and
- The “National Human Powered Mobility Network” in Switzerland, comprised of nine national cycling routes totaling 4,500 km has an estimated annual economic benefit of $130 million from spending on food and lodging, with 4,500 tours and 24,000 room nights accounted for in 2008[6].

There is ample evidence to show that on and off-road AT facilitation provide significant economic benefits for adjacent landowners and local businesses.

On and off-road active transportation systems can be travel destinations in themselves, encouraging visitors to extend their stay in the area or enhancing business and pleasure visits. By increasing a tourist’s stay every additional night’s lodging and meals, results in a direct new benefit to local businesses. A 1997 survey of Canadian tourists active in the outdoors showed that 30% of Ontario tourists cycled on at least one occasion while on vacation. The Ontario Ministry of Transportation reported that touring cyclists spend an average of $130 per day in Ontario, and bicycle retail and tourist

[6] Ontario Cycle Tourism Forum (January 23, 2009), Toronto, Ontario. Notes by Rob Romanuk, Region of Niagara Bike Committee

industry contributes to a minimum of $150 million a year to the Ontario economy. Bed and breakfast operators between Ottawa and Kingston report that the majority of their business is from touring cyclists. Cyclists in Vermont spend an average of $180 U.S. per day, the same amount as someone traveling by car.

Over the last ten years, the concept of community trail networks and active transportation has been gaining popularity in part because the health, social, environmental, and economic benefits are so substantial. There is clear evidence that pedestrian and cycling friendly communities are more sustainable, liveable communities and encouraging people to walk and bike more often for both recreation and utilitarian purposes benefits almost every sector of society.

1.3 VISION & OBJECTIVES

An active transportation plan should be guided by a defined vision and objectives. The following vision for Orillia's AT Plan was prepared in the initial stage of the study and confirmed through the public and stakeholder consultation process.

A Vision for Active Transportation

"The City of Orillia is a pedestrian and cycling supportive community that encourages safe, active transportation for both utilitarian and recreational travel through:

- *Ensuring where feasible and appropriate, that streets accommodate pedestrians and cyclists;*
- *Establishing promotional and educational policies and programs in partnership with City employees and key stakeholders throughout the community; and*
- *Implementing a City-wide visible and connected active transportation and recreation network of on and off-road facilities designed with safety and connectivity in mind that are comfortable, convenient and accommodate the needs of existing and future users."*

On and off-road active transportation systems can be travel destinations in themselves, encouraging visitors to extend their stay in the area or enhancing business and pleasure visits. By increasing a tourist's stay every additional night's lodging and meals, results in a direct new benefit to local businesses.

Study Objectives

Key objectives of the Orillia Active Transportation Plan are to:

- Build upon, enhance and improve connections to existing and previously developed active transportation facilities, including connections to adjacent municipalities.
- Consult with the public and key stakeholders including partners and agencies that could have a role in the development, maintenance and promotion of walking and cycling in the city.
- Assess the current status of active transportation in Orillia.
- Examine current design standards and make recommendations for changes based on best practice research.
- Examine maintenance practices and develop recommendations to improve or enhance current city practices.
- Identify and recommend policies, strategies and programs that Orillia and its partners can support and implement to encourage more people to use the active transportation system more often, for recreation and transportation purposes.
- Examine the corporate planning and development process and policies, and make recommendations to ensure that active transportation is routinely considered in the process in an appropriate and timely manner.
- Develop an implementation strategy that will identify development costs and prioritize projects for construction.

1.4 THE STUDY PROCESS

The AT Plan was initiated in September 2010. MMM Group Limited was retained by the City to assist staff in the development of a comprehensive AT Plan to identify links and extensions of existing trails, as well as new connections throughout the City. The AT Plan is also designed to identify priorities for network implementation and appropriate levels of funding for operations and maintenance. The AT study approach included the following three main phases:

Phase 1: Background Analysis – The first phase in the study included the assessment of background information with a focus on compiling and analyzing information related to active transportation. The first phase also identified the purpose and approach for the study, as well as a consultation and communication strategy; highlighted

some of the benefits to walking, cycling and active transportation; and examined innovative and best practices in pedestrian and cycling facility design from across North America and internationally. Phase 1 included a Bike Rally and consultation session in September, 2010.

Phase 2: Inventory Analysis and Network Development – Based on the technical assessments and background information review conducted in Phase 1, an inventory of potential trails, bike lanes, and routes was developed in Phase 2. The first Public Information Centre was held during Phase 2. This phase also included the confirmation of candidate routes, field investigation and identification of a hierarchy or routes and facility types. This phase concluded with a draft Active Transportation Plan.

Phase 3: Implementation Plan – The final phase of the AT Plan study involved preparing a draft implementation plan and confirm the route hierarchy. Design, maintenance, operational and educational guidelines were prepared during Phase 3. This phased concluded with a second Public Information Centre, finalizing the Active Transportation Plan, and presenting the AT Plan to Council.

1.5 WHAT IS IN THE PLAN?

The Orillia AT Plan Report is comprised of seven sections. Sections 1.1 to 1.4 have outlined the definition and benefits to the community for active transportation, and provided a vision and set of goals for the AT Plan. Section 2 addresses the policy and planning context for active transportation in Orillia. Section 3 summarizes the public and stakeholder consultation activities. Section 4 presents the proposed active transportation network. Section 5 presents a series of design guidelines for the Orillia AT Plan. Section 6 addresses implementing the AT Plan and investing in active transportation. Section 7 outlines recommended active transportation policies, and concludes with how to measure success and next steps.

2.0 POLICY AND PLANNING CONTEXT FOR ACTIVE TRANSPORTATION IN ORILLIA

2.1 ORILLIA AND ITS EXISTING AT SYSTEM

Orillia is fortunate to have many existing scenic recreation trails - known as the Lightfoot Trail System.

Orillia is fortunate to have many existing scenic recreation trails - known as the Lightfoot Trail System. The Lightfoot Trail System includes Orillia's Millennium Trail, which is a 9.5 kilometre multi-use recreation trail along the waterfront. Orillia also boasts an extensive trail system in Scout Valley, which has many scenic recreational trails. The existing trail system provides a draw for tourists, and promotes a healthy lifestyle for local residents.

2.2 EXISTING POLICIES & INITIATIVES

This section identifies and discusses key federal, provincial and local policies that directly influence active transportation in Orillia. These existing policies provide an understanding of the current policy

framework and establish a base for the Orillia Active Transportation Plan to build upon.

2.2.1 Federal

Transport Canada released a report in 2005 titled "Strategies for Sustainable Transportation Planning: A Review of Practices and Options". The purpose of this report is to provide a foundation on which to build a set of guidelines for incorporating sustainable transportation principles into municipal transportation plans[6] . Some of these principles include the creation of policies related to walking and cycling that can be used to develop effective, implementable transportation plans that promote sustainable transportation on a federal level.

Some relevant strategies and policies are listed below:

Integration with Land Use Planning

- Encourage desirable land use form and design (e.g. compact, mixed-use, pedestrian/bike-friendly) through transportation plan policies.

Environmental Health

- Identify strategies to mitigate the air impacts of transportation activities;
- Identify strategies to mitigate the noise impacts of transportation activities;
- Identify ways that transportation systems influence the achievement of the community's economic and social objectives. Provide support in the plan's strategic directions;
- Recognize the importance of ensuring access to opportunity for disabled and low-income persons, recent immigrants, youth and the elderly. Set goals and objectives for reducing the need to travel, improving transit mobility, and preserving minimum levels of service on roadways. Identify related strategies;

[6] Strategies for Sustainable Transportation Planning: A Review of Practices and Options, Transport Canada, 2005.

- Address the transportation needs of persons with disabilities, notably with regard to public transit service and barrier-free design in public rights-of way;
- Recognize the public health impacts of transportation activity arising through road safety, pollution and physical activity levels. Identify effective strategies to strengthen positive impacts and lessen negative ones;
- Recognize the impact of transportation related death and injury on quality of life and the economy. Set goals and objectives for multimodal road safety; and
- Identify effective road safety strategies.

Modal Sustainability

- Identify strategies, policies, facilities and services to increase walking, cycling, other active transportation modes, transit, ridesharing and teleworking;
- Recognize synergies and tensions among different modes (e.g. potential for multimodal cycling-transit trips, potential for modal shift from transit to ridesharing). Address possible implications for transportation objectives; and
- Include objectives, strategies, policies, facilities and services to make transit operations more sustainable.

The publishing of this document and the recommended policies and strategies identified within it illustrate the federal initiatives currently being undertaken to develop national standards and practices to improve conditions for walking and cycling across Canada.

There are a wide range of provincial policies that influence active transportation in Orillia.

2.2.2 Provincial

There are a wide range of provincial policies that influence active transportation in Orillia. The following provides highlights of information on relevant provincial policies.

Bill 51 – Planning Reform

Bill 51 includes reforms to the Planning Act, which provides the legislative framework for land use planning in Ontario. Bill 51 includes changes to the planning process that are intended to support intensification, sustainable development and protection of green

space by giving municipalities greater powers, flexibility and tools to use land, resources and infrastructure more efficiently.

Bill 51 is in line with Ontario's recent policy shift towards sustainable land use development and planning. For instance, Bill 51 permits municipalities to require environmental sustainability design requirements for both individual buildings and entire neighbourhoods. It also adds sustainable development as a provincial interest in the Provincial Policy Statement.

Provincial Policy Statement

The Provincial Policy Statement (PPS) sets the foundation for regulating land use and development within the Province and supports Provincial goals. The PPS provides for appropriate development and protects resources of provincial interest. The vision of the land use planning system in PPS is that the "long-term prosperity and social well-being of Ontarians depend on maintaining strong communities, a clean healthy environment and a strong economy"[7] .

The PPS promotes transportation choices that facilitate pedestrian and cycling mobility and other modes of travel.

The PPS promotes transportation choices that facilitate pedestrian and cycling mobility and other modes of travel. The term "transportation systems" under the PPS means a system consisting of corridors and rights-of-way for the movement of people and goods and the associated transportation facilities, which include cycling lanes and park'n'ride lots. Policies pertaining to transportation, such as cycling, pedestrians and transit are dispersed throughout the PPS.

Municipal Act, 2001

The Municipal Act, 2001 gives municipalities a broad flexibility to deal with local circumstances, and to react quickly to local, economic, environmental or social changes. It recognizes municipalities as responsible, accountable governments with respect to matters within their jurisdiction. The Act provides policies relating to a municipality's

[7] Provincial Policy Statement, Ministry of Municipal Affairs and Housing, 2005.

jurisdiction over municipal highways and the maintenance of those highways, which has an impact on cycling.

Highway Traffic Act

Bicycles are recognized as a vehicle, as defined in the Highway Traffic Act (HTA). This means that bicycles can operate on public roadways with the same rights and responsibilities as motor vehicles. However, bicycles are not permitted on controlled access highways such as the 400 series highways and or any roadway designated by municipal bylaws.

The Highway Traffic Act contains a number of policies relating to bicycles, including bicycle lanes on municipal roadways, vehicles interacting with bicycles, bicycles being overtaken, and regulating or prohibiting bicycles on highways.

Accessibility for Ontarians with Disabilities Act, 2005

The Accessibility for Ontarians with Disabilities Act was passed on June 13, 2005 and is a provincially legislated policy which calls on the business community, public sector, not-for-profit sector and people with disabilities or their representatives to develop, implement and enforce mandatory standards.

This means that bicycles can operate on public roadways with the same rights and responsibilities as motor vehicles.

This policy makes Ontario the first jurisdiction in Canada to develop, implement and enforce accessibility standards and applies to both private and public sectors.

These accessibility standards are the rules that business in Ontario should follow to identify, remove and prevent barriers to accessibility. The first standard to come into effect is the Accessibility Standards for Customer Service, however, Ontario is developing additional standards in the following area: built environment, employment, information and communications and transportation.

Planning By Design – Healthy Communities

In 2009 the Ontario Ministry of Municipal Affairs and Housing, in conjunction with the Ontario Professional Planners Institute, developed the Planning by Design: A Healthy Communities Handbook

to promote sustainable development across the province. The handbook explores the connections between sustainable community building and health and the critical role that the built environment can play in shaping the health of individuals and communities throughout Canada. The handbook outlines ways in which the current state of the built environment is detrimental to individuals and communities, and details changes that can be made in order to see noticeable improvements. Promoting safe and healthy mobility throughout communities is paramount to improving the overall health of Canadians. Section 2 of this document outlines considerations that municipalities may choose to make to the physical landscape in order to reduce the occurrence of disease, injuries and fatalities, such as:

- Create streets, paths and trails that are well-connected, maintained and able to safely accommodate different modes of transportation;
- Produce neighbourhoods that are safe, accessible, aesthetically pleasing, well-serviced and inclusive; and
- Develop natural environments that are resilient, provide ecosystem services, support wildlife and their habitat and are better connected to where people live.

The Ontario Trails Strategy is a long-term plan that will establish a strategic direction for government and stakeholders on the planning, management, promotion and use of trails, toward a healthier and more prosperous Ontario.

The Ontario Trails Strategy (2005)

The Government of Ontario has developed the Ontario Trails Strategy in response to the popularity of trail activities and infrastructure, the desire of trail organizations for government leadership, the need to protect provincial investment in trails and the significant trail issues or challenges that confront the future of Ontario's trails. The Ontario Trails Strategy is a long-term plan that will establish a strategic direction for government and stakeholders on the planning, management, promotion and use of trails, toward a healthier and more prosperous Ontario. Developed in collaboration with other ministries and a wide range of stakeholders in the community, the strategy supports continued cooperation among governments and the not-for-profit and private sectors.

There are five strategic directions that comprise the Ontario Trails Strategy:

- Improving collaboration among stakeholders;
- Enhancing the sustainability of Ontario's trails;
- Enhancing the trail experience;
- Educating Ontarians about trails; and
- Fostering better health and a strong economy through trails.

A number of goals and strategies have also been identified to support each of the five strategic directions. The Ontario Trails Strategy recommends that trail organizations should develop common standards to guide the development and use of trails. This will help the trail system evolve to meet the particular needs of new users. Trail organizations also need more effective tools and better ways of distributing information to more Ontarians. As these challenges require coordination at all levels, the provincial government and the public, not-for-profit and private sectors will continue to collaborate on priorities, roles and responsibilities, timeframes, and methods to strengthen and enhance existing and future trails in Ontario.

Places to Grow – Simcoe Area: A Strategic Vision for Growth (June 2009)

The plan aims to promote dense, mixed-use communities that support public transit, walking and cycling as viable transportation options for people.

Due to the growing development pressures on communities in Simcoe County, the Government of Ontario has developed the Places to Grow – Simcoe Area: A Strategic Vision for Growth (2009) as a follow up document to the Growth Plan for the Greater Golden Horseshoe (2006). The plan aims to promote dense, mixed-use communities that support public transit, walking and cycling as viable transportation options for people. These mixed-use communities should have a traditional main street feel featuring inviting commercial centres that serve surrounding communities. If this built form is achieved, transportation demand will be lowered as more people will choose to leave the car at home in favour of taking public transit, walking or cycling to their destination. The plan directs future growth to communities where a reduced reliance on single occupant motor vehicle transportation demand is more achievable. New development will be less automobile oriented and more pedestrian friendly.

2.2.3 Local Policies

Official Plan

The City of Orillia Official Plan provides a planning framework for the development and enhancement of the City's active transportation network. The Plan envisions "safe, healthy, attractive and liveable communities" that promote health, environmental and social benefits. Efficient management of growth consisting of a compact built form, complete with multi-modal transportation networks will nurture a healthy, active population that takes advantage of an easily accessible network of active transportation facilities. The Official Plan lays out a number of policies related to the provision of a safe and user-friendly active transportation network. When designing all roads (except Highways), the City will take into account the safe movement of cyclists and pedestrians. In some cases, this may mean widening roadways to accommodate a wider variety of transit modes. During these processes, the City will "provide access for pedestrians, bicycles and vehicles, opportunities for vistas, view corridors and pedestrian amenity areas." Section 6.1.8 Bicycle and Pedestrian Traffic specifically speaks to the way in which trails should be designed, as well as the encouragement of an increase in cycling and pedestrian traffic, increased connectivity, the development of rail trails, linkages of parks and open spaces in the City, and the promotion of connectivity to the County of Simcoe and neighbouring municipalities. Section 6.1.8.1 (b)(vi) specifically notes that the city should develop an Active Transportation Plan.

The City of Orillia Official Plan provides a planning framework for the development and enhancement of the City's active transportation network.

Orillia Transportation Master Plan (2005)

The City of Orillia completed its Transportation Master Plan in 2005, with an update expected in 2011. The Plan is designed to manage transportation demand by accommodating all residents and their chosen mode of transportation while preserving the traditional character of the community. The Transportation Master Plan is supportive of policies that will relieve traffic congestion, and improve air quality – a sign of the City of Orillia's commitment to the overall public health of its residents. Inherent in this is the City's desire to reduce personal automobile use by replacing that demand with other

The Transportation Master Plan is supportive of policies that will relieve traffic congestion, and improve air quality – a sign of the City of Orillia's commitment to the overall public health of its residents.

modes of transportation, notably walking, cycling and mass transit. The Transportation Master Plan encourages the development of a public recreational trail system that facilitates linkages between parks, open space areas, multi-use trails/paths and adjacent municipalities.


You Are Here
ORILLIA
Port of Orillia
Orillia Downtown
300 m
Station Junction
600 m
Leacock Museum
1.7 km
Tudhope Park
2.0 km

3.0 WHAT YOU TOLD US

3.1 CONSULTATION PROCESS

A communication and consultation strategy was developed at the outset of the Active Transportation Plan study in order to provide a framework for engaging stakeholders and members of the public.

A communication and consultation strategy was developed at the outset of the Active Transportation Plan study in order to provide a framework for engaging stakeholders and members of the public. The strategy included an online survey, a mobile display, participation at a bike rally, active involvement with a steering committee, a day-long Active Transportation and Health workshop sponsored by the Simcoe Muskoka District Health Unit and the City of Orillia, and two Public Information Centres (PICs).

An effective public consultation strategy is a key element to the development of a meaningful active transportation plan. Actively engaging stakeholders and the public fosters an understanding and commitment to the project that is a vital element of a successful study. The communication and consultation strategy was developed with the following objectives:

- To engage residents and stakeholders regarding the purpose, approach and findings of the Active Transportation Plan;
- To encourage stakeholders to participate in the study process;
- To promote active transportation, particularly walking and cycling, for residents of all ages;
- To promote the benefits of combining active travel modes with public transit when commuting; and
- To encourage pedestrian and cycling friendly land development and reduce single occupant motor vehicle use.

The key audiences engaged through the consultation strategy were:

- The public;
- Citizens of Orillia and Simcoe County;
- Simcoe County;
- Townships of Oro-Medonte, Ramara and Severn;
- Orillia Trails for Life Committee;
- Other interest groups and stakeholders;
- Organized cycling and walking groups in the Orillia area;
- Simcoe Muskoka District Health Unit; and
- City of Orillia Council.

The Active Transportation Plan study team participated in Orillia's annual Bike Rally, which was held on September 22, 2010 at Couchiching Beach Park. The Bike Rally kicked-off the AT Plan, and provided a great opportunity to introduce the AT Plan to Orillia's cycling enthusiasts.

3.1.1 Bike Rally

The Active Transportation Plan study team participated in Orillia's annual Bike Rally, which was held on September 22, 2010 at Couchiching Beach Park. The Bike Rally kicked-off the AT Plan, and provided a great opportunity to introduce the AT Plan to Orillia's cycling enthusiasts.

3.1.2 Online Survey

As a part of the Active Transportation Plan, an online survey was developed and hosted using the service SurveyMonkey (www.surveymonkey.com). The survey was issued early on, and continued throughout the duration of the study. It was comprised of 10 questions on active transportation topics, including what survey participants like about existing pedestrian and cycling options in Orillia

and what they think could be improved. The survey was accessible from the Ciy's website.

This was a valuable tool for obtaining input on the locations and types of network facilities and improvements that should be considered as a part of an AT Plan for Orillia.

Although not statistically valid, the survey results provided the study team with important inputs to the study, including:

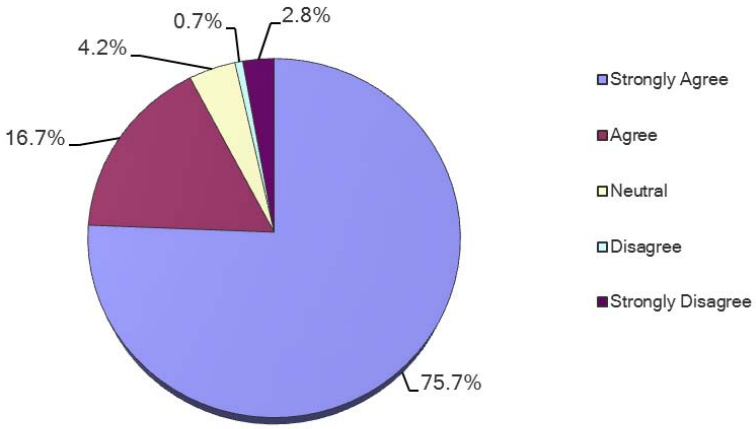
- Reasons why people walk and cycle;
- How people might be encouraged to walk and cycle more often; and
- Locations for new or better connected trails, sidewalks or on-road cycling facilities.

The final survey results are based on 145 respondents. All responses are summarized and presented in Appendix A. The following presents highlights of the survey findings.

Over 95% of survey respondents agreed that the City of Orillia should invest in improvements that provide opportunities for trail and active transportation use as illustrated in **Figure 3.1.**

As a part of the Active Transportation Plan, an online survey was developed and hosted using the service SurveyMonkey.

Figure 3.1 – Proportion of support for making investments for trail and active transportation in the City of Orillia.



Survey respondents were asked “How often do you use often the following for commuting, recreation, fitness, tourism, travel or other purposes.” **Figure 3.2** highlights the results of the respondents, some highlights include: approximately 50% of respondents cycle frequently (every day or a few times a week); 61% of respondents walk/jog frequently (every day or a few times a week); and 19% of respondents hike frequently (every day or a few times a week).

Figure 3.2 – Proportion and frequency of various AT activities.

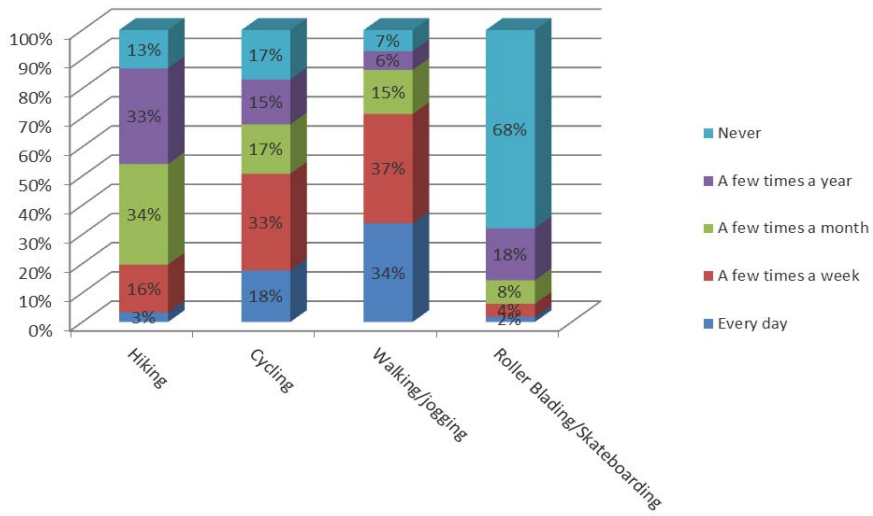
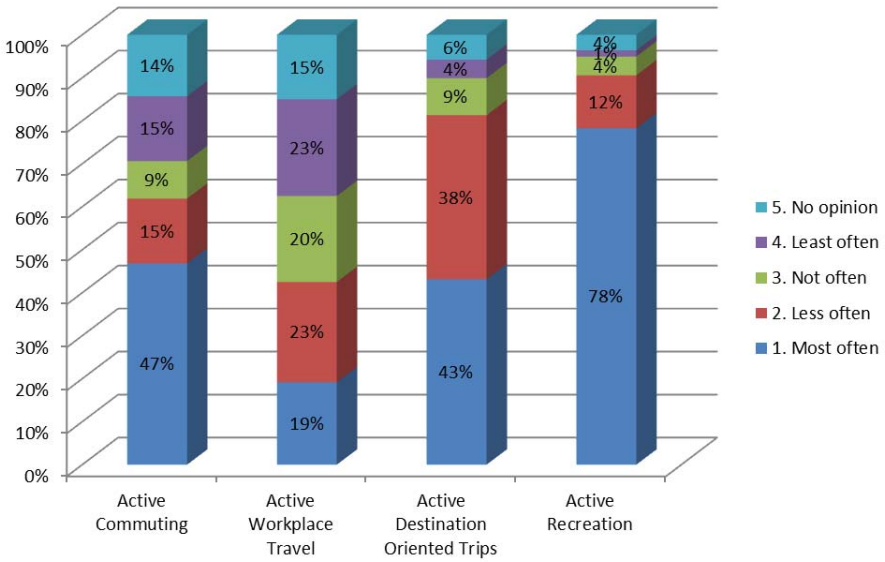


Figure 3.3 – Motivators for AT use in the City of Orillia



Recreation or fitness is a primary motivator for AT usage with 78% of respondents indicating that it motivates them at least sometimes to use the AT system. Furthermore, 47% and 43% of respondents are motivated to use the AT system for commuting to work and destination oriented trips, respectively. In contrast, trips for workplace travel during the work day are currently not strong motivators for AT usage within the City of Orillia as only 19% of respondents are strongly motivated. The comparison of responses is illustrated in **Figure 3-3.**

3.1.3 Public Information Centres

Two public information centres (PICs) were held during the course of the study. The first was held in December, 2010 at the Orillia Farmers' Market. This open house style PIC involved a series of display boards and a map with draft active transportation route options. The project team was on-hand to describe the project and answer any questions from the public. At the first Public Information Centre, participants were introduced to the Active Transportation Plan, and had a chance to review draft route selection principles, facility types and the draft candidate routes for Orillia's active transportation network. About 70 members of the public attended the first PIC and provided positive feedback and support for the AT Plan.

The second PIC was held May 28, 2011 at an outdoor street festival to present the draft Active Transportation Plan to the public. The PIC again included display boards, and a map of the draft active transportation plan network. The complete draft active transportation network was displayed for comment.

To further promote the AT Plan to the public, two 'mobile' display boards were prepared, containing project background and contact information. One of the two display boards remained at City Hall, and the other rotated to various locations throughout the community, including the Orillia Soldiers' Memorial Hospital, Barnfield Point Recreation Centre, Georgian College, and Lakehead University.

Recreation or fitness is a primary motivator for AT usage with 78% of respondents indicating that it motivates them at least sometimes to use the AT system.

3.1.4 Stakeholder Consultation

The goal of stakeholder consultation was to encourage input throughout the course of the AT Plan study. By involving stakeholders early on and throughout the study, they helped ensure the study remained in tune with Orillia's goals and objectives, confirmed the active transportation network options, and helped the study remain on-track.

Steering Committee

Stakeholder input was invited and encouraged throughout the duration of the study. A Steering Committee was established at the outset, and met during the first month of the study on September 22, 2010. The Steering Committee consisted of municipal staff from various departments, and representatives from community groups and local agencies. A second meeting was held November 26, 2010 to review draft network concepts and provide feedback on the draft vision and goals for the AT Plan.

Stakeholder Workshops

In December 2010, community stakeholders were invited to participate in one of two half-day sessions to discuss the progress of the AT Plan, and provide feedback on the draft route selection principles and draft proposed network. Workshop participants provided valuable feedback on the goals and objectives of the AT Plan, the route selection principles and the proposed active transportation routes and facility types.

By involving stakeholders early on and throughout the study, they helped ensure the study remained in tune with Orillia's goals and objectives, confirmed the active transportation network options, and helped the study remain on-track.

3.1.5 Active Transportation Workshop

On March 4, 2011 an Active Transportation Workshop for invited stakeholders was held in the Green Room at Orillia's Opera House. This initiative was jointly sponsored by the Simcoe Muskoka District Health Unit and the City of Orillia. The goal of the workshop was to discuss active transportation and related public health benefits, as well as provide input to the Active Transportation Plan Study. Twenty-three participants (plus workshop staff and presenters) participated in the day-long workshop. Dr. Chuck Gardner, Chief Medical Officer for

the Simcoe Muskoka District Health Unit, delivered a presentation on the important connection between public health and active transportation. Eleanor McMahon, President and Founder of Share the Road Cycling Coalition, delivered a presentation on active transportation policy in Ontario. Dave McLaughlin of MMM guided workshop participants on a 25 minute walking tour of the City's downtown. Participants were asked to consider what could be done to improve conditions for walking and cycling in Orillia.

A full summary of the Active Transportation Workshop can be found in Appendix B.

3.2 SUMMARY OF INPUT

As a result of consultation, a number of key messages were identified:

- Active transportation in Orillia should include both recreational and utilitarian networks;
- The Active Transportation Plan should include recommendations to support a more connected and integrated system of on and off-road pedestrian and cycling facilities;
- Safety and maintenance should be key considerations when identifying improvements; and
- Walking, cycling and other active transportation modes can provide significant environmental, health and economic benefits and improve the quality of life of all Orillia residents.

Public and stakeholder consultation was instrumental in the development of the AT Plan.

Over the course of the study, a Project Record was maintained which documents input received from various stakeholders and the public. The Project Record is provided as Appendix C.

3.3 HOW WE INCORPORATED YOUR COMMENTS

Public and stakeholder consultation was instrumental in the development of the AT Plan. Written comments, input provided through the online survey, and suggestions that participants added to the draft route maps at the PICs, all contributed to the decision making process that has led to the development of the Orillia Active Transportation Plan.

4.0 THE PROPOSED AT NETWORK

A key component of Orillia's Active Transportation Plan is a proposed network of existing and future on and off-road cycling and trail routes and facilities.

A key component of Orillia's Active Transportation Plan is a proposed network of existing and future on and off-road cycling and trail routes and facilities. This section documents the process that was undertaken in developing the recommended network, including the guiding principles for route selection and recommended facility types. This section should be read in conjunction with Chapter 6 – 'Implementing the Plan'.

The intent of Orillia's Active Transportation Plan is to build upon existing non-motorized cycling and recreational trails as well as work completed through other studies and initiatives. These include the City's Official Plan and the Transportation Master Plan, as well as the province's 'Strategic Vision for Growth in Simcoe County'. It is intended that the AT Plan will support, strengthen and provide a blueprint to guide existing and future active transportation initiatives and policies of the City. Part of this support includes recommendations for a comprehensive network of on-road and off-

road trails and active transportation corridors that provide increased connectivity throughout the City as well as to bordering townships.

As defined in Section 1, Active Transportation for the purpose of this Plan means non-motorized travel, and can be categorized as:

- **Active Commuting** - which involves journeys to and from work and school;
- **Active Workplace Travel** - which includes trips during working hours such as the delivery of materials or attending meetings;
- **Active Destination Oriented Trips** - which includes trips to and from shops, visiting friends and running errands; and
- **Active Recreation** - which involves the use of an active transportation mode for fitness or recreational pursuits, such as hiking or cycling.

Consideration was also given to the existing and designated snowmobile (motorized) trail network in the City of Orillia. That said, this AT Plan does not include recommendations for snowmobile network improvements as it is specifically focused on non-motorized forms of travel.

4.1 THE NETWORK DEVELOPMENT APPROACH

A series of steps were used to establish the recommended active transportation network and associated facility types, and to suggest a phased implementation strategy and cost estimate for the Orillia Active Transportation Plan.

A series of steps were used to establish the recommended active transportation network and associated facility types, and to suggest a phased implementation strategy and cost estimate for the Orillia Active Transportation Plan. The active transportation network development approach included the following steps:

1. **Collect and Assemble Background Information** - The network development process began with the consolidation and digital mapping of all previously planned active transportation facilities (pedestrian and cycling) in the City of Orillia. These included both on and off-road facilities provided by the municipal representatives on the Steering Committee.

2. **Review Consolidated Base Mapping with Steering Committee** - Base mapping was reviewed with the Steering Committee with the goal of clearly understanding current conditions as well as any previously approved plans in place for facilities (including facilities within the road-right of way as well as those outside of the road right-of-way).

3. **Develop Route Selection Principles** - A set of qualitative principles was developed to guide the selection of routes for consideration at the Candidate Routes level. These principles were reviewed and revised with the Steering Committee and revised as necessary. Note that these principles should also be referred to in the future when changes to the route network are being contemplated, and again as part of the preliminary design stage to ensure that the route still satisfies these principles.

4. **Prepare Candidate Route Mapping using the following inputs** -
   - Consolidated base mapping
   - Route selection principles
   - Consultation with the Steering Committee
   - Expertise of the Study Team
   - Desktop analysis using Simcoe County's High Resolution Aerial Imagery, aerial imagery and streetview images (where available) in Google Earth

5. **Direct input to the proposed network and route selection principles** – Municipal staff were consulted and input was provided by the Steering Committee. In addition, input was received from the public at the first Public Information Centre held in December and through responses from an online questionnaire (see Appendix A).

6. **Field Review and assess Candidate Routes** – Once developed, the candidate routes identified for the AT Plan were reviewed and assessed in the field by the study team.

The field investigation steps included:

- Travel and collect information for each candidate route (ground-proof in the field): and
- Apply the route selection criteria, information collected in the field combined with the technical expertise of the study team, plus input from the Steering Committee and the public.

7. **Accept or reject each candidate route based on Step 6 and map the recommended route network**.

8. **Suggest an appropriate Facility Type** – For each accepted route based on the results of Steps 1 through 7 and consideration of a number factors including:

- Location/Setting (urban area vs. rural area, within road right-of-way vs. outside of road right-of-way - e.g. in a park or utility corridor);
- Facility Type Noted in any Relevant Environmental Assessment (where applicable);
- Planned Facility Types; provided by local municipal representatives on the Steering Committee (where applicable);
- Current Road Cross Sections;
- Curbed vs. shoulder and ditch;
- Permitted on-street parking vs. prohibition of on-street parking;
- Single lane in each direction vs. multiple lanes in each direction. For example in urban areas where there may be a 4 or 5 five lane roadway with a wide enough curb lane and a posted speed of 50 km/h, a signed route with Sharrow lane markings would be viewed as a suitable facility type, allowing for cyclists to share the lane with vehicles and for vehicles to appreciate the anticipated travel patterns of cyclists on the roadway; and
- Current lane widths - in particular those locations where other data collected suggested that a bicycle lane would be preferred and that field observations revealed the potential to add bicycle lanes through simply repainting lane markings. It should be noted that in areas where there is a wide enough curb lane for vehicles and cyclists to share, the preference would be to recommend a higher

order facility such as a standard on buffered bike lane (1.5 m bike lane and 0.5 m buffer). However, where the recommended minimum of 1.5 m for a designated bike lane is not available a lower order facility type such as a signed route with or without shared lane markings and signage should be considered.

- Current Character of the Corridor;
- Land uses along corridor/type of destinations along the route or nearby the route)
- Distance from key destinations not directly on proposed corridor
- Number of road intersections and/or private entrances along corridor
- Facility type that is being connected to (where they currently exist/where applicable)
- Current Traffic Characteristics;
- Traffic volume (where data is available and was provided)
- Commercial vehicle / heavy vehicle / transit vehicle percentage (where data is available and was provided),
- Posted speed limit
- Operating speed and speed differential between cyclists and motor vehicles
- Field observations
- Right-of-way width;
- Distance to nearest proposed route; and
- Technical expertise of the study team.

The observations by the study team were then balanced by comments received from the City and the Steering Committee, as well comments received from the public and local stakeholders.

9. **Review the Suggested Facility Types with the Steering Committee** – Input regarding the draft candidate routes as well as the proposed AT related recommendations from the City were gathered through direct discussions with the Steering Committee. The public and local stakeholders were able to provide their comments on the proposed network through a second Public Information Centre in May, 2011.

Results from the online questionnaire were also revisited during this stage of the study.

10. **Implementation/Phasing Plan** – The implementation and phasing plan for the Orillia AT network was developed to guide the short, medium and long-term development of the proposed routes and facilities throughout the City. In addition, policies and recommendations were developed to guide the future development and implementation of active transportation facilities. Further detail on the implementation and phasing plan for the City can be found in Chapter 6 of the report.

11. **Direct Input on the Draft AT Network and Plan Recommendations** – Input regarding the draft candidate routes as well as the proposed AT related recommendations for the City were gathered through direct discussion with the Steering Committee. The public and local stakeholders were able to provide their comments on the proposed network through the second public information centre. Results from the online questionnaire were also used during this stage of the study.

The proposed active transportation network is a key outcome of this study, and consists of both on and off-road active transportation facilities.

The proposed active transportation network is a key outcome of this study, and consists of both on and off-road active transportation facilities. **Figure 4-1** Network Development Process, is an illustration of the network development process, as described above. The figure identifies the key steps of the study as well as ways in which potential routes were removed or determined.

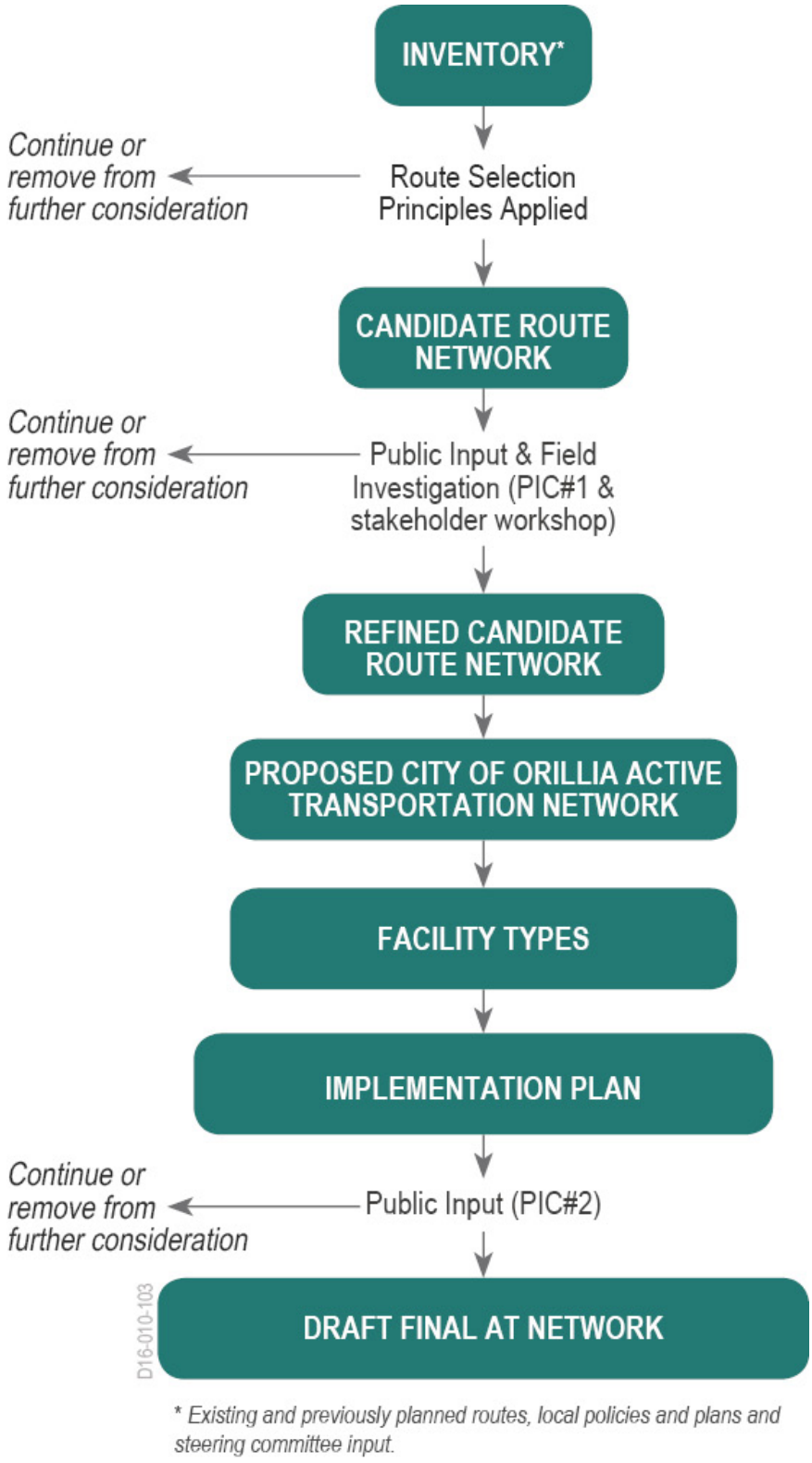


Figure 4-1 Network Development Process, is an illustration of the network development process, as described above.

Several of the identified steps in the network development approach are further addressed in the following sections.

4.2 INVENTORY OF EXISTING CONDITIONS

The first step in developing a successful AT network for the City of Orillia was to assemble background information. This required the consolidation of all available digital mapping, as well as previously proposed active transportation facilities.

A thorough policy review was conducted, as policy plays an important role in shaping existing conditions for the development of active transportation infrastructure. The City of Orillia Official Plan and the Ontario Trails Strategy are examples of policies that were consulted during this process.

The second step involved reviewing all assembled background information with the Steering Committee in order to gain an understanding of existing conditions and opportunities. Once both of these tasks were completed, a complete inventory of existing and proposed active transportation facilities was available to the study team.

The existing policies and active transportation systems served as the framework to build upon during the development of the Active Transportation Plan.

City staff provided the study team with a digital CAD database. Simcoe County provided a Geographic Information System (GIS) database, as well as digital ortho (aerial) photography of the City. The information provided included:

- Existing roads;
- Posted speed limits;
- Existing sidewalks and walkways;
- Points of interest and attractions (including recreational facilities and schools);
- Existing and proposed on-road cycling routes;
- Existing and proposed trails; and
- Parks and lakes.

The existing policies and active transportation systems served as the framework to build upon during the development of the Active Transportation Plan.

All the information available regarding existing or planned cycling and trail facilities was then consolidated and used to prepare inventory maps. These maps were reviewed in detail by the Steering Committee.

Major Destinations and Attractions

When developing the Active Transportation Plan, major active transportation and active recreation attractions and destinations in the City were identified with input from the Steering Committee and other stakeholders. These include major commercial and employment centres, educational institutions, municipal buildings and civic centres, as well as parks and trail areas, public lands, natural heritage areas and environmentally sensitive lands. Examples of some of the key existing and/or future attractions and destinations in the City of Orillia include:

- Orillia Opera House
- Orillia Soldiers Memorial Hospital
- Orillia Farmers Market
- Downtown Transit Terminal
- Lakehead University
- Georgian College
- Scout Valley
- New growth/development areas

When developing the Active Transportation Plan, major active transportation and active recreation attractions and destinations in the City were identified with input from the Steering Committee and other stakeholders.

Barriers

Another key element in assessing the existing conditions for the City of Orillia was the identification of real or perceived barriers that would interfere with a proposed Active Transportation network. A major barrier to walking and cycling in the City of Orillia is Highway 11, which divides the City in east and west sections. Highway 12 and the Highway 12 By-pass also present barriers to active transportation, as they do not provide for convenient walking and cycling.

There are priority projects listed in section 6.4.2, that have barriers to their completion and subsequent connection to entire AT network. Most notably the Highway 11 + Highway 12 bypass interchange, the Atherley Narrows Bridge and the Kitchener Park bridge.

Figure 4-2 shows the planning by-pass and multi-use trail to be developed at the Highway 11 and Highway 12 By-Pass interchange. A feasibility study should be undertaken to confirm the routing and preliminary design of the crossing. Figure 4-3 shows the Atherley Narrows Bridge. In 2008, a Feasibility Study Report was conducted by AECOM in regards to the development of a Pedestrian / Snowmobile bridge over the Atherley Narrows. Preliminary costing for both projects have been determined and these costs have been included in Table 6.1 in Chapter 6 as part of the AT Related Structures component of the AT Plan.

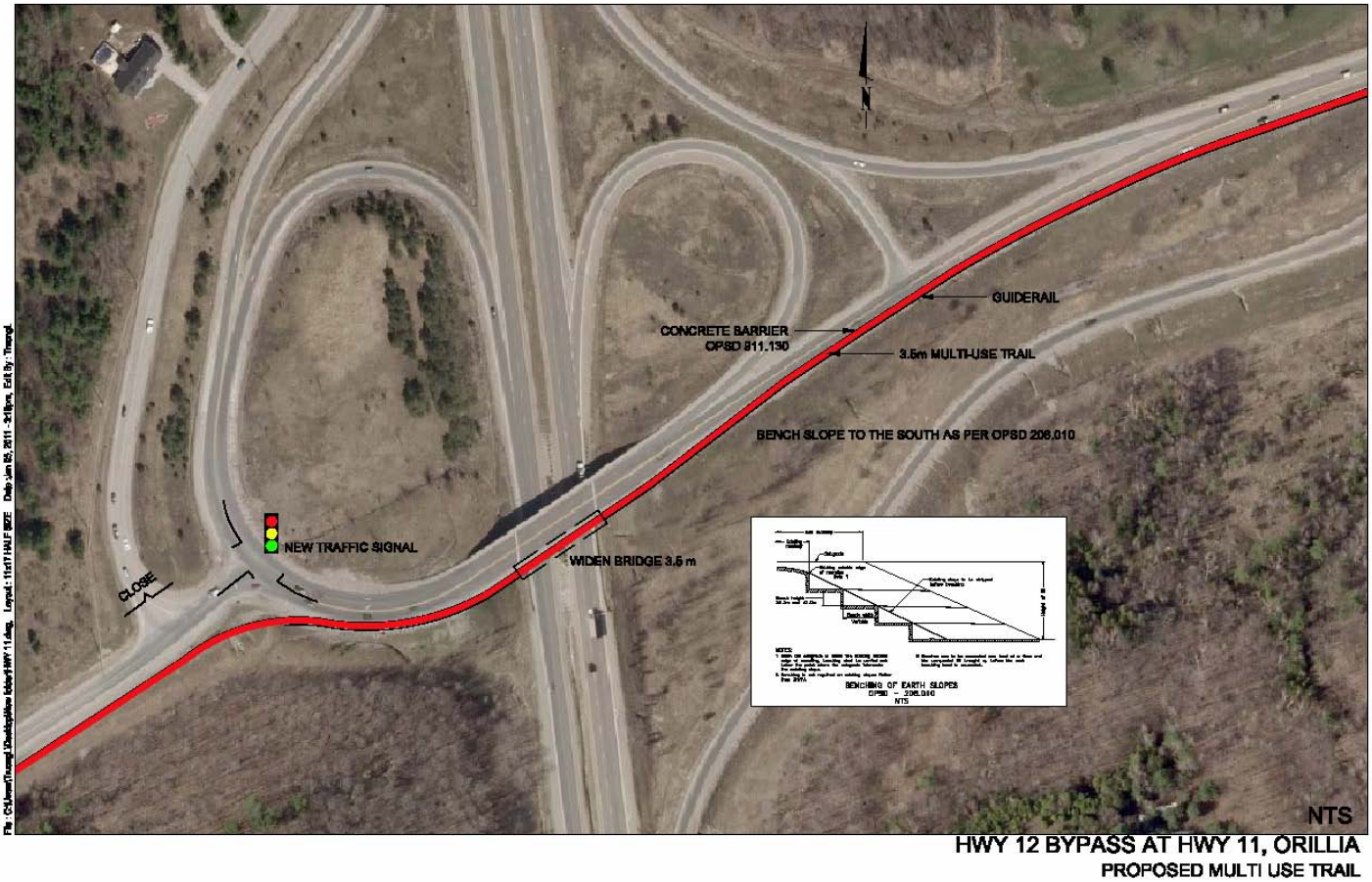


Figure 4-2 – Highway 11 + Highway 12 By-Pass interchange

In regards to Kitchener Park (Figure 4-4), the addition of a new bridge for pedestrians and cyclists in the vicinity of the existing service vehicle bridge would be a solution to address the barriers that exist at that site. The use of a new bridge, along with redirecting the trail along the Lake Simcoe shoreline, would address the issue of the circumvention of the waste diversion site that is adjacent to the park and provide a connection to the growing trails network in the southwest area of the City.

Figure 4-3 – Atherley Narrows Bridge

Figure 4-4 –Kitchener Park

4.3 ROUTE DEVELOPMENT AND SELECTION PRINCIPLES

The route development and selection principles were based on an industry standard approach to route selection as well as from observations of existing conditions, input from public and stakeholder consultation and the review of background documents by the study team.

The following is a list of guiding principles that were used to develop the network component of the Active Transportation Plan. These principles were reviewed with the public at the first Public Information Centre / stakeholder workshop as well as with Municipal staff through a Steering Committee. The principles were then refined and confirmed by the study team. The route development and selection principles were based on an industry standard approach to route selection as well as from observations of existing conditions, input from public and stakeholder consultation and the review of background documents by the study team.

- **Safety:** Reducing risks to users and providing comfortable facilities will be key considerations when selecting routes for the network. The confidence and acceptance of the network can be instilled in users by reducing real and perceived risk.
- **Visible:** The active transportation (pedestrian, cycling etc.) routes should be a visible component of the transportation system.

- **Direct / Connected:** The City network should link communities, key destinations and connect with on and off-road networks of neighbouring townships.
- **Destinations:** Active transportation routes should provide access to major destinations in Orillia including cultural and service facilities, as well as routes to school, community and neighbourhood parks, shopping facilities and employment areas.
- **Integration with Other Modes:** The active transportation network should be integrated with other modes of transportation, particularly public transit. Routes should be selected to provide access to transit stops.
- **Attractive and Scenic:** Active Transportation routes should take advantage of attractive and scenic areas, views and vistas.
- **Diverse Experience:** The active transportation network should provide a diverse on and off-road walking and cycling experience throughout the City.
- **Easily Accessible:** Active transportation routes should be easily accessible from local neighbourhoods within the City. Every effort should be made to integrate the existing and future routes of neighbouring townships.
- **Different routes for different users:** The system should appeal to a range of user abilities and interests. This requires the design of a variety of route types.
- **Cost Effective:** The cost to implement and maintain proposed AT network facilities and supporting programs should be phased over time and designed to be affordable and appropriate in scale for the City of Orillia. Opportunities for partnership funding from other non-local government sources (e.g. Provincial and Federal Governments, Simcoe County and the private sector) should be pursued.
- **Supporting Services and Facilities:** Supportive services and facilities such as benches and bicycle parking should be available along routes and at destinations. Routes should be selected that provide opportunities to develop supporting facilities.

4.4 CANDIDATE ROUTES INVESTIGATED

A set of on and off-road candidate routes were identified and mapped using the information collected from the County of Simcoe and the City of Orillia as well as the route selection and development

Route selection was based on the application of the principles, the experience of the study team, observations made in the field and local insight from members of the Steering Committee.

principles. Connections to the Townships of Oro-Medonte, Severn and Ramara were also considered.

The candidate routes were further refined based on input from the Steering Committee, municipal staff, as well as key stakeholders and the public. Input was received from the Public Information Centre and Stakeholder Workshop, both held in December 2010, and responses from the online questionnaire. Some route alternatives were removed or added based on comments received.

The refined candidate route alternatives were then investigated in the field to confirm their suitability for inclusion as part of the proposed active transportation network. Route selection was based on the application of the principles, the experience of the study team, observations made in the field and local insight from members of the Steering Committee. In addition, consideration was given to information such as missing links, traffic volumes (where available), road and rights-of-way width, distance from key destinations and the nearest proposed route, and the cost effectiveness of implementing an active transportation facility. **Figure 4-5** illustrates the preliminary candidate route network.

The proposed pedestrian component of the network focused on trails, connections to local City sidewalk systems and the development of a set of pedestrian supportive actions and guidelines for the City of Orillia.

These figures also present the existing context, routes previously planned by the City of Orillia and the County of Simcoe, as well as some key attractions and destinations within the City.

Potential active transportation routes were further screened by revisiting the route selection principles and through additional field investigation. In addition, the routes were also screened based on additional input provided by municipal staff, the public and stakeholders. Those candidate routes considered less desirable compared to a parallel route were then eliminated from further consideration. A refined route network was then identified along with proposed facility types, which formed a proposed Draft Active Transportation network for Orillia. The network can be enhanced at the regional level should there be a desire to create a ‘regional’ connection within the network.

The proposed pedestrian component of the network focused on trails, connections to local City sidewalk systems and the development of a

CITY OF ORILLIA
ACTIVE TRANSPORTATION PLAN
FIGURE 4-5 -p RELIMINARY CANDIDATE ROUTE NETWORK
LEGEND

- Existing Multi-Use Trail (Soft Surface)
- Existing Multi-Use Trail (Hard Surface)
- Existing Parks and Open Space Trails
- Existing Bike Lane
- Candidate AT Route
- Potential/Existing Connections to Adjacent Municipality
- Publicly Accessible Parking Lots
- Parks
- Local Road
- Major Road
- Highway

TOWNSHIP OF SEVERN

LAKE COUCHICHING

LAKE SIMCOE

TOWNSHIP OF ORO-MEDONTE

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0 375 750 1,500 Metres

MMM GROUP

set of pedestrian supportive actions and guidelines for the City of Orillia.

The draft network was then presented to the public at the second Public Information Centre for review and comment. The input received was documented and assessed at which time the network was further refined and finalized.

4.5 HIERARCHY OF ROUTES

The active transportation network proposed in this report for the City of Orillia is made up of four major (spine) routes that are supported by a number of secondary routes. Each major route acts as an active transportation artery that supports active transportation connectivity throughout the City of Orillia. The routes identified on the following page are all proposed, and would be phased-in as opportunities and funding become available.

The **Matchedash-Laclie** corridor serves as the proposed primary north-south route for Active Transportation between West Street (the City's major north-south artery) and the waterfront. This corridor is comprised of a proposed bike lane on Laclie Street and a proposed signed route on Matchedash. There are several places of employment along the route, allowing this facility the opportunity to become a major active transportation commuter corridor.

The **Old Barrie Road-Barrie Road and Mississaga Street** corridors serve as two of the City's proposed major east-west routes into and out of the downtown area. At Highway 11, the proposed routes merge and follow Old Barrie Road west to 15th Line, connecting to Scout Valley along the way. Both corridors feature a mix of active transportation facilities including multi-use trails, bike lanes and signed routes.

The **Coldwater Road** corridor is a proposed major northwest-southeast corridor consisting of a bike lane. The route would serve downtown and the northwestern section of Orillia, where several big-box stores are located. This corridor also has the potential to be a

major commuter corridor as many jobs are located on the west side of Highway 11 near Coldwater Road.

The **Memorial Avenue** corridor is a proposed major northeast-southwest corridor made up of an on and off-road multi-use trail. The route connects with the Barrie Road corridor and serves the southwestern part of the city.

All other routes are secondary connectors and provide an important function as they are often the active transportation network entry points. They can be seen as 'feeder' routes which complement the major routes discussed above.

4.6 CONNECTING THE ACTIVE TRANSPORTATION NETWORK WITH PUBLIC TRANSIT

Integration of active transportation facilities with other modes of transportation in the City of Orillia can significantly influence willingness to engage in active transportation activities. A connection to a downtown transit terminal provides an opportunity to promote increased active transportation use.

Integration of active transportation facilities with other modes of transportation in the City of Orillia can significantly influence willingness to engage in active transportation activities.

Orillia Transit currently operates five bus routes in the City, all of which are downtown-centric, meaning all routes go to and from the downtown bus terminal located at the intersection of West Street and Mississaga Street. The location of the terminal is very central, with the Orillia Opera House, multiple bank branches, several shops and Lakehead University's satellite campus all within a block. With so many amenities close to the terminal, the area receives a high volume of pedestrian activity. It is important that the downtown transit terminal be as accessible as possible by all modes of transportation, including active transportation.

The transit terminal can play a major role in the development of AT facilities. Already at the centre of some major destinations in the City of Orillia, the terminal should be a welcoming environment for AT users. Benches, bicycle parking and adequate lighting should be installed in a prominent location to enhance the active transportation

experience by providing increased safety, increased integration with other modes of transport, and increased connectivity with downtown destinations. Orillia Transit should consider implementing bicycle racks on its bus fleet as well.

If Orillia Transit were to consider options for a new bus terminal location, the connection to Orillia's active transportation network should be evaluated as a key factor. Possible alternatives to the current location at West and Mississaga Streets include the plaza bordered by West Street, King Street, Peter Street and Western Avenue, and a location along Matchedash between Colborne and Mississaga Streets. While both locations offer connections to the active transportation network, the Matchedash site has the advantage of being closer to the shops and amenities on Mississaga Street and is closer to Orillia's waterfront – both key destinations for transit riders and active transportation users.

4.7 THE PROPOSED AT NETWORK

One of the primary objectives of the Active Transportation Plan is to provide a convenient and continuous City-wide active transportation network that minimizes risk to users and is integrated with other facilities (Simcoe County, bordering local municipalities, transit, end of trip facilities, etc.). The network development approach as described in Section 4.1 was used to establish the AT network for Orillia. **Figure 4-6** illustrates the Proposed Active Transportation Route Network and Facility Types. **Table 4.1** presents the Facility Types by Distance for the Proposed Active Transportation Route Network.

If Orillia Transit were to consider options for a new bus terminal location, the connection to Orillia's active transportation network should be evaluated as a key factor.

One of the primary objectives of the Active Transportation Plan is to provide a convenient and continuous City-wide active transportation network that minimizes risk to users and is integrated with other facilities (Simcoe County, bordering local municipalities, transit, end of trip facilities, etc.).

Table 4.1 – Facility Types by Distance for the Proposed Active Transportation Route Network

		Existing	Proposed	TOTAL (KM)
Multi Use Trails	Hard Surface	54.91	28.40	**83.31**
	Soft Surface	37.06	0.00	**37.06**
Bike Lane		0.89	13.35	**14.24**
Paved Shoulder		0.00	6.06	**6.06**
Signed Route		0.00	34.03	**34.03**
Parks and Open Space Trails		3.55	0.00	**3.55**
TOTAL (KM)		96.41	81.84	**178.25**
%		**54.1%**	**45.9%**	**100%**

CITY OF ORILLIA
ACTIVE TRANSPORTATION PLAN
FIGURE 4-6 - DRAFT AT ROUTE NETWORK AND FACILITY TYPES

LEGEND

- Existing Multi-Use Trail (Soft Surface)
- Existing Multi-Use Trail (Hard Surface)
- Existing Bike Lane
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Existing Parks and Open Space Trails
- Potential/Existing Connections to Adjacent Municipality
- Publicly Accessible Parking Lots
- Parks
- Local Road
- Major Road
- Highway

TOWNSHIP OF SEVERN

LAKE COUCHICHING

LAKE SIMCOE

TOWNSHIP OF ORO-MEDONTE

A Plot-Size version of the DRAFT AT Route Network is provided in the back of the draft report in the back page insert.

N W E S

0 375 750 1,500 Metres

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The recommended network is composed of a mix of on-road and off-road facilities designed to respond to the needs of a range of users (i.e. recreation and utilitarian/commuter), age and skill levels. Given that there is no one facility type that meets the needs of all users, route and facility selection was based on the route selection principles established and confirmed with staff, the steering committee and the public during the early stages of the study. This also included the study team's judgment regarding the types of users who would be most likely use to use the facilities given the location. For example, young children (11 and under), new adult cyclists and some older adults often note that they would prefer to cycle on multi-use trails in parks or in roadway boulevards or on facilities separated from motor vehicle traffic on "busy" roads. On the other hand, more experienced commuter cyclists often note that they prefer the most direct route, want to operate their bike as a vehicle and prefer bike lanes (or paved shoulders on roads without curbs) while other experienced cyclists are generally comfortable sharing a travel lane with motor vehicle traffic, but would prefer a slightly wider lane for this purpose. Some pedestrians indicated a preference to walk on trails and sidewalks where cycling was prohibited while other pedestrians were comfortable with the option of sharing an in-boulevard multi-use trail with other trail users (cyclists, joggers, in-line skaters etc.) on one side of the road, while still having the choice to walk on the other side of a road on a dedicated pedestrian sidewalk.

In developing this network plan, the study team made every effort to balance the needs of users with appropriate routes and facility types. The complete recommended AT network should be viewed as a connected system of different facility types that are designed to be comfortable and convenient for both existing and future users. However, the AT network has also been designed to evolve as new opportunities to create connections arise. For example a route on a roadway that is proposed to have bike lanes installed based on the network developed for the AT Master Plan may be built with a physically separated cycle track, in-boulevard multi-use trail or separated cycling and pedestrian facilities in the boulevard in the future.

The recommended network is composed of a mix of on-road and off-road facilities designed to respond to the needs of a range of users (i.e. recreation and utilitarian/commuter), age and skill levels.

….the AT network has also been designed to evolve as new opportunities to create connections arise.

In Orillia, the majority of active transportation routes will consist primarily of on-road routes which will connect and build upon Orillia's existing off-road trail system. With the implementation of the Active Transportation Plan, and as the population of the City of Orillia grows over the next two decades, it is anticipated that pedestrian activity will grow within the downtown core. It is also expected that pedestrians and cyclists will travel to and from major destinations around the City such as the Orillia Opera House, Lakehead University and Scout Valley more often, creating a higher demand for the active transportation network described in this AT Plan.

Recommended Actions:

4-1: Adopt the Active Transportation Plan including the route selection principles.

4-2: Implement the active transportation network generally consistent with the route alignments and facility types proposed in the Active Transportation Plan.

4-3: Recognize that the proposed active transportation network will change over time by adding missing links and opportunities offered by unopened road allowances, hydro rights-of-way, open green space and future roadway improvements.

5.0 DESIGN GUIDELINES

5.1 ABOUT THESE GUIDELINES

The Planning and Design Guidelines are intended to guide the City and its partners in developing a City-wide Active Transportation (AT) network.

The Planning and Design Guidelines are intended to guide the City and its partners in developing a City-wide Active Transportation (AT) network. The guidelines were developed through an iterative process that involved an extensive review of guidelines and best practices from other municipalities and jurisdictions as well as input from MMM Group and other sources. Public input was also used to review guidelines for specific features of the AT network.

The Planning and Design Guidelines provide the City of Orillia with the tools necessary to design and implement an AT network that responds to what residents and City staff believe is needed to improve active transportation conditions. The guidelines were developed based on engineering and planning best practices found both nationally and internationally.

5.1.1 How to Use These Guidelines

The purpose of these guidelines is to assist active transportation planners, designers and managers in making informed decisions about AT facility design for Orillia. The guidelines provide general information about active transportation facility users and their needs. Where appropriate, summary tables are provided to highlight recommended design treatments and/or considerations for addressing key features associated with various proposed AT facility types.

Information included in these guidelines is based on currently accepted design practices in North America, and ongoing research and experience gained in AT implementation. The guidelines are not intended to be prescriptive, rather they are suggested guidelines which should be treated as a reference to be consulted during the development and construction of the AT network. They are not meant to be inclusive of all design considerations for all locations, nor are they meant to replace sound engineering judgment. A number of the individual guidelines contained in this section provide an indication of "minimum" and "preferred" conditions or dimensions for proposed trail alignments and facilities.

The purpose of these guidelines is to assist active transportation planners, designers and managers in making informed decisions about AT facility design for Orillia.

"Minimum recommended" conditions typically reflect a situation that is considered minimally acceptable in terms of safety and level of service. These are usually based on a lower anticipated level of use that is anticipated for "preferred" conditions.

"Preferred" conditions or treatments reflect conditions that typically serve a broader range of uses and a greater number of facility users. Achieving the preferred condition or treatment may also provide a longer service life span.

The application of these guidelines in the development, implementation, and operation of individual sites will require specific consideration of a number of factors including public safety, local and/or provincial jurisdiction requirements, building codes and by-laws.

Where existing on and off-road AT facilities are to be incorporated as part of the City of Orillia AT system but do not meet the minimum

recommended conditions described in these Guidelines, the following approach should be considered:

- Examine the AT facility or route to identify any design issues, or areas that may be seen as a potential risk to users;
- Assess whether the route is reasonably capable of handling anticipated levels of use; and
- Set up a monitoring program to identify emerging problems.

If necessary, establish an upgrading program to address areas of risk and/or emerging problems, as this helps to create awareness and appreciation of the issue(s), and determines ways in which they can be resolved so that at least the minimum recommended guidelines can be achieved over time.

When consulting these guidelines, careful consideration should be given to the physical, aesthetic and environmental requirements for each AT facility type. In many instances, physical design criteria related to operating space, design speed, alignment and clear zones are often governed by the needs of the fastest, most common user group on the majority of the facilities - the cyclist. Therefore, many of the physical design criteria outlined in the following sections are recommended in relation to cycling. This is not to say that all AT facilities need to be designed to meet the requirements for cyclists, however when multi-use trails are being designed it is prudent to use parameters for the cyclist. When considering single or specialty uses where part of the trail experience involves manoeuvring through challenging conditions, such as BMX or freestyle biking, the parameters outlined below may not apply. In these instances designers should consult directly with the user group and/or design manuals that are specific for that use. **Table 5.1** outlines minimum and preferred operating space for different uses.

When consulting these guidelines, careful consideration should be given to the physical, aesthetic and environmental requirements for each AT facility type.

Table 5.1 Trail User Operating Space

Operating Condition by Trail User Type	Minimum (metres)	Preferred (metres)
One-way travel (one-wheelchair user	1.2	1.5
One-way travel (two pedestrians)	1.5	2.0
One-way travel (one cyclist)	1.2 (in constrained locations)	1.5+
Two-way travel (two cyclists)	3.0	3.0+
Two way travel (two wheelchair users)	3.0	3.0+

Trail user operating space is a measurement of the horizontal space that the user requires. In the case of cycling, the space includes room required for side to side body motion used to maintain balance and generate momentum. Horizontal clear distance is the space beside the trail bed that should be kept clear of protruding objects.

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

Table 5.2 Horizontal and Vertical Clear Distance

Clearance Condition	Minimum (metres)	Preferred (metres)
Horizontal clearance to stationary objects	0.5	1.0
Vertical clearance to stationary objects	2.5	3.0

Slope refers to the measured fall over a given distance, and the centerline (longitudinal slope) and perpendicular to the centerline (cross slope). Cross slope can be configured so that all runoff is directed to one side of the trail, or so that there is centre crown and runoff is shed to either side of the trail. **Table 5.3** shows the preferred conditions for different longitudinal grade or slope.

Table 5.3 Longitudinal and Cross Slope

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

The average recreational cyclist can maintain speeds of 18 to 20 km/hr on some trails and most roads, while utilitarian and fitness-oriented cyclists usually travel at higher speeds (20 to 30 km/hr) on some trails and most roads.

Design speed is used to determine trail width, minimum curve radius, horizontal alignment and banking or super-elevation to ensure that trail users have adequate space and time to safely approach and navigate sharper curves along the trail. The design speed for recreational cyclists is generally considered adequate for all self-propelled trail users including pedestrians and those using mobility devices such as wheelchairs. The average recreational cyclist can maintain speeds of 18 to 20 km/hr on some trails and most roads, while utilitarian and fitness-oriented cyclists usually travel at higher speeds (20 to 30 km/hr) on some trails and most roads. For granular

surfaced off-road trails, a design speed in the area of 25 km/hr is usually adequate, whereas a minimum of 30 to 35 km/hr should be considered for hard surfaced trails. On descents with steeper grades, the design speed should be increased to 40 to 50 km/hr and consideration should be given to some additional trail width to increase manoeuvring space. Cautionary signing should be used to warn of upcoming steep grades and sharp curves.

Cycling is the critical user group when designing off-road trails for self-propelled users as they have the highest average travel speed. The minimum radius of a curve on an off-road cycling facility depends on the bicycle speed, super-elevation and coefficient of friction between the bicycle tires and the cycling facility surface. Refer to **Table 5.4** for suggested outside radii for a range of design speeds and superelevation rates.

Table 5.4 Trail Curve Radii

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

Source: TAC, 1999

The upcoming revision to the AASHTO Guide for the Development of Bicycle Facilities will be recommending that the general design speed should be 22 km/hr (14 mph) for multi-use trails where cycling is the highest speed user group. Based on research, 22 km/hr represents

the 85th percentile for speed. The slightly lower design speed will allow for slightly smaller curve radii and potentially less construction impact as compared to trails requiring larger radii.

Table 5.5 Additional trail widening on outside of curve

Radius (m)	Additional widening (m)
0-7.5	1.2
7.5-15	0.9
15-22.5	0.6
22.5-30	0.3

When horizontal curves are sharp (i.e. a very small radius), cycling facility widening should be considered to compensate for the tendency of cyclists to track toward the outside of the curve. Roads are designed to accommodate vehicles that move at a significantly higher rate of speed than bicycles, therefore it is assumed that horizontal alignment of on-road routes will be ample to accommodate cyclists and other trail users.

Sight stopping distance is defined as the distance required for the trail user to come to a full controlled stop upon spotting an obstacle. It is a function of the user's perception and reaction time. Once again stopping sight distances for off-road trails are typically governed by the distance required for cyclists since pedestrians and other trail users can typically stop more immediately than cyclists, regardless of the trail configuration.

On-road cycling facilities should typically be located on roads that provide for adequate sight lines to accommodate the minimum stopping distance required for motor vehicles.

On-road cycling facilities should typically be located on roads that provide for adequate sight lines to accommodate the minimum stopping distance required for motor vehicles. Minimum stopping sight distance is the least visible distance required by a driver to bring the vehicle to a stop before reaching an object in the vehicle's path. This is necessary so that a motorist can effectively make the decision on when to pass a cyclist or when to stop in the event the cyclist has

fallen or is blocking part or all of a travel lane, or when a pedestrian is crossing the street.

Although all new roads should be designed in conformance with these minimum standards, it is recognized that many existing roads in the City may not meet the requirements. For road designs in which there are a number of severe physical constraints due to topography, environmental or right-of-way constraints, roadway designers may need to compromise on one or more of the standards. If stopping sight distance is sub-standard, the driver may not see an object in time to come to a safe stop. However, the driver may be able to steer around the object or sufficiently reduce speed to minimize damage or injury. Additional signing to caution both motorists and cyclists should be considered in these situations. **While sub-standard design is to be avoided and is not advocated, if it is dictated by other constraints, the consequences should be clearly understood and based on good engineering judgment.**

The minimum stopping sight distance for cyclists, both on-road and off-road, is the distance required to bring a bicycle to a full controlled stop upon spotting an obstacle.

As mentioned above, stopping sight distances for off-road trails should be governed by the distance required for cyclists since pedestrians can typically stop immediately while walking or jogging, regardless of the trail configuration. The minimum stopping sight distance for cyclists, both on-road and off-road, is the distance required to bring a bicycle to a full controlled stop upon spotting an obstacle. It is a function of the cyclist's perception and reaction time prior to braking, the initial speed of the bicycle, the coefficient of friction between the tires and the trail surface, and the braking of the bicycle.

The stopping sight distance is given by the formula:

$$S = 0.694V + V2 / 255 (f + G/100)$$

Where: S = stopping sight distance, m

V = speed (km/h)

f = coefficient of friction

G = grade, % (upgrade +, downgrade –)

Table 5.6 illustrates minimum stopping sight distances for a range of speeds and grades for bicycles. It is based on 2.5 seconds of

perception-reaction time and a coefficient of friction (f) of 0.25 that accounts for paved surfaces during wet weather plus typical braking characteristics of bicycles. The coefficient of friction for unpaved surfaces should be reduced to 50% of those for paved surfaces.

Table 5.6 Minimum Sight Stopping Distances

Grade %	Design Speed (km/h)								
	10	15	20	25	30	35	40	45	50
Minimum Stopping Sight Distance (m)									
+12	8	13	18	-	-	-	-	-	-
+10	8	13	18	24	-	-	-	-	-
+8	8	13	19	25	32	-	-	-	-
+6	8	13	19	25	32	40	-	-	-
+4	8	13	19	26	33	41	49	-	-
+2	8	14	20	26	34	42	51	61	-
0	9	14	20	27	35	44	53	63	74
-2	9	14	21	28	36	45	55	66	77
-4	9	15	21	29	38	47	58	69	81
-6	9	15	22	30	39	50	61	73	86
-8	9	16	23	32	42	53	65	68	92
-10	10	16	24	34	44	56	70	84	100
-12	10	17	26	36	48	61	76	92	110

Source: Geometric Design Guide for Canadian Roads, TAC, 1999.

(TAC Table 3.4.5.1)

When developing and applying guidelines, it is important to consider the characteristics and preferences of potential users.

5.2 AT FACILITY USERS AND NEEDS

When developing and applying guidelines, it is important to consider the characteristics and preferences of potential users. In the City of

Orillia, the potential user groups include pedestrians, cyclists, and users with mobility aids, all of which are self-propelled.

The following sections briefly describe each of these user groups, how they may use the AT facilities and some of the design parameters/needs that should be considered.

5.2.1 Pedestrians

Pedestrians can generally be divided into several sub categories:

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

A study conducted by Environics International on behalf of Go for Green (1998) reported the following top five reasons for walking in Canada:

- Exercise / health (62%)
- Pleasure (30%)
- Practicality / convenience (24%)
- Environmental concern (10%)
- Saving money (9%)[8]

Because walking is such a basic activity and a freedom that is enjoyed by the majority of the population, planners and designers should consider this mode as the base level for facility design in the City of Orillia.

Because walking is such a basic activity and a freedom that is enjoyed by the majority of the population, planners and designers should consider this mode as the base level for facility design in the City of Orillia. In these locations the needs of walkers with baby strollers or walking aids, carrying picnic baskets or other equipment, and walkers in pairs or in groups, such as a class of school children should be taken into account. Planners and designers need to be aware that potential users may be impatient, inattentive or have sensory, cognitive or ambulatory difficulties.

Walkers represent a wide range of interests and motives such as leisure, relaxation, socializing, exploring, making contact with nature, meditation, fitness, or dog walking. It is also important to consider

[8]Environics International, 1998, p. 4-5

pedestrians who walk for utilitarian or transportation purposes. This group tends to be more urban-focused, with trips focusing on shopping and errands and walking to work and school. In addition to using sidewalks, parking lots and urban plazas, the utilitarian walker will use trails where they are convenient, well designed and properly maintained. Where no sidewalks are provided and there are no shoulders, the Ontario Highway Traffic Act allows pedestrians to walk on the edge of the roadway, facing oncoming traffic[9]. Signs warning motorists of pedestrians ahead are recommended.

95% of all pedestrian trips are less than 2.5 km in length (Transportation Tomorrow Survey, in Hamilton Cycling Master Plan 1996)[10], though it is reasonable to expect that some walkers who are out for exercise/health/ fitness purposes might make trips that are between 5 and 10 km in length.

Hikers

Hikers are often considered more of the elite of the recreational walking group and may challenge themselves to cover long distances and be willing to walk on sections of rural roadway shoulder considered less safe or less interesting by the majority of leisure walkers. Active Transportation planners should assume that there will be keen pedestrian users, even in remote or highway environments despite the fact that the frequency may be very low. Some of the characteristics of this group include:

- Day trips that may range between 5 and 30 km in length;
- They may be more keenly interested in natural features;
- They are often more adept at map reading;
- Are more self-sufficient than leisure walkers;
- May expect fewer amenities; and
- Are often attracted to challenging terrain and rural areas.

[9] Ministry of Transportation (MTO), 1990

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

Runners and Joggers

Although runners' and joggers' primary motivation may be fitness, they may share more in terms of profile characteristics with distance hikers than they do with leisure walkers. They tend to be accomplishment oriented and often enjoy the trails at higher speed and over distances between 3 and 15 km or more. They will often avoid hard surfaces such as asphalt and concrete and prefer to run on granular, natural (earth) and turf surfaces as they provide more cushioning effect.

5.2.2 Cyclists

The mechanical efficiency of the bicycle allows users of all ages to travel greater distances at a higher rate of speed than pedestrians. Some bicycles, including the "mountain" or "hybrid" can travel easily over stonedust and gravel surfaces, whereas, traditional narrow-tired touring and racing bicycles require very well compacted granular surfaces or hard surface pavements such as asphalt. Distances covered vary widely from a few kilometers to well over a hundred depending on the fitness level and motivation of the individual cyclist. Although cyclists have the right to access the extensive existing public roadway system, with the exception of the 400 series and major highways, many inexperienced cyclists feel unsafe sharing the road with automobiles. Some do not have the desire or skill level to ride in traffic. Off-road trails, shared with pedestrians offer the less experienced and less confident cyclist a more comfortable environment. Cyclists that travel longer are more likely to focus a significant portion of their route on the roadway network, and often seek out quieter, scenic routes over busier roads.

When using roads, cyclists generally travel 0.5-1.0 m from the curb or other obstruction because of the possibility of accumulated debris, uneven longitudinal joints, catch basins, steep cross slopes, or concern over hitting a pedal on the curb or handlebar on vertical obstacles.

When using roads, cyclists generally travel 0.5-1.0 m from the curb or other obstruction because of the possibility of accumulated debris, uneven longitudinal joints, catch basins, steep cross slopes, or concern over hitting a pedal on the curb or handlebar on vertical obstacles. However when cyclists use or cross a public roadway they

are considered vehicles by law and are expected to follow the same traffic laws as motorized vehicles.[11]

Although the average travel speed for a cyclist on a trail is in the range of 15-20 km/hr and on a road 18-30 km/hr, speeds in excess of 50 km/hr can be attained while traveling downhill on roads and some hard surface trails. Where excessive speed is a potential issue on trails, speed limits and warnings should be posted to discourage fast riding and aggressive behaviour. Cyclists other than young children should be discouraged from cycling on sidewalks because of potential conflicts with pedestrians and potentially dangerous intersections with private driveways. Many municipalities, including Orillia, have prohibited sidewalk cycling through by-laws.

5.2.3 Skateboards and Non-motorized Scooter Users

Skateboarding and the use of non-motorized scooters and rollerblades are becoming increasingly popular among all age groups, particularly in urban areas. No obvious solutions have emerged, and no standards have been widely adopted. In some municipalities, skateboarders and scooter users have been prohibited from using either roadways or sidewalks by local by-laws. Consequently, they are avid users of hard-surface off-road facilities and may travel some distance to reach a facility that suits their needs.

This user group prefers a very smooth, hard surface. Loose sand, gravel, twigs, branches, fallen leaves and puddles can be significant hazards. Though skateboarders and scooter users can quickly become pedestrians by dismounting, they too are vulnerable to the effect of grades (both up and downhill) and require ample maneuvering space. An inability to come quickly to a complete stop can be a significant concern for all but the most experienced users in this group. Long or steep hills with limited visibility may be viewed as either challenging or terrifying depending on an individual's level of experience

[11] Segal, 2006.

5.3 AT NETWORK DESIGN CONSIDERATIONS

5.3.1 Accessibility

Approximately one in eight Canadians suffer from some type of physical disability. Mobility, agility, and pain-related disabilities are by far the most common types, each accounting for approximately 10% of reported disabilities nationally[12]. Disability increases with age: from 3.3% among children, to 9.9% among working-age adults (15 to 64), and 31.2% among seniors 65 to 74 years of age. Disability rates are highest among older seniors (75 and over), with fully 53.3% in this age group reporting a disability.

The Accessibility for Ontarians with Disabilities Act (AODA) states that "the people of Ontario support the right of persons of all ages with disabilities to enjoy equal opportunity and to participate fully in the life of the province[13]." Within the ODA, Bills 118 and proposed Bill 125 recognize the need to provide for accessibility standards, improve opportunities and facilitate the removal of barriers in order to enable persons with disabilities to fully participate in the life of the province[14].

As required by the AODA, the Minister of Community and Social Services appointed a Standards Development committee to develop a set of Accessibility Build Environment Standards. The document was developed and issued in July of 2010 by the committee and provides a definition of the built environment as well as accessibility standards for each. The definition includes buildings, site development, public ways and public parks, trails and playgrounds. As part of the standards developed, specific reference is made to paths and trails under section 11 (recreation elements and facilities) of the report. The rationale for the inclusion of these standards can be summarized in the following text:

[12] Social Development Canada, 2004, P.2

[13] Ontarians with Disabilities Act, 2001

[14] Ontarians with Disabilities Act – Bill 118 and 125, 2001

"Opportunities for recreation, leisure and active participation should be available to all members of the community. Outdoor trails and pathways which offer a range of levels of difficulty will allow each individual to choose their preferred route based on their abilities and desired level of challenge.

The accessibility strategy commonly applied to natural environments is to provide appropriate accessibility for persons with disabilities, wherever practical, and to provide relevant information on the grade, cross-slope, width, surface, or length of the trail where it is not practical or appropriate to fully comply with the requirements."

More specifically, section 11 focuses on the overall accessibility of trails that are found in the natural environment. As will be outlined in the following sections, the development of trails and active transportation facilities is not a one size fits all approach. Trails facilities are to be developed to accommodate all users including those with a variety of needs and levels of ability. The strategy outlines necessary criteria for the development and design of trails to accommodate such user groups. The criteria that have been developed include but are not limited to:

- Operational Experience;
- Width;
- Running Slope;
- Cross Slopes;
- Total Slope;
- Surface;
- Changes in Level; and

Signage

When designing and implementing active transportation facilities, the City of Orillia should utilize the guidelines and requirements outlined in the strategy to ensure that the needs of all user groups are accommodated and satisfying the requirements of the AODA to the greatest extent possible, given the context of each facilities location, the surrounding environment and type of trail experience that is desired for that location.

When designing and implementing active transportation facilities, the City of Orillia should utilize the guidelines and requirements outlined in the strategy to ensure that the needs of all user groups are accommodated and satisfying the requirements of the AODA to the greatest extent possible, given the context of each facilities location, the surrounding environment and type of trail experience that is desired for that location.

Universal Trail Design is a concept that takes into consideration the abilities, needs, and interests of the widest range of possible users. In regards to trail design, it means planning and developing a range of facilities that can be experienced by a variety of users of all abilities.

Principles of universal trail design can be summarized as follows:

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

Ontario's Best Trails – Draft (2006)[15] provides an in depth discussion of the application of Universal Design principles and their application.

It must be recognized however, that not all trails throughout the system can be fully accessible. Steep slopes are one of the most significant barriers for those with physical disabilities.

Trails should be designed to be accessible to all levels of ability, where possible and practical. It must be recognized however, that not all trails throughout the system can be fully accessible. Steep slopes are one of the most significant barriers for those with physical disabilities. Designing trails to be within the threshold (5%) for universal access will not only overcome this significant barrier but it will help to reduce the potential for erosion of the trail surface. The following are some additional considerations for making existing and new trails accessible:

[15] Trails for All Ontarians Collaborative (TAOC), 2006

- Designers should consult the most current standards available in the City of Orillia through the local Accessibility Advisory Committee;
- Where the trail requires an accessibility solution that is above and beyond what is normally encountered, a representative of the local Accessibility Advisory Committee should be consulted early on in the process to determine if it is practical and desirable to design the specific trail to be fully accessibility;
- Where it has been determined that full accessibility is appropriate, the accessibility representative should be consulted during the detailed design process to ensure that the design is appropriate; and
- Work collaboratively with the local Accessibility Advisory Committee to consider developing signage/content to clearly indicate trail accessibility conditions, which allow users with mobility-assisted devices to make an informed decision about using a particular trail prior to travelling on it.

5.3.2 Personal Security

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

To the extent possible, AT facilities should be designed to allow users to feel comfortable, safe, and secure.

The four main underlying principles of CPTED are:

- Natural Access Control: deters access to a target and creates a perception of risk to the offender;
- Natural Surveillance: the placement of physical features and/or activities that provides for natural visibility or observation;
- Territorial Reinforcement: defines clear borders of controlled space from public to semi-private to private, so that users of an area develop a sense of proprietorship over it; and

- Maintenance: allows for the continued use of space for its intended purpose[16] .

Some specific design considerations that should be considered by the City include:

- Good visibility by others by having routes pass through well-used public spaces;
- Provide the ability to find and obtain help: Signage that tells users where they are along the trail system;
- Provide “escape” routes from isolated areas at regular intervals;
- Maintain sight lines and sight distances that are appropriately open to allow good visibility by users;
- Provide trailhead parking in highly visible areas;
- Minimize routing close to features that create hiding places such as breaks in building facades, stairwells, dense shrubs and fences;
- Design underpasses and bridges so that users can see the end of the feature as well as the area beyond; and
- Signs near entrances to isolated areas can be used to inform users that the area is isolated and suggest alternative routes.

5.3.3 Trail Lighting

Lighting on trails must be carefully considered in the City of Orillia. Few municipalities make the decision to light their entire trail system for a number of important reasons, including:

- The cost of initial installation can be prohibitive. Some general budget figures reported exceed $40,000 per kilometre not including power supply;
- Staff time and material cost to properly monitor, maintain lamp fixtures and replace broken and burned out bulbs on an ongoing basis;
- A tendency for vandals to target light bulbs;
- Energy consumption;

[16] CPTED Ontario, 2002

- Excessive light pollution, especially in residential rear yards and adjacent to natural areas (though this can be controlled with proper shielding);
- The potentially false sense of personal security created by lighting in the night-time environment; and
- Inability of the human eye to adapt to the high contrast resulting from brightly lit and dark shadowed areas adjacent one another.

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

5.4 AT NETWORK FACILITY TYPES

Each facility type has typical characteristics which in some cases increase or decrease the degree of difficulty that the facility presents. It is important to note however, that the degree of difficulty is established in the individual design of the facility. Equally important is the fact that degree of difficulty is dependent on the experience of the facility user.

5.4.1 Multi-Use Trails

Multi-use off-road trails are designed to accommodate the widest spectrum of users. They are wider, and may have an asphalt or granular surface. Minor or secondary trails are generally narrow and follow the topography more closely than main trails. **Table 5.7** provides recommended guidelines for trail width and surface treatments for Major and Minor trails according to location type throughout the City of Orillia. Intended trail uses should be considered when selecting trail surface as some surfaces tend to exclude certain uses.

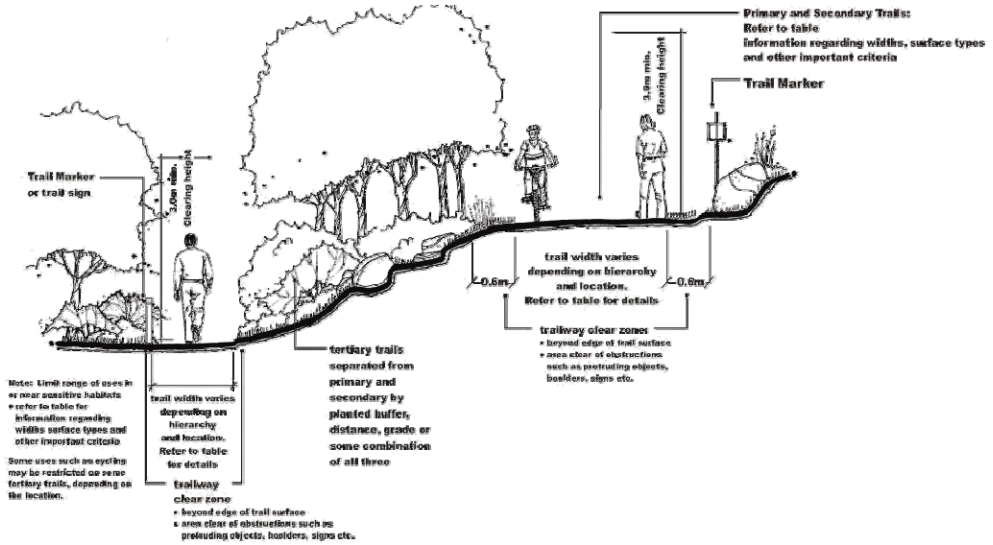


Figure 5.1 – Multi-Use Trail Section

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

Table 5.7 - Suggested trail dimension and surface type according to location

Trail Location	Major /Main Trail	Minor /Secondary Trail
		Recommended/ Preferred Guideline*
Urban Core Area	3.0-3.5 m wide, hard surface (asphalt, concrete, pavers) compatible with urban design objectives Note: some surface textures may be difficult for persons with wheelchairs and walkers to use.	Not applicable

Table 5.7 - Suggested trail dimension and surface type according to location

Trail Location	Major /Main Trail	Minor /Secondary Trail Recommended/
	Consider application of a centerline marking on hard surface trails to articulate user positioning for bi-directional flow	
Major destination (i.e. Major parks, community centre, civic complex, urban rail trails, trails in utility corridors)	3.0-3.5 m wide, hard surfaced (typically asphalt), especially for routes/loops to accommodate small wheeled users and urban rail trails where they pass through core areas and major destinations. Use granular surface where warranted Consider width and turning radii of service access vehicles when designing trails in utility corridors Consider application of a centerline marking on hard surface trails to articulate user positioning for bi-directional flow	2.4-3.0 m wide granular surface Hard surfaced only where requested by residents and warranted, or for maintenance concerns.
Minor parks, stormwater management areas with trails	2.4-3.0 m wide granular surfaced Hard surfaced when/where requested by residents and warranted, or for maintenance concerns.	2.4 m wide granular surface
Natural area buffers, rural areas, including rail trails in rural areas	2.4 m wide granular surface Consider trail hardening for maintenance concerns (only use asphalt or soil bonding agents). Avoid using asphalt around treed areas where excessive root damage may occur during installation and/or roots may cause premature heaving	1.5 m wide granular surface Trail hardening for maintenance concerns only-use soil bonding agents.
Woodlots and conservation areas (urban and rural areas)	2.4 m wide granular surface	1.5-2.0 m wide woodchip surface May be granular or smooth earth surface where disabled access is desired.

Table 5.7 - Suggested trail dimension and surface type according to location

Trail Location		Recommended/
Wetlands: includes treed swamps, marshes, shrub thickets/ meadows	2.0-2.4 m wide granular surface, boardwalk or other surface considered to be compatible with site conditions.	1.5 m boardwalk or other suitable elevated.

* = Standards are to be achieved where possible. Some variation from standard width and surface type will be applied on a site by site basis when considering local environmental constraints and/or access needs for people using mobility devices.

There are a number of options for trail surface materials, each with advantages and disadvantages related to cost, availability, ease of installation, lifespan and compatibility with various trail users groups. **Table 5.8** provides a summary of the advantages and disadvantages of the most commonly used trail surfacing materials. There is no one trail surface material that is appropriate in all locations, and material selection during the design stage must be considered in the context of the anticipated users and location.

Table 5.8 Comparison of Trail Surfacing Materials

Type	Advantages	Disadvantages
Concrete	Smooth surface, can be designed with a variety of textures and colours, providing flexibility for different urban design treatments; Long lasting, easy to maintain.	High cost to install; Requires expansion joints which can create discomfort for users with mobility aids; Must be installed by skilled trades' people; Is not flexible and cracking can lead to heaving and shifting, sometimes creating large step joints.
Unit Pavers	Relatively smooth surface, available in a variety of patterns and colours to meet urban design needs Long lasting, can be easily repaired by lifting and relaying.	High cost to install. Users with mobility aids may find textured surface difficult to negotiate. Must be installed by skilled trades' people.

Table 5.8 Comparison of Trail Surfacing Materials

Asphalt	Smooth surface, moulds well to surrounding grades, and is easily negotiated by a wide range of trail user groups. Relatively easy to install by skilled trades. Patterned and coloured surface treatments are available, however patterning in surface may be difficult for some user groups to negotiate.	Moderate-high cost to install. Must be installed by skilled trades' people. Has a lifespan of 15-20 years depending on the quality of the initial installation. Poor base preparation can lead to significant reduction in lifespan. Cracking and "alligatoring" occurs near the edges, grass and weeds can invade cracks and speed up deterioration. Must be appropriately disposed of after removal.
Granulars	Pit Run: Mixed granular material "straight from the pit" containing a range of particle sizes from sand to cobbles. Excellent for creating a strong sub base, relatively inexpensive	Not appropriate for trail surfacing.
	'B' Gravel: Similar characteristics to Pit Run with regulated particle size (more coarse than 'A' Gravel). Excellent for creating strong, stable and well drained sub bases and bases. Relatively inexpensive.	Not appropriate for trail surfacing.
	'A' Gravel: Similar characteristics to 'B' Gravel, with smaller maximum particle size. Excellent for trail bases, may be appropriate for trail surfacing of rail trails in rural areas and woodlots. Easy to spread and re-grade where surface deformities develop.	Subject to erosion on slopes. Some users have difficulty negotiating surface due to range in particle size and uneven sorting of particles that can take place over time with surface drainage.

Table 5.8 Comparison of Trail Surfacing Materials

Type	Advantages	Disadvantages
Granulars Cont'd	Clear stone: Crushed and washed granular, particles of uniform size, no sand or fine particles included. Excellent bedding for trail drainage structures and retaining wall backfilling, if properly levelled and compacted, makes an excellent base for asphalt trails.	Not appropriate for trail surfacing.
	Stone fines (Screenings): Mixture of fine particles and small diameter crushed stone. Levels and compacts very well and creates a smooth surface that most trail users can negotiate easily. Easy to spread and regrade where surface deformities develop. Inexpensive and easy to work with. Widely used and accepted as the surface of choice.	Subject to erosion on slopes Wheelchair users have reported that stone shards picked up by wheels can be hard on hands. May not be suitable as a base for hard surfaced trails in some locations.
Mulches and Wood Chips	Bark or wood chips, particle size ranges from fine to course depending on product selected, soft under foot, very natural appearance that is aesthetically appropriate for woodlot and natural area settings. Some user groups have difficulty negotiating the softer surface, therefore this surface can be used to discourage some uses such as cycling. May be available at a very low cost depending on source; easy to work with.	Breaks down over time, therefore requires "topping up". Source of material must be carefully researched to avoid unintentional importation of invasive species (plants and insects).

Table 5.8 Comparison of Trail Surfacing Materials

Type	Advantages	Disadvantages
Earth/Natural Surface	Native soils existing in situ. Only cost is labour to clear and grub out vegetation and re-grade to create appropriate surface. Appropriate for trails in natural areas provided that desired grades can be achieved and that soil is stable (do not use avoid organic soils).	Subject to erosion on slopes. Different characteristics in different locations along the trail can lead to soft spots. Some user groups will have difficulty negotiating surface.
Soil Cement and Soil Binding Agents	Soil Cement = mixture of Portland Cement and native/parent trail material. When mixed and set it creates a stable surface that can be useful for "trail hardening" on slopes, particularly in natural settings. Soil Binding Agents = mix of granulars and polymers that create a solid, yet flexible surface that may be appropriate for "trail hardening" on slopes in natural areas. Limits volume and weight of materials to be hauled into remote locations.	Useful for specific locations only. Soil binding agents tend to be expensive and have been met with mixed success.
Wood (i.e. bridges and boardwalks)	Attractive, natural, renewable material that creates a solid and level travel surface. Choose rough sawn materials for deck surfacing for added traction.	Requires skill to install, particularly with the substructure. Gradually decomposes over time, this can be accelerated in damp and shady locations, and where wood is in contact with soil. Expensive to install.

5.4.2 Boulevard Multi-Use Trails

A boulevard multi-use trail can be used where the characteristics of the boulevard are suitable. Even though users of the boulevard multi-use trail have the right-of-way over vehicles as they leave the road and enter the driveway, every driveway is a potential conflict point. Intersecting roadways are a particular concern as motor vehicles making right hand turns may not be anticipating the speed at which some users of the boulevard multi-use trail may be traveling (i.e. cyclists). Therefore, the boulevard multi-use trail has limited application. The following are some general roadway characteristics where the application of a boulevard trail may be considered:

- Urban arterial, collector or rural roads where there is ample right of way between the edge of the road (curb for urban cross section and shoulder for rural cross section) and the limit of the right of way to maintain a minimum separation between the road and the trail;
- Routes that provide connections between important destinations or links between off-road trails where no parallel route(s) exist nearby;
- Routes that are intended to provide short connections between long off-road trail segments (i.e. 4 – 6 blocks or less where other alternatives are not available); and
- Along corridors where there are limited commercial or residential driveway crossings. The guideline thresholds outlined in **Table 5.9** have been applied in several other municipalities and are suggested for the City of Orillia.

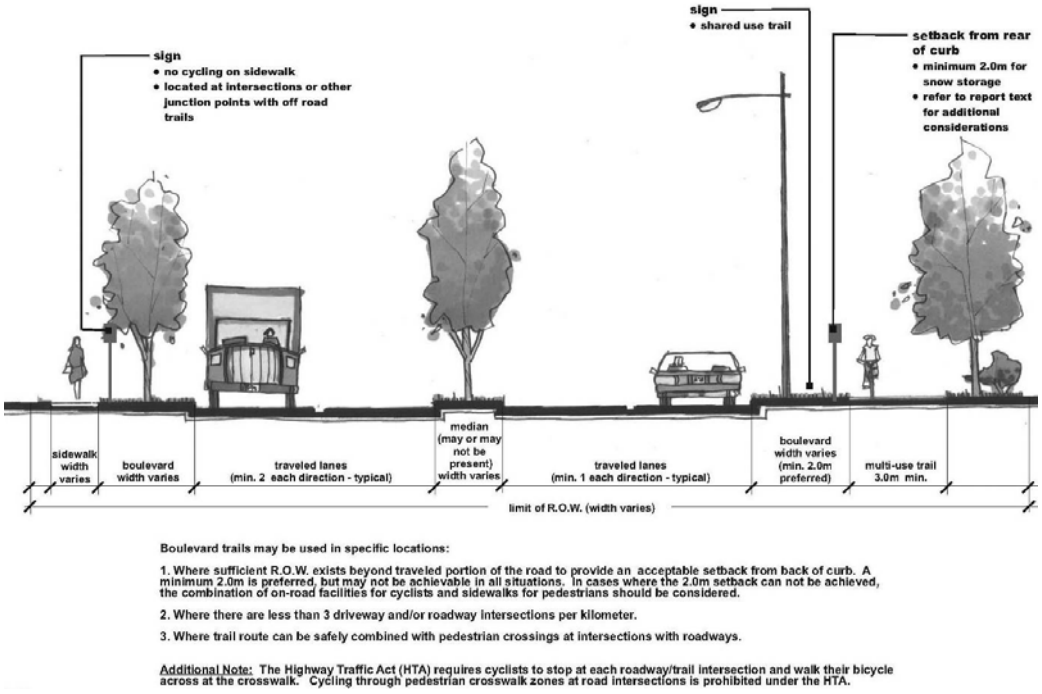


Figure 5.2 – Boulevard Multi-Use Trails

Table 5.9 Driveway crossings thresholds for Boulevard multi-use trails

Number of Driveway Crossings / Intersections Per km	Guideline Recommendation for Boulevard Multi-use Trail
0-3	An ideal application for boulevard multi-use trail.
4-10	Consider applying on-road paved shoulders or bike lanes, where other conditions noted above can't be met.
>10	Boulevard trail not recommended. Pedestrian trail users should be directed to follow sidewalks, bicycle lanes should be installed on-road for cyclists.

When implementing this facility type, the following design elements should be considered:

- A setback from the curb is required to provide space for snow storage, to provide an adequate clear zone from site furniture and utility poles and in some cases street tree plantings. Where street

tree plantings are included, the preferred setback is 3.0-4.5 m from the curb. Where no trees are included and vehicle speed is 60 km/hr or less, the preferred setback can be reduced to 2.0 m;

- The setback should be achieved throughout the length of the route with the exception of intersections where the trail should cross with the formal pedestrian crossing;
- Signing in advance of, and at roadway intersections, to inform cyclists to stop, dismount and walk across intersections as required by the Highway Traffic Act, or a suitable crossing design to permit cyclists to legally ride through intersections after stopping but without dismounting;
- Stop or yield signs (decision on a site-by-site basis) at driveways, depending on the number of driveways and the distance between each;
- A treatment at road intersections (i.e. swing gate) to separate "lanes of traffic" in each direction. The treatment must be spaced adequately to allow for the passage of bicycles with trailers;
- Open sight lines at intersections with driveways and roadways;
- A centre yellow line on trails to separate directions of travel (for hard surfaced trails-optional) and to guide riders overtaking pedestrians and slower moving riders; and
- Curb ramps at driveways and roadway intersections.

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

Where boulevard trails are provided as multi-use primary or secondary trail connections, some cyclists may still prefer to, and have the legal right to, ride on the road. The addition of bicycle lanes should be evaluated during the design stage for new roads and upgrading of existing roads even where boulevard trails are provided. Where it is not appropriate or feasible to include bicycle lanes, consideration should be given to providing a wide curb lane to accommodate cyclists, along with other improvements to make the street more bicycle friendly (e.g. bicycle friendly catch basin covers, share the road and bike route signage, sharrow symbols etc.). AASHTO notes the following problems associated with multi-use trail boulevard trails:

- Unless separated and set back from the road, they require one direction of cycling traffic to ride against motor vehicle traffic, contrary to normal rules of the road;
- When the path ends, cyclists going against traffic will tend to continue to travel on the wrong side of the street. Likewise, cyclists approaching a shared-use path often travel on the wrong side of the street in getting to the path. Wrong-way travel by cyclists is a major cause of cyclist / automobile collisions and should be discouraged at every opportunity;
- At intersections, motorists entering or crossing the roadway often will not notice cyclists approaching from their right, as they are not expecting contra-flow vehicles. Even cyclists coming from the left often go unnoticed, especially when sight distances are limited;
- Signs posted for roadway users are backwards for contra-flow cycling traffic; therefore these cyclists are unable to read the information without stopping and turning around;
- When the available right-of-way is too narrow to accommodate all roadway and shared-use path features, it may be prudent to consider a reduction of the existing or proposed widths of the various road (and trail) cross-sectional elements such as travel lane and shoulder widths, for example. However, any reduction to less than MTO, TAC, AASHTO or municipal approved design criteria should be supported by a documented engineering analysis;
- Many cyclists will use the roadway instead of the boulevard trail because they have found the roadway to be more convenient, better maintained, or perceive it to be safer. Some motorists who

Where it is not appropriate or feasible to include bicycle lanes, consideration should be given to providing a wide curb lane to accommodate cyclists, along with other improvements to make the street more bicycle friendly (e.g. bicycle friendly catch basin covers, share the road and bike route signage, sharrow symbols etc.).

feel that in all cases cyclists should be on the trail may harass cyclists using the roadway;

- Although shared-use boulevard trails should be given the same priority through intersections as the parallel roadway, motorists falsely expect cyclists to stop or yield at all cross-streets and driveways. Efforts to require or encourage cyclists to stop or yield at each cross street and driveway, as required under the Highway Traffic Act, are frequently ignored by cyclists; and
- Stopped cross-street motor vehicle traffic exiting side streets or driveways may block the path crossing.

The application of boulevard trails as cycling facilities directly adjacent to a roadway is not recommended unless separated by a curb and clear zone.

5.4.3 On-Road Routes

Bicycles are designated as a vehicle under the Highway Traffic Act (HTA) and as such are required to obey all of the same rules and regulations as automobiles when being operated on a public roadway.

Bicycles are designated as a vehicle under the Highway Traffic Act (HTA) and as such are required to obey all of the same rules and regulations as automobiles when being operated on a public roadway. The Ministry of Transportation (MTO) and the Transportation Association of Canada (TAC) have developed standards for the design of on-road facilities and signing for on-road-bike system. The City of Orillia will explore a number of options that exist for on-road cycling routes including bicycle lanes, paved shoulders, wide curb or shared lanes and signed routes. In addition to the commonly encountered situations to which relatively simple guidelines can be applied, there are often situations where the proper design requires a bicycle system design specialist who is familiar both the common guidelines, and innovative techniques, successfully applied elsewhere.

Conventional Bike Lanes

Bike lanes are typically located on urban cross-section roads (with curb and gutter) to create a physical space reserved for cyclists. In many municipalities, persons who use mobility-assisted devices also use this space. The diamond symbol and bicycle symbol painted on the pavement, in addition to roadside signs are useful on higher volume and higher traffic roadways. In areas where on-street parking

is permitted, continuing the bike lane is the ideal method where space permits. Where road right-of-way widths are limited, where narrowing or removing traffic lanes is not feasible, and/or where the relocation or removal of parking is not an option, the bike lane must be properly terminated, which includes proper signage. The Bikeway Traffic Control Guidelines for Canada (Transportation Association of Canada 1998) should be consulted for additional details and specifications.

Bike lanes should be clearly identified on roadways through bicycle route signing, bicycle symbol pavement markings and bike lane signs. **Table 5.10** summarizes the widths of bike lanes recommended for the City of Orillia based on the requirements set out by the Ministry of Transportation (MTO), TAC and AADTs, posted and observed speeds, as well as commercial vehicle volumes (trucks / buses).

Table 5.10 Recommended Bike Lane Widths

Classification	Minimum Width	Desired Width
Standard Bike Lane	1.5 m	1.8 m
Bike Lane Adjacent to On-Street Parking Aisle	1.5 m	1.8 m
Bike Lanes on Rural Roads with Posted Speed Limit between 60 - 80 km/h [(a)]	1.5 m	2.0 m
Bike Lanes in Constrained Right-of-way	1.2 m	1.5 m

Note (a): On-road cycling facilities are not recommended on roadways with posted speed limits greater than 80 km/h.

Signed routes are typically found along roads where traffic volumes and vehicle speeds are low.

Signed Routes

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

Paved shoulders provide a space for cyclists on rural cross-section roads (with shoulders, no curb and gutter).

the road" signs can also be erected to encourage cooperative behaviour between cyclists and motorists.

Paved Shoulder Bikeways

Paved shoulders provide a space for cyclists on rural cross-section roads (with shoulders, no curb and gutter). Pedestrians can use paved or granular shoulders where necessary (traveling in a direction facing traffic). Paved shoulders are typically recommended on rural cross section roads where traffic volume and speed are high. Poor sight lines and high truck volume are additional situations where paved shoulders should be considered.

Paved shoulder bikeways (a paved shoulder on a road signed for cycling) may form part of the main and secondary/local community systems in rural areas. Where funding is limited, adding or improving shoulders on uphill sections will give slow moving cyclists needed manoeuvring space and will decrease conflicts with faster moving motor vehicle traffic[17]. On rural roads, a marked edge line is typically used to designate a paved shoulder.

It is recommended that paved shoulder cycling routes on roads having a posted speed limit up to and equal to 60 km/h should have a preferred design width of 1.5 m. On roads with a high percentage of commercial traffic above 60 km/h and less than 80 km/h, a design width of 2.0 m is preferred. However, in constrained areas, shoulder cycling routes with a design width of 1.5 m may be used if adjacent to a granular surface. That said, since a bicycle is defined as a vehicle, cyclists have the right to continue to use rural roads regardless of the posted limit, traffic volume or availability of a paved shoulder. If the preferred design width of 2.0 m for a paved shoulder cannot be achieved, any additional paved shoulder width is better than none at all. Paved shoulders on rural roads should not be denoted as reserved bicycle lanes but only as signed only bicycle routes since they must still be available as a refuge for disabled vehicles.

17 Bikeway Traffic Control Guidelines for Canada, Transportation Association of Canada (TAC), (1999)

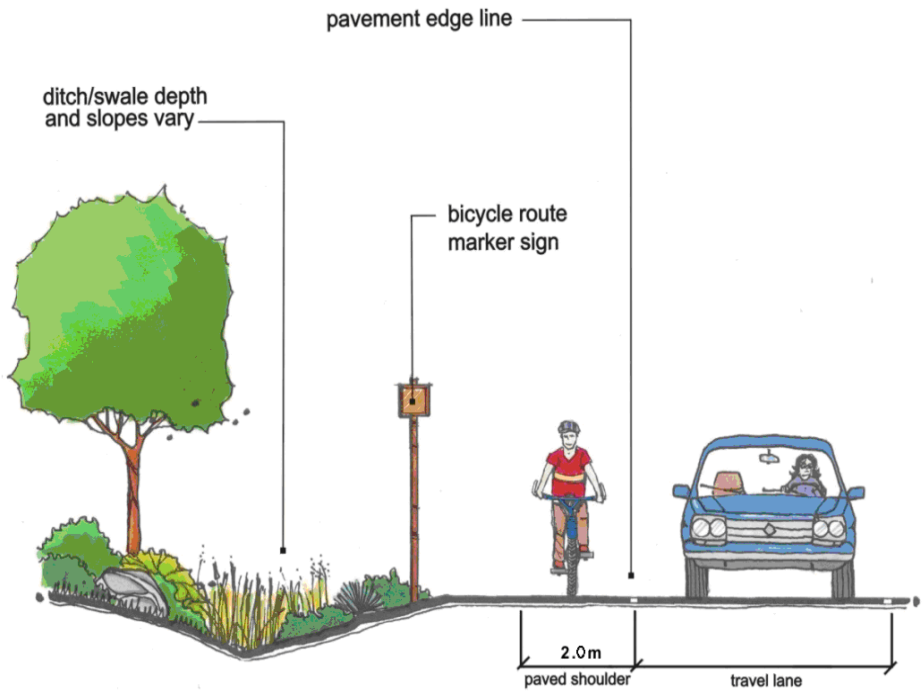


Figure 5.3 – Typical Paved Shoulder Bikeway

There may be segments of proposed cycling routes on roads with rural cross-sections (no curb) where it is difficult to accommodate even a minimum 1.2 m paved shoulder. In these cases, edge lines (pavement markings) may be provided to mark the vehicle lane width and to delineate as much additional shoulder width as possible for cyclists to use. This approach, however, is not recommended for urban roads with curbs due to the risk of cyclists striking the curb and "bouncing" back into the motor vehicle travel lane, potentially colliding with a motor vehicle. Should edge lines be applied to a rural cross section road in an urban area primarily to support cycling, they should be a minimum of 1.2 m in width. If a rural road is upgraded to an urban section (with curbs) the paved shoulders should be converted into bike lanes.

Signed Only Bicycle Routes on Wide Curb Lanes

Signed only bicycle routes within wide curb lanes are similar to signed only bicycle routes, with the exception that the travel lane shared by motorists and cyclists is wider than a standard motor vehicle travel

lane (e.g. greater than 3.5 metres). Wide curb lanes (also referred to as shared use lanes) should have sufficient width to allow motorists to pass cyclists without encroaching on an adjacent travel lane (if one exists). Wide curb lanes should be encouraged for all road classifications to provide cycling friendly streets, whether they are designated as part of the cycling network or not.

Research indicates that as lane widths begin to exceed 4.0 m this tends to increase confusion and improper lane use by motor vehicles in congested urban environments, and may encourage unsafe passing manoeuvres in rural environments. Therefore the recommended wide curb lane width for roads that are proposed for designation as on-road cycling routes is 3.5 m to 4.0 m.

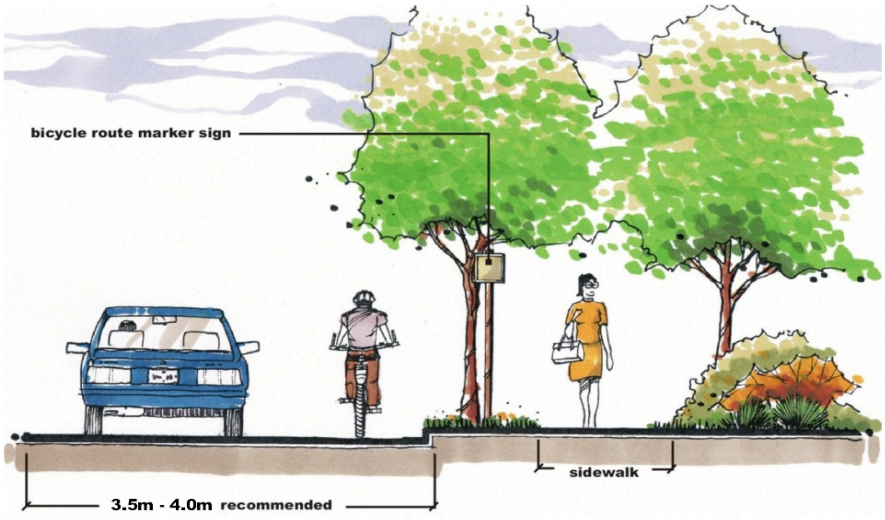


Figure 5.4 – Signed-Only Cycling Route along a Wide Curb Lane

Where necessary or desirable, the shared use arrow or "Sharrow" can be painted on the road at regular intervals to inform road users to expect cyclists, and to assist the cyclist in understanding the preferred location to travel.

Shared Use Lane Markings

Where necessary or desirable, the shared use arrow or "Sharrow" can be painted on the road at regular intervals to inform road users to expect cyclists, and to assist the cyclist in understanding the preferred location to travel.

Roads that are presently not suitable for on-road cycling facilities (i.e. too narrow, AADT'S too high or in poor condition) but are

recommended for implementation in the future should be upgraded to at least minimum standards before being signed as part of the cycling network.

TAC's Guidelines for the Design and Application of Bikeway Pavement Markings provides guidance on the application of shared use lane markings, including the following recommendations (refer to the TAC Guidelines for detailed recommendations):

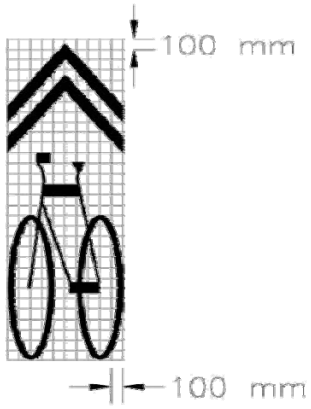


Figure 5.5 – Shared Use Lane Marking (Bicycle with Chevron)[18]

Place immediately after an intersection and 10 m before the end of a block.

Space longitudinally at intervals of 75 m (this spacing may be increased or decreased as needed to have evenly spaced markings within a block).

This marking may be used on roadways with lanes that are wide enough for side-by-side bicycle and vehicle operation but not wide enough for a standard bicycle lane. These markings should be used on roadways with posted vehicle speeds of 60 km/h or less.

On roadways without on-street parking, place so that the centre of the marking is 1.0 m but a minimum of 0.75 m from the edge of pavement or edge of curb.

18 Source: TAC Guidelines for the Design and Application of Bikeway Pavement Markings – Figure 3.1 (2007)

The use of this marking should be considered primarily on routes with high cyclist volumes and/or with less than average sight lines because of road grades. Bicycle route signing should also be applied along the cycling route.

Bicycle Priority Streets or Bikeway Boulevards

In some areas, particularly urban residential neighbourhoods, traffic calming techniques such as through travel restrictions for cars, traffic circles and reduction in the number of stops signs can be used to create “bicycle priority streets” which allow the cyclist to travel more efficiently by not having to break momentum and stop at frequently placed four way stops.

Figure 5.6 - Example of a Bikeway Boulevard with Neighbourhood Traffic Circle

Cycle Tracks

One alternative to standard on-road bike lanes now being considered by a number of municipalities in North America, most notably New York County, is separated bike lanes. The concept is based on on-street bikeways and bikeway boulevards popular in some European countries, especially the Netherlands. The facility is located on the road surface and not above the curb in the boulevard, and is typically unidirectional (although they can be bidirectional).

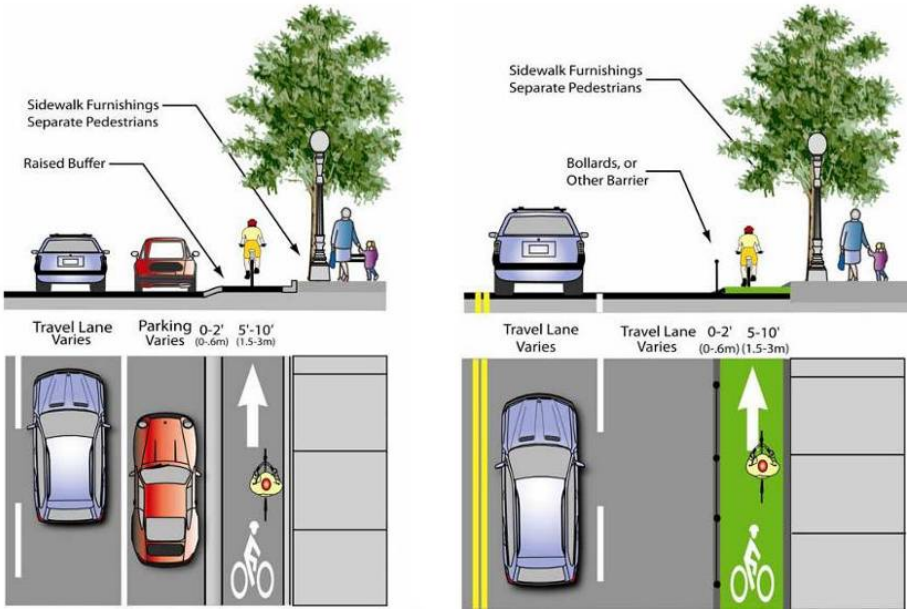


Figure 5.7 - Typical Cycle Track With or Without On-Street Parking

One of the challenges with standard bike lanes in urban areas, especially where on-street parking is provided is that cyclists often find themselves "sandwiched" between parked cars and moving motor vehicles, including trucks and buses in the adjacent travel lane. The opportunity for conflict is higher in this condition as motor vehicles cross the bike lane to park or exit parking. Cyclists are also at increased risk from motorists in parked or stopped vehicles who open the vehicle door into the bike lane at the same time a cyclist is approaching (known as "dooring"). Delivery trucks, buses and taxis can also be found blocking the bike lane from time to time forcing the

cyclist to divert into the adjacent general purpose travel lane or wait for the vehicle to move on.

In an effort to reduce these types of conditions, reduce the risk to cyclists and encourage more people to cycle, the bike lanes are combined into a bikeway separated by a buffer that may consist of a 0.5 to 1.0 m hatched pavement marking and/or ideally a physical barrier. On streets where full time parking is permitted, the parking lane may be shifted away from the curb and the bikeway inserted between the curb and the parking lane, with the latter separated from the bikeway by a raised planted median.

Figure 5.8 - Example of a Raised Bicycle Lane on Ayres Road in Eugene, Oregon[19]

Figure 5.9 - Example of a Two-way Cycle Track in Montreal, Quebec[20]

Although separated bike lanes (on-street bikeways) have many advantages, they also have some challenges. Intersection crossings may require special treatments, such as traffic control and/or traffic calming facilities. Pedestrians may use the bikeway as an extension of the sidewalk in busy commercial areas and when on-street parking is present, a motorist's ability to see cyclists may be compromised. In addition, motor vehicles will need to yield to bicycle traffic, particularly

19 (Source: "Cycle Tracks: Lessons Learned", Alta Planning + Design, 2008)

20 (Source: Flickr)

right-turning vehicles at intersections.[21] The cost to implement the facility, educate users and maintain it, including snow clearing in winter months, are also areas that need further investigation.

5.4.4 Pedestrian Facilities

A sidewalk is located within the road right-of-way but separate from the travelled portion of the roadway. Sidewalks are typically made of concrete, are a minimum width of 1.5 m and are designed primarily for pedestrians. Existing and future pedestrian sidewalks should be incorporated into the spine and neighbourhood systems in urban areas for all system segments proposed within road rights-of-way. Sidewalks are preferred on both sides of all streets in the urban areas that are designated Active Transportation routes (for both new street construction and retrofitting of existing streets).

Where this cannot be achieved a sidewalk should be provided on at least one side for all streets other than cul-de-sacs and laneways. In these situations where traffic volume is extremely low, pedestrians can safely share the street with motor vehicles. Once sidewalks are constructed within the public right-of-way, the City assumes responsibility for all future repair, reconstruction, maintenance, and operation during the life of the asset. Therefore, it is important that long-term financial liability be recognized when the City decides when and where sidewalks are required.

A “buffer” zone should also be provided between the sidewalk and roadway where applicable to separate pedestrians from the road. Buffer zones may vary depending on the nature of the area they serve. In older and established neighbourhoods, the cost of installing sidewalks and opposition by residents may be significant challenges encountered in the decision to add sidewalks or not in these neighbourhoods.

21 Innovative Bicycle Treatments, An Informational Report, Jumana Nabti, Mathew Ridgway and the ITE Pedestrian and Bicycle Council, Institute of Transportation Engineers, May, 2002.

5.5 NETWORK DESIGN FEATURES

5.5.1 Streets

Some of the new cycling routes recommended in the AT Plan will involve retrofitting existing arterial and local roads. Narrow rights-of-way, roadway platform and pavement widths as well as other geometric issues related to roadway design and drainage will impact both the feasibility and cost of implementing the recommended facility type and respective preferred design. It is important to establish minimum thresholds for applying appropriate design guidelines. **Tables 5.12** and **5.13** outline a set of recommended guidelines for retrofitting roads in the City of Orillia to accommodate cycling facilities in both ideal and constrained conditions. On higher volume / speed roadways consideration should be given to “buffered” bike lanes or cycle tracks in place of bike lanes where possible. Where the curb to curb width of a road is not wide enough to accommodate bike lanes, a cycle track pushed into the boulevard may be an option.

	Road Configuration and Characteristics	Preferred Solution	Minimum or Interim Solution (Constrained Projects)
a)	2 Lane Urban ≤ 3,000 AADT / Lane ≤ 60 km/h ≤ 6% Trucks	4.25 4.25 WCL WCL	3.5 3.5 SL SL
b)	2 Lane Urban > 3,000 AADT / Lane ≤ 60 km/h 6% ≤ 12% Trucks	1.5 3.5 3.5 1.5 BL BL	3.75 3.75 WCL WCL
c)	2 Lane Urban > 3,000 AADT / Lane > 60 km/h > 12% Trucks	1.5 3.5 3.5 1.5 BL BL 1.2 3.5 3.5 1.2 BL BL OR 1.5 3.2 3.2 1.5 BL BL	
d)	4+ Lane Urban ≤ 10,000 AADT / Lane ≤ 60 km ≤ 12% Trucks	1.5 3.5 3.5 3.5 3.5 1.5 BL BL	3.75 3.2 3.2 3.75 OR 1.2 3.5 3.2 3.2 3.5 1.2 BL BL
e)	4+ Lane Urban > 10,000 AADT / Lane ≤ 60 km/h > 12% Trucks	1.5 3.5 3.5 3.5 3.5 1.5 BL BL	1.2 3.5 3.2 3.2 3.5 1.2 BL BL
f)	4+ Lane Urban > 10,000 AADT / Lane > 60 km/h > 12% Trucks	1.8 3.5 3.5 3.5 3.5 1.8 BL BL	1.5 3.5 3.5 3.5 3.5 1.5 BL BL Look at parallel routes

BL = Bike Lane WCL = Wide Curb Lane SL = Shared Lane 3.5 = Vehicle Travel Lane Width (metres)

BL = Bike Lane measured to face of curb (includes gutter)

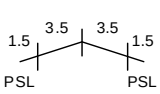
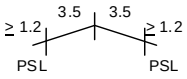
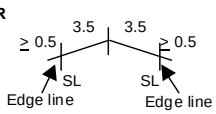
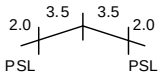
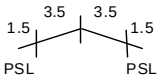
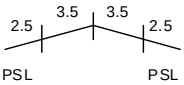
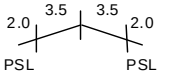
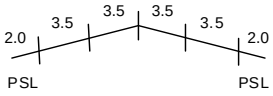
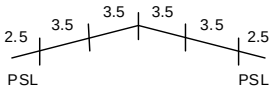
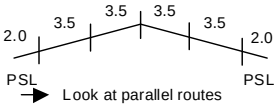
NOTES:

1. Motor vehicle travel lane widths can vary (e.g. 3.25 m to 4.25 m). If a travel lane is less than 3.25 m the adjacent bike lane should typically be a minimum of 1.5 m unless it is an interim condition. That said, good engineering judgement must be applied at all times.

2. **The values indicated in these tables are suggested thresholds and are not meant to be prescriptive. Rather, these thresholds are meant to serve as a guide to assist bikeway planners and designers in the decision-making process when attempting to retrofit existing roads for cycling facilities.** A decision to select one cycling facility type over another will also be influenced by other factors. These may include the type and density of adjacent land uses, driveway frequency, collision information, municipal streetscape and / or urban design planning objectives for a particular road or road segment, and local community preferences.

Sources:

- Ministry of Transportation of Ontario (MTO), Ontario Bikeways Planning and Design Guidelines (1996);
- Transportation Association of Canada (TAC), Geometric Design Guide for Canadian Roads (1999);
- United States Department of Transportation - Federal Highway Administration, Selecting Roadway Design Treatments to Accommodate Bicycles (FHWA-RD-92-073);
- University of North Carolina, Highway Safety Research Center and Pedestrian and Bicycle Information Centre, Bicycle Facility Selection: A Comparison of Approaches;
- American Association of State Highway and Transportation Officials, Guide for the Development of Bicycle Facilities, (1999);

	Road Configuration and Characteristics	Preferred Solution	Minimum or Interim Solution (Constrained Projects)
a)	2 Lane Rural ≤ 3,000 AADT / Lane ≤ 80 km/h ≤ 6% Trucks Good Sight Lines	 	OR 
b)	2 Lane Rural > 3,000 AADT / Lane ≤ 80 km/h 6% ≤ 12% Trucks Good Sight Lines		
c)	2 Lane Rural > 10,000 AADT / Lane ≤ 80 km/h > 12% Trucks Good Sight Lines		 Look at parallel routes
d)	4 Lane Rural ≤ 10,000 AADT / Lane ≤ 80 km/h ≤ 12% Trucks Good Sight Lines		
e)	4 Lane Rural > 10,000 AADT / Lane ≤ 80 km/h ≥ 12% Trucks Good Sight Lines		 Look at parallel routes

PSL = Paved Shoulder Lane SL = Shared Lane 3.5 = Vehicle Travel Lane Width (metres)

NOTES:

1. On roads with poor sight lines, preferred guidelines should always apply. Consideration should also be given to an additional clearance width of 0.5 m in the paved shoulder.
2. Assumes paved shoulders have an adjacent granular shoulder, which is typically 0.5 m or more in width.
3. **The values indicated in these tables are suggested thresholds and are not meant to be prescriptive. Rather, these thresholds are meant to serve as a guide to assist bikeway planners and designers in the decision-making process when attempting to retrofit existing roads for cycling facilities.** A decision to select one cycling facility type over another will also be influenced by other factors. These may include the type and density of adjacent land uses, driveway frequency, collision information, municipal streetscape and/or urban design planning objectives for a particular road or road segment, and local community preferences.

Sources:

- Ministry of Transportation of Ontario (MTO), Ontario Bikeways Planning and Design Guidelines (1996);
- Transportation Association of Canada (TAC), Geometric Design Guide for Canadian Roads (1999);
- United States Department of Transportation - Federal Highway Administration, Selecting Roadway Design Treatments to Accommodate Bicycles (FHWA-RD-92-073);
- University of North Carolina, Highway Safety Research Center and Pedestrian and Bicycle Information Centre, Bicycle Facility Selection: A Comparison of Approaches;
- American Association of State Highway and Transportation Officials, Guide for the Development of Bicycle Facilities, (1999);

5.5.2 Bridges and Highway Interchanges

Bridges

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

- In most situations the prefabricated steel truss bridge is a practical, cost effective solution;
- In locations where crossing distances are short, a wooden structure constructed on site may be suitable;
- Railings should be added if the height of the bridge deck exceeds 60 cm above the surrounding grade, and should be designed with a “rub rail” to prevent bicycle pedals and handlebars from becoming entangled in the pickets;
- When considering barrier free access to bridges, an appropriate hardened surface should be employed on the trail approaches and bridge decking should be spaced sufficiently close to allow easy passage by a person using a mobility-assisted device;

Figure 5.10 - A Pedestrian Trail Bridge, Brampton ON

- Decking running perpendicular to the path of travel is preferred over decking running parallel, as the latter is more difficult for use by wheelchairs, strollers and narrow tired bicycles;
- Bridges should be 0.6 m wider (0.3 m wider on each side) than the trails they are serving, to provide adequate side clearance for the railings. They should be wide enough and strong enough to support maintenance vehicles where required;
- An immovable bollard located at the centre of each approach can be used to prevent heavy vehicles from crossing a light duty bridge; and

- The bridge travel surface should be a non-slip material. Untreated wood or flat metal surfaces become slippery when wet or icy. Bridge slats made of self-weathering steel with raised dimples for traction have been used successfully. Open metal grating, on the other hand, is noisy and provides a less desirable riding surface for cyclists.

Underpasses

Often an underpass is the only way to cross significant barriers such as elevated railways and multi-lane highways. Underpasses should be designed wide enough to accommodate all trail users. The following are some general considerations:

- The minimum recommended underpass width for a multi-use trail is 3.6 m. Where the structure exceeds 18 m in length, in high traffic and/or urban areas the width should be increased to 4.2 or greater;
- For shorter length underpasses, a vertical clearance of 2.5 m is usually sufficient recommended;
- For longer structures a vertical clearance of 3.0 m should be considered. If service and/or emergency vehicles are to be accommodated within the underpass, an increase in vertical clearance may also need to be provided;
- Underpasses should be well lit with special consideration made to security, maintenance and drainage. Approaches and exits should be clear and open to provide unrestricted views into and beyond the end of the structure wherever possible;
- Abutments should be appropriately painted with hazard markings;
- Offensive graffiti and debris should also be removed promptly and regularly; and
- Ideally, the transition between the trail and underpass crossing should be level and provide for accessibility. In the case where an underpass crosses beneath ground-level travel ways, ramps should ideally be.

5.5.3 Intersections

A significant challenge when implementing a trail system is how to accommodate trail users when crossing roads. Options generally include:

- Grade separated crossings (bridges and underpasses including both shared and pedestrian/trail only facilities);
- When considering acceptable threshold distances for mid-block crossings use the following:
  - two Lane Roadway: 60 metres from nearest protected crossing
  - four to six Lane Roadway: 120 metres from nearest protected crossing
- Directing users to cross at an existing signalized or stop-controlled intersection;
- Utilizing a mid-block pedestrian signal or Intersection Pedestrian Signal (IPS); and
- At a mid block location with a pedestrian island or refuge.

A significant challenge when implementing a trail system is how to accommodate trail users when crossing roads.

Multi-use Trail Crossings at Intersections

TAC's Guidelines for the Design and Application of Bikeway Pavement Markings provide recommended treatments for locations where multi-use trails cross roadway intersections. There are two different applications to consider: where pedestrians and cyclists will mix and where only a cyclist will cross. .

Trail crossings of minor and major roads should include the following:

- Creation and maintenance of an open sight triangle at each crossing point;
- Trail access barriers;
- Signing along the roadway in advance of the crossing point to alert motorists to the trail crossing;
- Signing along the trail to alert trail users of the upcoming roadway crossing;
- Alignment of the crossing point to achieve as close to possible a perpendicular crossing of the roadway, to minimize the time that trail users are in the traveled portion of the roadway;
- Curb ramps on both sides of the road; and

- Consider mid-block curb extensions to reduce the distance pedestrians must travel to cross a road and make the crossing more visible to motorists.

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

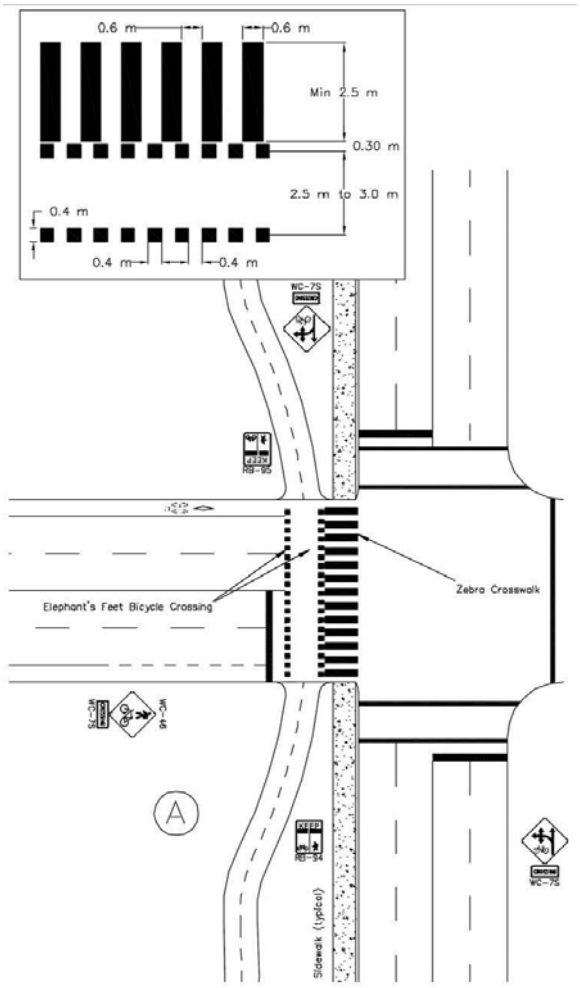


Figure 5.11 – Multi-use Trail Crossing of Intersection – Pedestrians and Cyclists

Source: TAC Guidelines for the Design and Application of Bikeway Pavement Markings – Page 40 (2007)

5.5.4 Mid-Block Crossings

Minor and Major Roads

Trail crossings of minor and major roads should include the following:

- Creation and maintenance of an open sight triangle at each crossing point;
- Trail access barriers;
- Signing along the roadway in advance of the crossing point to alert motorists to the trail crossing;
- Signing along the trail to alert trail users of the upcoming roadway crossing;
- Alignment of the crossing point to achieve as close to possible a perpendicular crossing of the roadway, to minimize the time that trail users are in the traveled portion of the roadway; and
- Curb ramps on both sides of the road.
- Consider mid-block curb extensions to reduce the distance pedestrians must travel to cross a road and make the crossing more visible to motorists.

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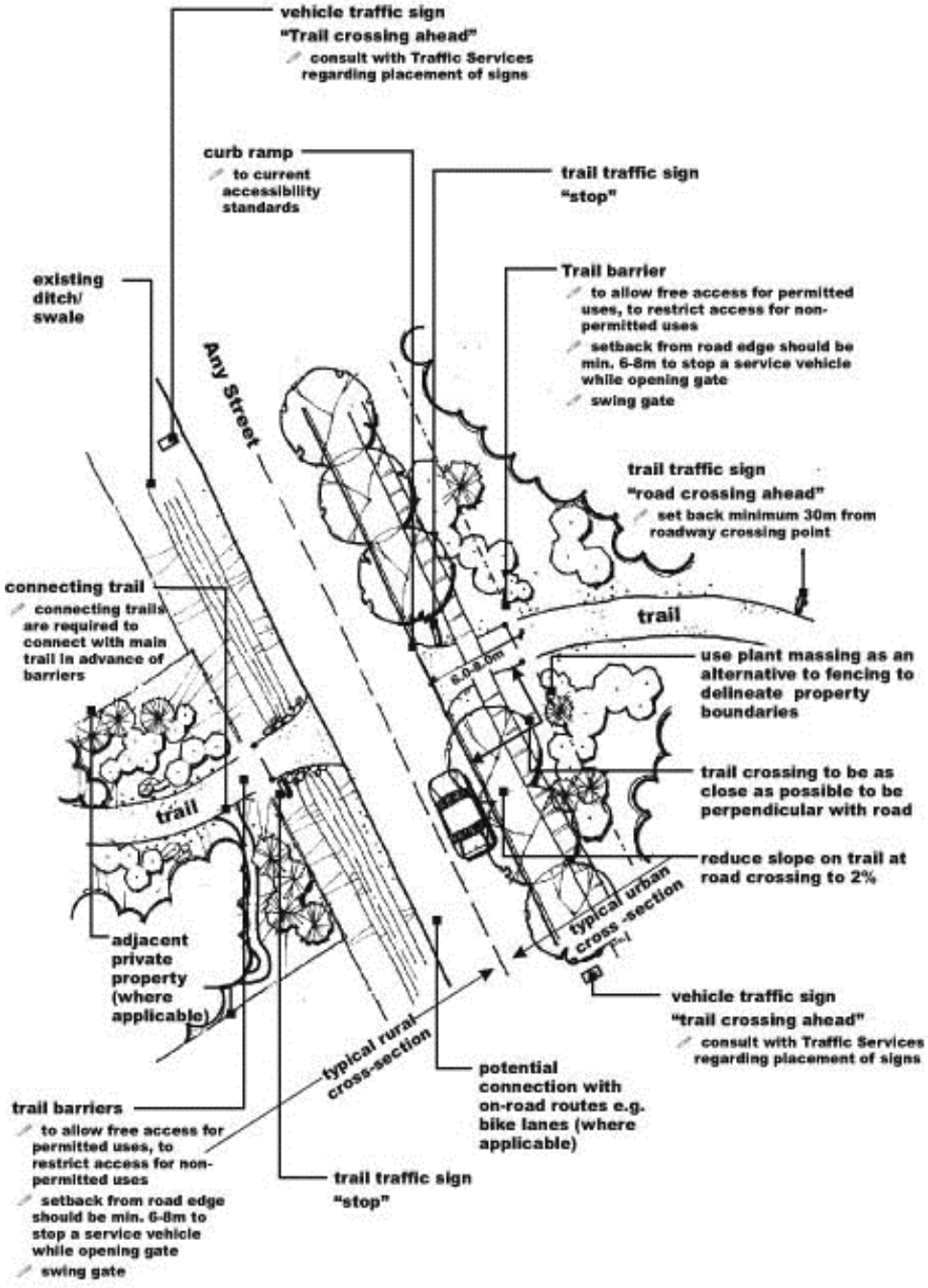


Figure 5.12 – Typical Trail Crossing

5.5.5 Off-road Corridors

Elevated Trail Beds and Boardwalks

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

The figure to the left illustrates the turnpike and low profile boardwalk, two relatively simple yet effective methods for secondary and special use (i.e. hiking only) trails. The turnpike is a low tech, low cost method that works very well in areas where organic soils are encountered. Various geosynthetic products have also been successfully used to overcome difficult soil conditions. The United States Department of Agriculture (Forest Service) has evaluated many products and design applications in the construction of trails in heavily used parks and on backcountry trails[22].

Figure 5.13 – Low Profile Boardwalk, Guelph, ON

Low profile boardwalks have been successfully employed by trail managers across Ontario. A good example can be found in the Hanlon Creek Conservation Area in Guelph.

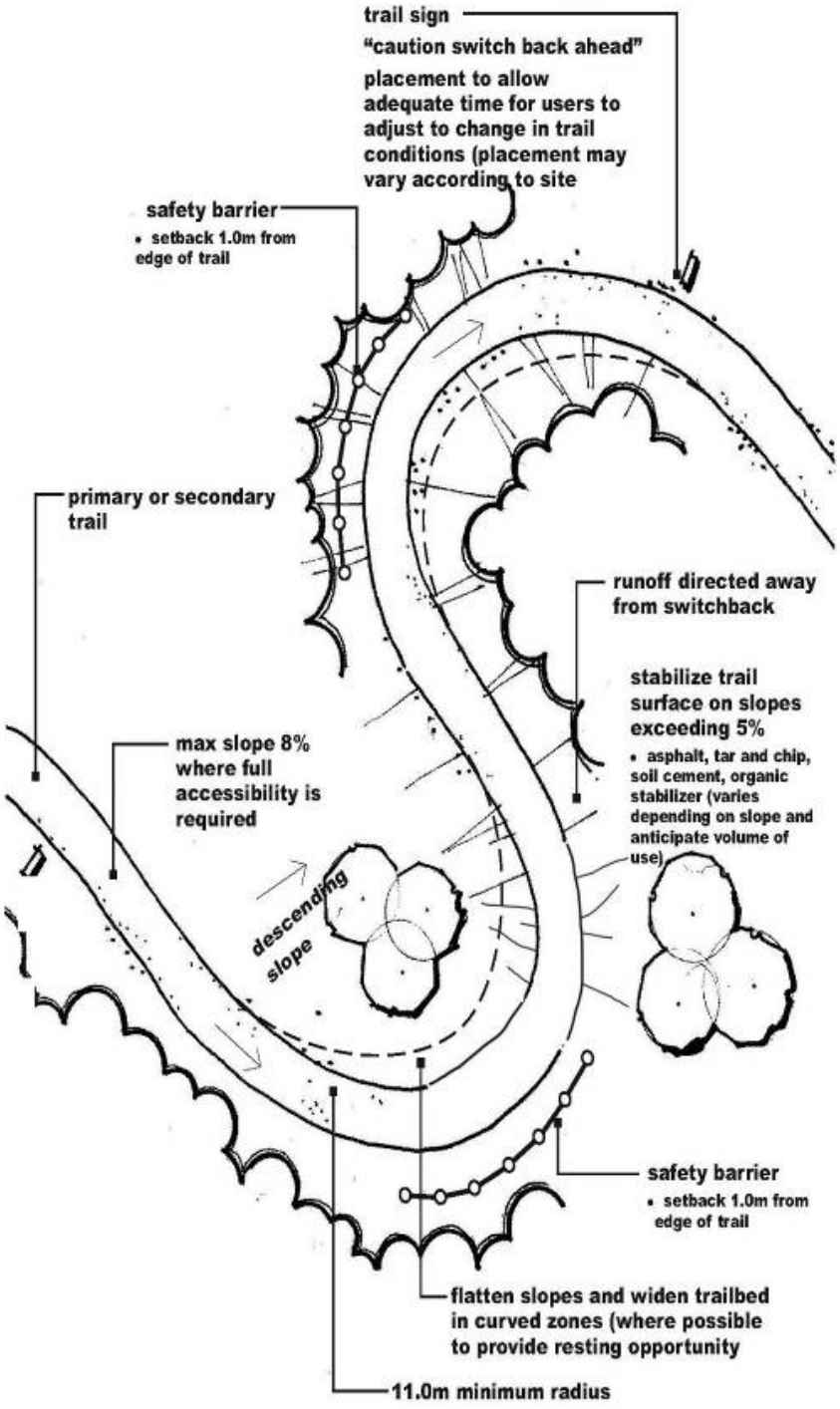
22 (http://www.fhwa.dot.gov/environment/fspubs/00232838/)

Switchbacks and Stairs

Pedestrian, motorized and some self-propelled users are capable of ascending grades of 30% or more whereas some users are limited to grades of less than 10%. For example, a slope of 5% is the threshold for a fully accessible facility. Once trail slopes exceed this threshold and slopes are long (i.e. more than 30 m) it is important to consider alternative methods of ascending slopes. Two alternatives to consider are switchbacks and stairs.

Where construction is feasible, switchbacks are generally preferred because they allow wheeled users such as cyclists to maintain their momentum, and there is less temptation to create shortcuts, as might be the case where stairways are used. Switchbacks are constructed with turns of about 180 degrees and are used to decrease the grade of the trail. A properly constructed switchback also provides outlets for runoff at regular intervals, thus reducing the potential for erosion. Switchbacks typically require extensive grading and are more suited to open locations where construction activity will not cause major disruption to the surrounding environment. Switchbacks can be difficult to implement in wooded areas without significant impacts to surrounding trees.

Switchbacks can be difficult to implement in wooded areas without significant impacts to surrounding trees.


trail sign
"caution switch back ahead"
placement to allow adequate time for users to adjust to change in trail conditions (placement may vary according to site
safety barrier
• setback 1.0m from edge of trail
primary or secondary trail
runoff directed away from switchback
stabilize trail surface on slopes exceeding 5%
• asphalt, tar and chip, soil cement, organic stabilizer (varies depending on slope and anticipate volume of use)
max slope 8% where full accessibility is required
descending slope
safety barrier
• setback 1.0m from edge of trail
flatten slopes and widen trailbed in curved zones (where possible to provide resting opportunity
11.0m minimum radius

When slopes exceed 15%, or where there is inadequate room to develop a switchback or another accessible solution, a stairway system should be considered. The following are some considerations for stairway design:

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

5.6 NETWORK AMENITIES

The provision of network amenities is a key and sometimes overlooked element of cycling network design. Developing and maintaining a comprehensive network of on-road and off-road active transportation facilities does not automatically mean people will use the network. The network has to be promoted, users need to feel comfortable and safe in using it, and they should have access to adequate trip-end facilities at strategic locations.

This section outlines many of the amenities that should be considered during the design and implementation of the cycling network.

5.6.1 Trip End Facilities for Commuters

Installation of showers and lockers at workplaces and educational institutions help to promote the use of the network for utilitarian purposes. Lockers can be used to store personal belongings such as cycling accessories and a change of clothing. Businesses or

institutions with employees who commute by bicycle, or other modes should be encouraged to offer these facilities.

Consideration should be given to promoting and / or implementing trip-end facilities as part of efforts to apply a City-wide transportation demand management (TDM) strategy.

5.6.2 Rest and Staging Areas

Seating and Rest Areas

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

Washrooms and Waste Receptacles

Washrooms must be provided along the trail. Typically, they are located at major trailheads and where possible make use of existing facilities (i.e. at community centres and in major parks). As trail use continues to increase, and as the network becomes denser, it may be necessary to provide additional facilities. Where this is necessary, they must be placed where they can be easily accessed for maintenance and surveillance.

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

5.6.3 Bicycle Parking

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

Racks, whether as single units or grouped together, should be securely fastened to a mounting surface to prevent the theft of a bicycle attached to a rack. Another alternative is to create a bicycle rack that is large enough that it cannot be easily lifted or moved from its position with bicycles attached. Bicycle racks should be placed as close as possible to the trail facility that it serves, but not in a location where they would inhibit trail user flow.

Bicycle racks are made up of four main components: the rack element, the rack, the rack area and the rack area site. These components are described in greater detail in the following sections.

Bicycle Rack Element

The bicycle rack element is the portion of a bike rack that supports the bicycle. Bicycle rack elements can be joined on any common base or arranged in a regular array and fastened to a common mounting surface. The racks may be used to accommodate a varying number of bicycles securely in a particular location. Various types of available bicycle rack designs include the “Ribbon” rack, the “Ring” rack, the “Ring and Post” rack and the “Swerve” rack.

The rack element should:

- Support the bicycle upright by its frame in two places;
- Prevent the wheel of the bicycle from tipping over;

- Enable the frame and one or both wheels to be secured;
- Support bicycles without a diamond-shaped frame with a horizontal top tube;
- Allow front-in parking: a U-lock should be able to lock the front wheel and the down tube of an upright bicycle; and
- Allow back-in parking: a U-lock should be able to lock the rear wheel and seat tube of the bicycle.

Bicycle racks should not only allow for a secure lock between the bicycle and the rack, but should also provide support for the bicycle frame itself.

The rack element should also be designed to resist being cut or detached by common hand tools such as bolt and pipe cutters, wrenches and pry bars which can easily be concealed in backpacks.

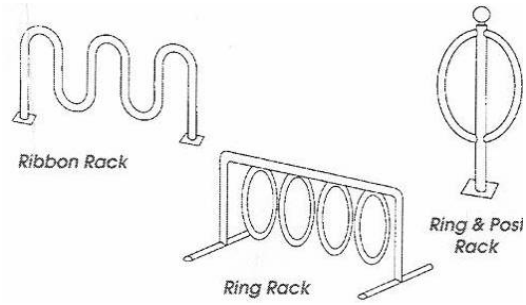


Figure 5.15 - Various Bicycle Rack Designs

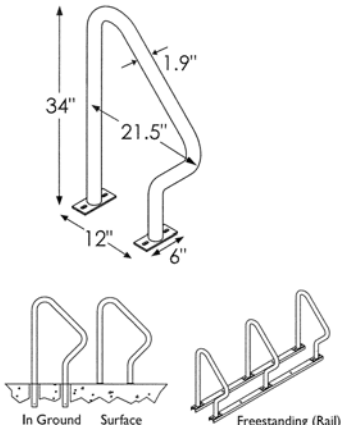


Figure 5.16 - Swerve Rack Design

Bicycle Rack

Bicycle racks should consist of a grouping of the rack elements either by attaching them to a single frame or allowing them to remain as single elements mounted in close proximity to one another. Racks,

whether as single units or grouped together, should be securely fastened to a mounting surface to prevent the theft of a bicycle attached to a rack. Another alternative is to create a bicycle rack that is so large that it cannot be easily lifted or moved from its position with bicycles attached.

Easy and independent bike access should be provided to the bicycle rack. Inverted "U" rack elements should be mounted in a row and placed on 750 mm (approximately 30") centres to allow enough room for two bicycles to be secured to each rack element. Bicycle racks should be arranged in a way so that is quick, easy and convenient for a cyclist to lock and unlock their bicycle to or from a rack.

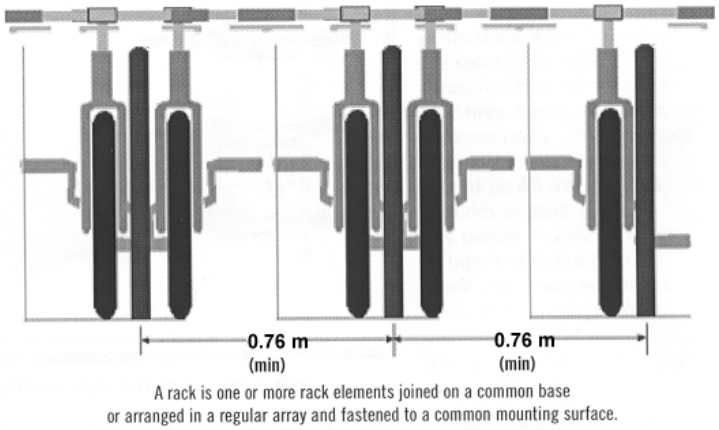


Figure 5.17 - Bicycle Rack

Revised Figure from Bicycle Parking Guidelines: The Association of Pedestrian and Bicycle Professionals (APBP), www.apbp.org

Bicycle Rack Area

The rack area is essentially the "bicycle parking lot" and refers to the area where more than one bicycle rack is installed. Bicycle racks are separated by aisles, much like a typical motor vehicle parking lot. The recommended minimum width between aisles should be 1.2 m to provide enough space for one person to walk with one bicycle. Aisle widths of 1.8 m are recommended in high traffic areas where many users may retrieve their bicycle at the same time, such as after a school class. A 1.8 m depth should be provided for each row of

parked bicycles since conventional bicycles are just less than 1.8 m long and can be accommodated in that space.

Large bicycle rack areas with a high turnover rate of arriving and departing cyclists should have more than one entrance to help facilitate user flow. If possible, the rack area should be sheltered to protect the bicycles from the elements by placing awnings and overhangs above the rack area.

Bicycle Rack Area Site

Bicycle racks should be placed as close as possible to the entrance that it serves, but not in a location where they would inhibit, pedestrian flow in and out of the building. Rack areas should be no more than 15 m from an entrance, and should be clearly visible along a major building approach line. Bicycle rack areas that are hard to find or that are located far from a building entrance are generally perceived as vulnerable to vandalism and will generally not be used by cyclists. To encourage use of a bicycle rack by cyclists, the rack site should be clearly visible and well lit.

Multiple buildings in an area should not be served by one distant bike rack. Rather, smaller bike racks should be placed in a convenient location at each building, but not in a manner that would obstruct utility access openings, garbage disposal bins, doorways or other building access points.

Bicycle racks can be placed on concrete, asphalt or brick surfaces. Bicycle racks should be securely fastened to the surface to prevent shifting or removal. If they cannot be fastened to the surface, then they should be large and heavy enough so that they cannot be easily moved.

Bicycle racks placed on grass surfaces cannot be secured to the ground, therefore they should also be heavy enough so that they cannot be moved. To avoid excessive bicycle riding on the grass, bicycle racks should only be placed on grass surfaces located within close proximity to a paved cycling route, such as on off-road multi-use trail, or an on-road route. Bicycle racks on grass surfaces should be considered temporary, and every effort should be made to relocate

them to a permanent, hard surface area or a concrete pad can be paved in an approved area to accommodate bicycle parking.

Bicycle racks should not be placed within bus loading areas, taxi zones, goods delivery zones and emergency vehicle zones. In addition, it should be placed at least 4.0 m away from a fire hydrant, 2.5 m from a driveway or access lane and 10.0 m from an intersection.

Generally bicycle parking devices/facilities should:

- Enable the bicycle to be securely locked to the device without damaging the bicycle, and be easy to use without the need for detailed instructions;
- Be placed along key trail routes, connections and other destinations where cyclists are expected;
- Be placed in public view where possible, where they can be viewed by passers-by, trail attendants, fellow workers, etc.;
- Present no hazard to pedestrians;
- Be easily accessible from the road or trail;
- Be arranged so that parking manoeuvres will not damage adjacent bicycles;
- Be as close as possible to the cyclist's destination;
- Be sheltered from inclement weather, where possible and practical; and
- Be located in areas that are optimal for deterring theft and vandalism.

5.6.4 Bicycle Friendly Catch Basin Covers

Catch basin grates and utility covers are potential obstructions to cyclists, as well as in-line skaters. Therefore, bicycle-safe grates should be used, and grates and covers should be located in a manner which will minimize severe and/or frequent manoeuvring by the cyclist. When new curbed roadways are constructed or rehabilitated, curb face inlets should be considered to minimize the number of potential obstructions. Catch basin grates and utility covers should be placed or adjusted to be flush with the adjacent pavement surface.

Catch basin grates with slots parallel to the roadway, or a gap between the frame and the grate, can trap the front wheel of a bicycle, causing loss of steering control. If the slot spacing is wide enough, narrow bicycle wheels can drop into the grates. Conflicts with grates may result in serious damage to the bicycle wheel and frame as well as injury to the cyclist.

These grates should be replaced with bicycle-safe, hydraulically efficient versions. All on-road cycling facilities in urban areas with curb, gutter and storm drains should be made bicycle friendly through the provision of bicycle friendly catch basin covers.

The Region of Niagara has recently adopted a new standard for catch basin covers that is bicycle friendly. The City of Orillia may want to consider a standard similar to the one used in the Region of Niagara and develop a standard bicycle friendly catch basin cover.

5.7 ROUTE NETWORK SIGNAGE

5.7.1 Bicycle Route Network Designation Signs

Bicycle route and pedestrian system designation signs should be used to "brand" or identify routes that constitute the network.

Bicycle route and pedestrian system designation signs should be used to "brand" or identify routes that constitute the network. Designation signs may be mounted alone or with other signs at logical, highly visible locations on both on-road and off-road network route segments. The bicycle route sign, shown in **Figure 5.18** is commonly used for this purpose.

Figure 5.18 - Bicycle Route Marker Sign

Source: TAC Bikeway Traffic Control Guidelines, 1998

5.7.2 Regulatory Signs

Regulatory signs are intended to control particular aspects of travel and use along the road or off-road network. Signs restricting or requiring specific behaviour is not legally enforceable unless it is associated with a provincial law or municipal by-law. Where applicable, it is recommended that authorities discreetly include the by-law

number on signs to reinforce their regulatory function. **Figure 5.19** to the right illustrates a reserved bicycle lane sign and a bicycle lane ends sign, which are currently used regulatory signs.

5.7.3 Warning Signs

Warning signs, shown in **Figure 5.20**, are used to highlight bicycle route conditions that may pose a potential safety or convenience concern to network users. Examples are steep slopes, share the road, railway crossings and pavement changes. These signs are diamond in shape, with a black legend on a yellow background. These signs are more applicable to cycling routes and multi-use trails than pedestrian systems.

5.7.4 Informative Signs

Information signs provide general information about the use and identity of the network, as well as adjacent features. Information signs can be in the form of words, symbols or maps and should be placed at trailheads, access points and gateways. The preferred (as opposed to the regulated) use of the system is communicated through “use symbols” where the separation of trail users has been accommodated.

Figure 5.19 - Reserved Bicycle Lane and Reserved Bicycle Lane Ends Signs

Source: TAC Bikeway Traffic Control Guidelines, 1998

5.7.5 Way-finding Signs

Way-finding signs may include the network logo or “brand” and communicate other information to users such as directional arrows and distances in kilometres to major attractions and settlement

Figure 5.20 - Examples of Warning Signs

Source: TAC Bikeway Traffic Control Guidelines, 1998

areas. Way-finding signs should be mounted on standard sign poles and be located on all legs of an intersection or off-road trail junction, as well as at gateways.

5.7.6 Interpretive Signs

Interpretative signs provide specific information about points of ecological, historical, cultural and general interest, as well as current land uses along the network. They represent a broad range of possible sign formats and applications, depending on the interpretative program and complexity of information to be communicated. In order to maximize the ease of understanding, signage for pedestrian and cycling network should be consistent.

5.8 GUIDELINE APPLICATION

The application of these guidelines in the development, implementation, and operation of individual active transportation facilities will require specific consideration of a number of factors including public safety, local and/or provincial jurisdiction requirements, building codes and by-laws. As stated at the beginning of this chapter, these guidelines are not intended to be perscriptive. They are based on national and international engineering and planning best practices. These guidelines should be read in conjunction with Chapter 6 – Implementing the Plan, which describes a recommended strategy for implementation of an active transportation plan in the City of Orillia.

The application of these guidelines in the development, implementation, and operation of individual active transportation facilities will require specific consideration of a number of factors including public safety, local and/or provincial jurisdiction requirements, building codes and by-laws.

Recommended Actions:

5-1: Apply prevailing recognized and best available guidelines and standards in the planning, design, construction, maintenance and operations of active transportation facilities.

5-2: Refer to the suggested guidelines set out in the Design Guidelines, TAC Bikeway Traffic Control Guideline and the MTO Bikeway Planning and Design Guidelines when implementing the AT Plan.

6.0 IMPLEMENTING THE PLAN

It is proposed that the City of Orillia Active Transportation Plan be adopted in principle and assumed as the City's long-term strategy to improve conditions for active transportation and trails within the City of Orillia. The Orillia AT Plan has been designed to be flexible so that the City and its surrounding municipal partners (Township of Severn, Township of Oro-Medonte and Township of Ramara) as well as Simcoe County can adapt to changes, constraints, available budget resources and opportunities as they arise.

It is proposed that the City of Orillia Active Transportation Plan be adopted in principle and assumed as the City's long-term strategy to improve conditions for active transportation and trails within the City of Orillia

This section of the Plan outlines a suggested strategy for implementing the proposed actions presented in the AT Plan. The implementation strategy is designed to be fiscally responsible, coordinated with other long term capital investments and respectful of the fact that a significant investment is proposed and could take the City more than the fifteen years identified in this plan to complete. Due to its long term nature, it is proposed that the plan should be updated every five years, and it should be recognized that the proposed network will change and evolve over time. A specific end date for implementation is not defined. It is important to note that the future phasing of the proposed active transportation and trail network

and recommendations will ultimately be determined based on decisions made by City staff and City Council regarding priorities and annual budgets.

Therefore, the Plan has been designed to be flexible in order to adapt to constraints, opportunities and Council decisions and funding priorities. Phase 1 projects, pending Council approval, are recommended to be implemented in the first five years. The phased implementation plan proposed in the AT Plan is intended to be a guideline for City staff and Council to consider when scheduling and budgeting annual active transportation and trails related projects.

The plan proposes three phases for implementation:

1. Short-term (Phase 1: 0-5 years);
2. Mid-term (Phase 2: 6-10 years); and
3. Long-term (11 - 15 + years).

The implementation strategy presented in this Plan defines a proposed process, management structure and a set of steps considered necessary for implementation.

The implementation strategy presented in this Plan defines a proposed process, management structure and a set of steps considered necessary for implementation. In addition, a cost estimate is also included for the proposed infrastructure and programming actions that fall within the short term phase (within the first five years following adoption and implementation), the mid-term phase and the longer-term phase again, funding will need to be confirmed by Council on an annual basis.

The success of the AT Plan should be monitored on an annual basis by applying and assessing a series of performance measures (see Chapter 7.1) as well as tracking the ease with which it is being integrated with other municipal capital and operational initiatives. Ease of implementation can be measured by a broad range of criteria, particularly through the following five criteria:

- The quality and clarity of the AT Plan in terms of its vision, the principles and goals that guide it, and the set of proposed actions and policies that comprise the Plan;
- A practical strategy that identifies a proposed approach, including guidelines to implement the AT Plan, and addresses priorities and phasing;

- An effective and efficient administrative structure responsible for implementing all components of the AT Plan, as well as for coordinating multi-departmental and jurisdictional resources, including funding commitments;
- Funding the entire AT Plan within the recommended timeframe by Orillia City Council with support from other potential partners, including Simcoe County, Metrolinx, Ontario Ministry of Transportation, the Provincial and Federal Governments, and other partners; and
- Monitoring of the AT Plan to assess implementation results and to serve as feedback to refine on-going implementation and support the plan evolving over time.

The focus of this implementation section of the AT Plan is to estimate the cost of the various components of the plan, present a phased implementation strategy that can be integrated with other municipal capital and operational initiatives, recommend an outreach strategy, outline a suggested administrative process to facilitate implementation and maintenance of the network, and provide the City and its partners with the tools necessary to implement the AT Plan.

A successful active transportation plan requires champions and leadership to move from the planning and design stage to the funding and implementation stage. The formal relationships between individuals and organizations and their operational practices are important factors in determining whether an active transportation initiative will proceed and be successful. Maximizing participation and removing obstacles to the flow of information between participants are two of the main objectives in managing implementation.

A successful active transportation plan requires champions and leadership to move from the planning and design stage to the funding and implementation stage.

The AT Plan is more than a proposed network of on and off-road pedestrian / trail and cycling facilities. It is a Plan that recognizes the economic, health and quality of life benefits that walking and cycling offer, proposing a set of actions that promote these forms of transportation in as safe a way possible.

While City staff, led by the Planning and Development Department, will oversee the implementation of the AT Plan, they will also require ongoing support from and communication with the City's AT Advisory

Committee (proposed), Simcoe County, adjacent local municipalities, and other organizations and advocacy groups.

The successful implementation of the AT Plan will require a strong working relationship between City and County municipal staff as well as agencies, developers and the public.

6.1 WHO DOES WHAT?

An efficient reporting and implementation structure is vital to ensure that the decision-making process associated with the implementation of the AT Plan is managed and all relevant City departments are appropriately engaged. A suggested structure for managing and implementing the AT Plan is illustrated in **Figure 6.1**.

Staff in the City's Planning and Development Department is proposed to lead a core team that would oversee and make recommendations regarding funding and priorities associated with the AT Plan, as well as other City pedestrian, cycling, transportation demand management (TDM) and sustainable transportation initiatives, as required.

More specifically, it is recommended that team be led by an Active Transportation Coordinator who would be the "champion" for active transportation throughout the City. It is suggested that this AT coordinator responsibility be assigned to an existing staff member or staff team. In the future there may be the need for a new staff position to assume this role; however, this will ultimately be determined based on future funding options and decisions by City staff and Council. The proposed structure identified in **Figure 6.1** is intended as a suggestion only, and City staff should select the right reporting model that is efficient and inclusive of affected departments.

The AT Plan is more than a proposed network of on and off-road pedestrian / trail and cycling facilities. It is a Plan that recognizes the economic, health and quality of life benefits that walking and cycling offer, proposing a set of actions that promote these forms of transportation in as safe a way possible.

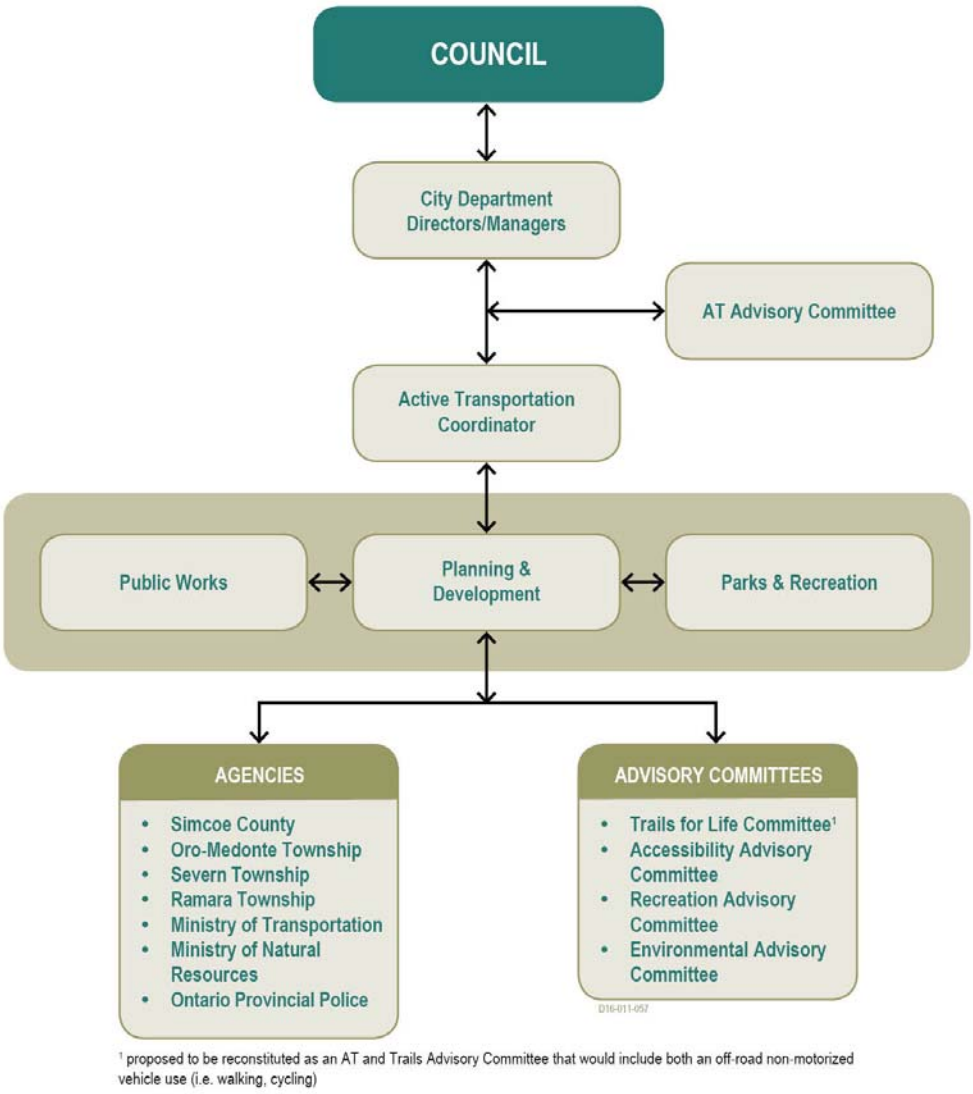


Figure 6.1 – Suggested Structure for Managing Orillia AT

The proposed structure identified in Figure 6.1 is intended as a suggestion only, and City staff should select the right reporting model that is efficient and inclusive of affected departments.

6.2 A NETWORK MANAGEMENT TOOL

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

During the implementation process, City staff can use this tool to assist in confirming the feasibility of pedestrian and cycling routes and facilities and the proposed schedule (Phases 1 or 2) for implementation. The GIS tool can also be used to track and document new segments as they are implemented. Updating the facilities component of the AT Plan on a regular basis will significantly reduce the effort and cost to update the entire AT Plan, which is recommended to occur every five years. The City has the option to use this GIS information as the basis for an interactive map which could be made available online for public viewing. This would be useful to the public and developers and would also serve as a 'quick reference'. The data might also be shared with Google, which has been collecting data from municipalities across Canada to add to online Google maps.

This digital GIS based network map provided to the City as part of the AT Plan can also be used as a trail and cycling facility management tool.

6.3 A FIVE-STEP NETWORK IMPLEMENTATION PROCESS

The AT Plan is not intended to be a static document. The timing and details related to implementation, particularly the location of recommended routes and pedestrian and cycling facility types should and will evolve through community consultation and technical review during implementation. At the same time, however, the extensive community and stakeholder effort that established the overall direction for the AT Plan should be respected. It should also be recognized that

the active transportation network and priorities recommended in the AT Plan might evolve through the environmental assessment, planning, detailed design and capital budget processes.

Central to the proposed implementation process tool is a proposed guideline that would require that the AT Plan be reviewed and given consideration when road or other capital infrastructure projects are identified or scheduled. This should include the City's asset management program for reconstructing or resurfacing roads, any investigation of potential new road alignments or the reuse and/or selling of abandoned rail and utility corridors. The objective is to ensure that City assets, particularly roads designated in the AT Plan for future pedestrian and cycling routes, are given due regard when planning, designing and budgeting larger capital road/infrastructure projects. This step should also apply to City planning studies or studies initiated by Simcoe County in which the City is a partner. Without this step, network opportunities could be lost and cost efficiencies not realized.

Figure 6.2 outlines a proposed process tool for guiding the implementation of active transportation network facilities in Orillia. It is recommended that City staff review this tool and adapt it as necessary to suit their needs.

The AT Plan is not intended to be a static document. The timing and details related to implementation, particularly the location of recommended routes and pedestrian and cycling facility types should and will evolve through community consultation and technical review during implementation.

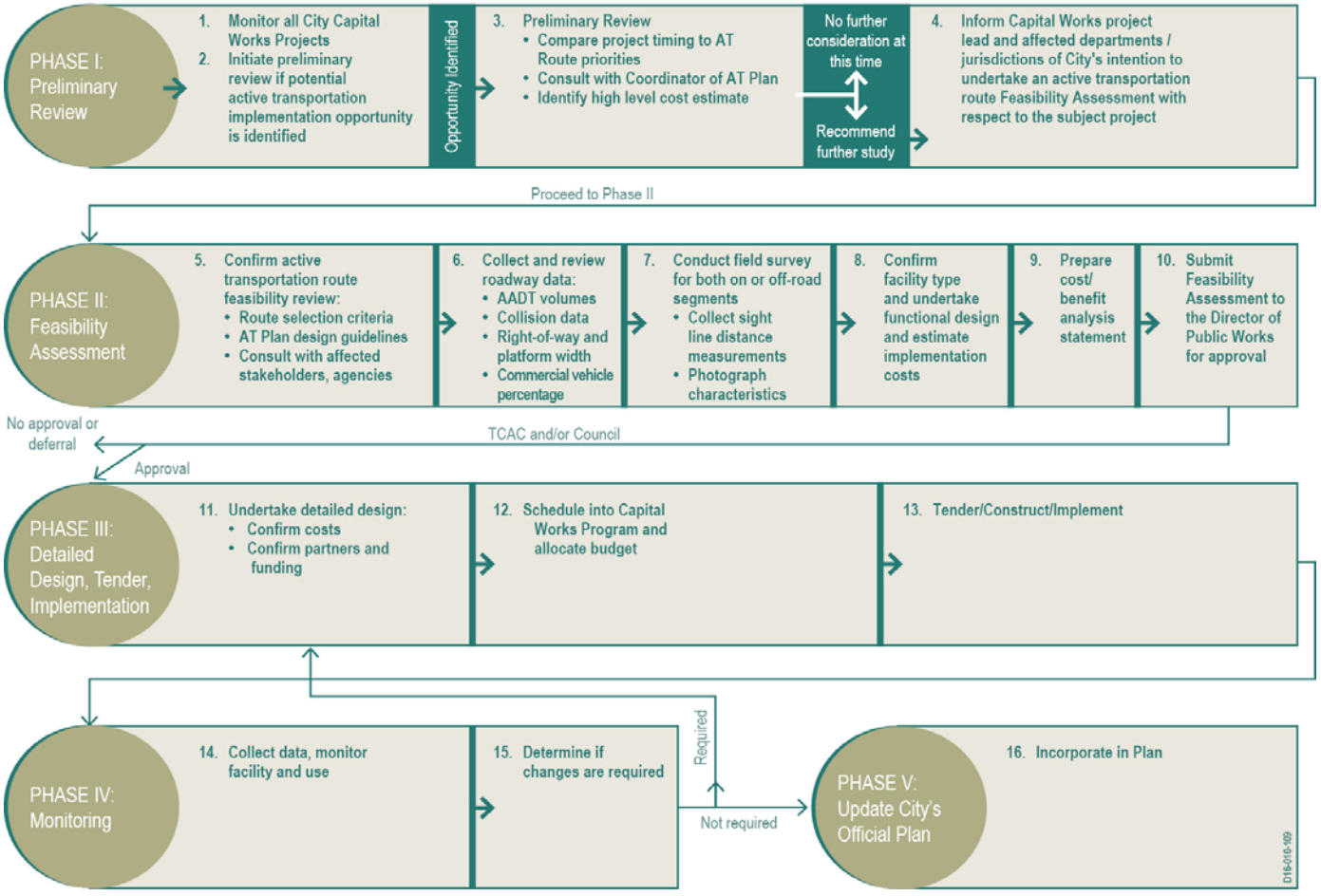


Figure 6.2 – Proposed Implementation Process Tool

The proposed network implementation process comprises five parts and is a step-by-step mechanism to confirm the feasibility of each route recommended in this report at the time implementation is proposed. It will assist City staff from affected departments to work together, to share information and to facilitate the implementation of the AT Plan. Changes to policies and the network should also be considered through the City's Official Plan, and Transportation Plan reviews conducted every five years. Each part of the network implementation process is described in the following sections.

Part I: Preliminary Review

The first step in implementing segments of the AT Plan is to identify and communicate opportunities. As part of the AT Plan, all City road projects scheduled in Orillia, including the capital roads forecast should be monitored. When a project involving a corridor or road proposed for a pedestrian or cycling route identified in the AT Plan is advanced to the planning stage, or an opportunity to establish a new route not identified in the AT Plan comes forward, the Active Transportation Coordinator should undertake a Part 1 Preliminary Review. This review should:

- Identify the jurisdictions involved in a project;
- Compare the timing of the project to the short and long term implementation priorities identified in AT Plan;
- Assess whether the nature of the project may permit implementation of the preferred pedestrian or cycling facility type in a cost effective manner; and
- Inform the project lead and affected departments whether or not a feasibility assessment should be undertaken to confirm the feasibility and costs for implementing the proposed cycling route as part of the subject project.

Changes to policies and the network should also be considered through the City's Official Plan, and Transportation Plan reviews conducted every five years.

The key aspect of this initial part is communication. Staff from various departments should report all upcoming projects that may involve or impact a pedestrian or cycling facility designated in the AT Plan. From this point forward, the Active Transportation Coordinator would be expected to work through the remaining three parts of the implementation process with various departments at the City as appropriate.

Part II: Feasibility Assessment

If a pedestrian or cycling project is confirmed through the preliminary review process (Part I), the Coordinator should lead City staff in undertaking a Feasibility Assessment. This should be a brief study and include the following steps:

- Confirm the feasibility of the route based on a review of the AT Plan and supporting route selection and planning and design criteria, as well as other relevant information.
- Collect or confirm current roadway characteristic information including AADT volumes, collision data and the commercial vehicle percentage.
- Conduct a field check for both on and off-road route segments to identify any other issues that should be considered and to measure sight line distances (if applicable).
- Undertake a functional design for the on or off-road cycling facility segment and estimate implementation costs, including construction and signing.
- Prepare a cost/benefit analysis statement. This "statement" should comment on the following:
    - The timing for implementing the proposed pedestrian or cycling facility;
    - Costs and efficiencies achieved;
    - Identify any less costly alternatives and how they may fit within the overall pedestrian and cycling network plan;
    - Provide recommendation on how to proceed; and
    - Submit the Feasibility Assessment to the Coordinator, and then to the Director of Planning and Development for approval.

Priority consideration should be given to situations where there is a clear community demand for pedestrian and cycling facilities.

This process typically takes place in conjunction with, or as input to, a roadway or public works Class EA or functional design process whereby design alternatives are prepared. The design for the pedestrian and cycling portion of the facility should be in accordance with City Planning, Design and Operation Guidelines, as well as other relevant County, provincial and national design standards.

Priority consideration should be given to situations where there is a clear community demand for pedestrian and cycling facilities. If site-specific circumstances prevent a facility from being constructed in

association with a particular improvement project being considered, other nearby parallel routes on city roads should be closely examined at this time for their suitability.

Part III: Detailed Design, Tender and Implementation

Once a pedestrian and/or cycling route segment has been approved for implementation, the necessary detailed design should be completed. This step is typically done as part of the detailed design for the primary capital roads project, such as a road widening and does not require additional resources. This third part of the process should also include confirming details with regard to partners (if any) and cost sharing. The project should then be scheduled into the City's Capital Roads Program and a suitable budget should be allocated. The final step involves tendering the project (if not undertaken by the City in-house) to a contractor, and then construction / implementation.

It is possible that following the detailed design stage, the decision is made not to proceed with the facility or preferred facility type because of the cost, preference of Council, or other constraints that may arise through the detailed design process. If this occurs, the network should be updated and an alternative route should be proposed.

It is possible that following the detailed design stage, the decision is made not to proceed with the facility or preferred facility type because of the cost, preference of Council, or other constraints that may arise through the detailed design process. If this occurs, the network should be updated and an alternative route should be proposed.

Part IV: Monitoring Phase

Once pedestrian and cycling facilities have been constructed, their design and use should be monitored to ensure they function in the manner intended. When necessary, the facilities should also be upgraded and maintained to ensure continued safe use by cyclists. Monitoring should also ensure that the facility design guidelines remain current. This step will involve collecting data to assist in the monitoring task.

Part V: City Official Plan

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

6.4 BUILDING THE NETWORK

The network is intended to build upon the networks recommended in the Orillia Transportation Master Plan (2004), the Orillia Official Plan (2011), the significant trail work that other local municipalities, agencies and organizations have completed over the years, recent information gathered by the study team through consultation with staff, the project Steering Committee, cycling and trail stakeholders and the public. The recommended network is also based on the study team's expertise related to the most recent research and trends in the evolution of bikeway and trail design.

6.4.1 Network Implementation Schedule

Table 6-1 identifies the proposed 15+year Implementation Plan by facility type and implementation phase.

Figure 6-3 depicts existing active transportation facilities as well as proposed new routes and facilities by implementation phase: short-term (Phase 1: 0-5 years), mid-term (Phase 2: 6-10 years) and longer term (Phase 3: 11-15+ years). Each of the phases is distinguished according to colour. The ultimate cycling network (following build-out) would be represented by the combination of all of the colours.

It is estimated that the total investment to implement the network, build AT related structures and develop outreach and promotional programming is about $11,473, 094 over the next 15+ years.

It is estimated that the total investment to implement the network, build AT related structures and develop outreach and promotional programming is about $11,347,862 over the next 15+ years. This cost consists of approximately $8,536,289 for the proposed network, $2,436,573 for the development of AT Related Structures and $375,000 for operations, updates, outreach and programs.

The implementation plan is designed to be flexible. Timing and implementation priorities are suggested based on the approach described in Subsection 6.1.3, however the annual implementation of individual on and off-road segments (which will continue to be integrated with City capital works programs) will have to be reviewed and confirmed at the time of implementation. Some segments may require additional consultation, and the ultimate decision may be not to proceed. Given competing priorities, some sections will be

Component	Facility[1,2]	Estimated Unit Cost / Km	Short Term (0 - 5 yrs)			Mid Term (6 10 yrs)			Long Term (11 15+ yrs)			Ultimate (0 - 15+ yrs)		
			Distance (Km)	(%)	Estimated Cost	Distance (Km)	(%)	Estimated Cost	Distance (Km)	(%)	Estimated Cost	Distance (Km)	(%)	Total Estimated Cost [5]
AT Network	Multi Use Trail[3]	$250,000	8.73	30.8%	$2,183,250	5.01	17.6%	$1,251,350	2.72	9.6%	$680,000	16.46	58.0%	$4,114,600
		$150,000	0.66	2.3%	$98,700	3.10	10.9%	$464,550	8.18	28.8%	$1,227,600	11.94	42.0%	$1,790,850
			9.39		**$2,281,950**	**8.10**		**$1,715,900**	**10.90**		**$1,907,600**	**28.40**	**100.0%**	**$5,905,450**
	Bike Lane[4]	$200,000	3.02	22.6%	$604,680	2.20	16.5%	$440,000	4.01	30.0%	$801,800	9.23	69.1%	$1,846,480
		$12,000	4.12	30.9%	$49,435	0.00	0.0%	$0	0.00	0.0%	$0	4.12	30.9%	$49,435
			7.14		**$654,115**	**2.20**		**$440,000**	**4.01**		**$801,800**	**13.35**	**100.0%**	**$1,895,915**
	Paved Shoulder	$110,000	**1.50**	24.8%	**$165,517**	**0.00**	0.0%	**$0**	**4.56**	75.2%	**$501,347**	**6.06**	**100.0%**	**$666,864**
	Signed Route	$2,000	**22.50**	66.1%	**$44,990**	**9.94**	29.2%	**$19,880**	**1.60**	4.7%	**$3,190**	**34.03**	**100.0%**	**$68,060**
AT Related Structures	Bridge - Hwy 12 at Hwy 11													**$1,396,443**
	Bridge - Atherley Narrows													**$1,040,130**
Operations and Support Costs	Outreach				**$125,000**			**$125,000**			**$125,000**			**$375,000**
		TOTAL	**40.53**	**49.5%**	**$3,271,572**	**20.24**	**24.7%**	**$2,300,780**	**21.07**	**25.7%**	**$3,338,937**	**81.84**	**100.0%**	**$11,347,862**

Notes:

1 - For on-road routes the length indicated assumes facilities on both sides of the road. For example 1.0 Km of roadway will have a Bike Lane on both sides of the roadway.

2 - Future roads, where known, were taken into consideration when developing the network.

3- $250,000 is the cost attributed for Boulevard Multi-Use Trails per Km, $150,000 is the cost for Multi-Use Trails through Parks and Open Space per Km.

4- $200,000 is the cost attributed for a new bike lane as part of a road re-construction per Km, $12,000 is the cost of repainting/signing projects per Km.

5- Costs for the implementation of network facilities within City rights-of-way and on City-owned lands will be assumed by the City of Orillia. Costs for the implementation of network facilities within Provincial and County rights-of-way will be subject to future partnership negotiations between the City and County/Province on a route by route

Table 6-1:

15+ Year

IMPLEMENTATION COST SUMMARY

BY FACILITY TYPE - ALL PHASES

CITY OF ORILLIA
ACTIVE TRANSPORTATION PLAN
FIGURE 6-3 -DRAF T AT NETWORK IMPLEMENTATION PRIORITIES
LEGEND

- Existing
- Short Term (0 -5 Years)
- Mid Term (6 - 10 Years)
- Long Term (11 - 15+ Years)
- Potential/Existing Connections to Adjacent Municipality
- Publicly Accessible Parking Lots
- Parks
- Local Road
- Major Road
- Highway

TOWNSHIP OF SEVERN

LAKE COUCHICHING

LAKE SIMCOE

TOWNSHIP OF ORO-MEDONTE

N W E S

0 375 750 1,500 Metres

MMM GROUP

dependent on the timing of new developments, road projects, etc., and it may take much longer for those segments to be implemented. For example, sidewalk improvements on local streets may be subject to neighbourhood consultation, and residents may ask Council not to proceed. In such cases, Council may elect not to proceed with the proposed sidewalk improvement project. Similarly, a number of route segments and related facility types proposed for implementation in Phases 1, 2 and 3 may not prove to be feasible because of other circumstances (e.g. funding constraints, outcome of an Environmental Assessment or detailed design, etc.). In these situations, an interim solution may be possible and should be investigated by City staff. Deviations like these from the proposed implementation plan are to be expected, and should be reflected in revisions as part of regular updates to the Plan.

The City's proposed off-road system component of the designated active transportation network identified in this Active Transportation Plan will consist primarily of multi-use trails and hiking style trails and footpaths. The Plan includes a series of proposed actions suggesting that the City, working with Simcoe County and local developers, adopt active transportation friendly urban design and streetscaping practices, and encourage built forms and subdivision designs that support walking for both utilitarian and recreational purposes.

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6.4.2 Priority Projects for Implementation

A number of projects have been identified as priorities for consideration. These include those listed in the Short Term (0-5 years); plus select projects identified in the Mid-term (6-10 years). This list includes:

- Developing an AT facility at the Highway 11 + Highway 12 bypass interchange;
- Trail connections along Memorial Ave (from Highway 12 bypass to Woodland Drive);
- Trail connections along the Highway 12 bypass (from Memorial Ave to West Street);
- The construction of the Atherley Narrows Bridge;

- Bike lanes along Mississaga St from the Highway 12 bypass to Downtown Orillia; and
- Bike lanes along Coldwater Rd W (from West Street to Rynard Dr.).

6.5 COMMUNITY DESIGN STRATEGIES THAT SUPPORT AT

The design of a community can determine how and when people engage in active transportation and recreation alternatives. There is a significant amount of research that links the layout and design of communities to an increase in health, social interaction, safety and economic development for the community as well as its residents. One of the key documents which identifies this is the “Shaping Active, Healthy Communities” report completed by the Heart and Stroke Foundation. This document provides governments at all levels with a “built environment toolkit” which can be used to guide a change in the design and development of communities to promote AT and AT related benefits.

The design of a community can determine how and when people engage in active transportation and recreation alternatives.

More specifically, there are a number of design strategies which are identified which prove to facilitate the development of communities which are supportive of physical activity and active modes of transportation. These strategies are provided in some detail below.

6.5.1 Land Use Planning

The land use planning of a community deals with the layout and arrangement of housing, businesses and amenities within a community. More specifically land use planning can support active living when housing, businesses and amenities are arranged in a way that promotes vibrant communities. These communities are easily accessible by walking, cycling and other active transportation methods. This can be achieved through a number of initiatives including but not limited to the following:

- Mixing housing with other land uses decreases the distance between people’s residences and their destinations of choice, thus making it more likely for them to walk or cycle to their destination;

- Encouraging higher-density urban areas by developing higher-density areas, such as “urban villages”. Situate amenities and destinations within walking distance from the residences. In addition, more people are able to support the local economy as they are located in one centralized area; and
- Conveniently locating schools and other amenities enable children to safely and securely walk or bicycle to their schools as well as key destinations. This will also provide a higher level of comfort for parents.

6.5.2 Active Living Infrastructure

The development and integration of active living infrastructure in communities such as parks, sidewalks, street lighting and bike racks all support physical activity by making active transportation and recreation appealing and accessible to residents and visitors. Infrastructure such as this can be achieved by exploring and implementing the following initiatives:

- Making streetscapes appealing to pedestrians and cyclists through effective design such as good lighting, well-maintained sidewalks, bike paths, signage, crosswalks and improved aesthetics can draw people to these areas and make them more likely to travel to the destination by bike or foot. More appealing streets also attract people creating an “eyes on the street” result. In many cases this can prevent crime and makes these environments safer for children and adults;
- Designing streets that are healthy and safe for pedestrians and cyclists such as narrower streets, cycling lanes, sidewalks, landscaping, parallel parking and traffic calming measures are key to increasing cyclist and pedestrian activity throughout urban and rural communities; and
- Providing recreational facilities, parks, trails and safe places to play outside can result in a higher physical activity level for children and youth as well as all user groups. These can include community centres, walking trails, public greenways and events such a temporary street closures.

The development and integration of active living infrastructure in communities such as parks, sidewalks, street lighting and bike racks all support physical activity by making active transportation and recreation appealing and accessible to residents and visitors.

6.5.3 Transportation Planning

Transportation planning can promote walking, cycling and other active modes of travel by identifying them as important priorities when designing a community's transportation network. This "pedestrians and cyclists first" approach can include the design of streets, pedestrian and cycling routes as well as public transit systems. These can be achieved through the following initiatives:

- Increasing pedestrian and cycling connectivity means that walking and cycling routes are continuous and in many cases connect with key destinations. Features which emphasize this concept include continuous sidewalks, shorter blocks, grid-like street layouts, pedestrian connectors and accessible links to public transit;
- Creating safe routes to school includes safe crossings and / or crossing guards, safe bicycle parking, traffic-calming measures around schools and "walking school buses" which go to and from the school along a designated route. These types of initiatives can increase the safety of walking and biking routes to school and help children get the physical activity they need; and
- Improving public transit through encouragement includes locating stops close to places of residence, providing frequent services and ensuring ease of connection to key destinations throughout the community. In many cases users of public transit achieve their daily requirement of physical activity by walking to and from the transit stops. Transportation planning can promote walking, cycling and other active modes of travel by identifying them as important priorities when designing a community's transportation network

Transportation planning can promote walking, cycling and other active modes of travel by identifying them as important priorities when designing a community's transportation network.

As an alternative means of promoting and educating people on alternative transportation options through transportation planning, the City and AT Advisory Committee should explore the adoption and implementation of a "Pedestrian Charter". A pedestrian charter can be used to facilitate and promote the need for walkable communities throughout the City and is an important measure of the quality of the public realm, healthy and vitality. Pedestrian Charters are becoming increasingly more popular throughout North America with the first one being established in Toronto followed by those developed in Waterloo, Kitchener, Sudbury, Burlington and Montreal. An example of a pedestrian charter can be found in Appendix D of the report.

Recommended Actions:

6.1: The City should adopt in principle the 15+ year active transportation network implementation plan identified in the AT Plan and amend Schedule E in the City's Official Plan (when next updated) to align with the AT Route Network in this Plan; and

6-2 The City's Planning and Development Department should coordinate active transportation network implementation with the City's Parks and Recreation capital programs as well as the capital works program for Simcoe County.

6-3 The City should establish an Active Transportation Advisory Committee. It is proposed that this AT Committee include at least one member of Council, City staff, interested residents and other stakeholders as determined by the City.

6-4 The City should initially assign the responsibility of "Active Transportation Coordinator" to an existing staff position. This staff member should be responsible for the "championing" of AT related issues, initiatives and programming throughout the City. It may be necessary in the future to consider adding and additional staff position to assist in this staff role.

6-5 The "Active Transportation Coordinator" should be responsible for the implementation and follow-up of the AT Plan at the City level and provide updates on the progress of the study to Council on annual basis.

6-6 The AT Coordinator and AT Advisory Committee should review the proposed five-step process tool as a means of guiding the implementation of active transportation facilities in the City of Orillia and adapt it as necessary.

6-7 The AT Coordinator and City staff should consult with Simcoe County to ensure that the proposed active transportation and trail network is contiguous with any pedestrian and cycling facilities outlined in County Plans.

6-8: The AT Plan should be reviewed and given consideration when addressing City or County roads, and when other capital infrastructure projects are identified and scheduled within the City of Orillia;

6-9: That the City should recognize that adjustments to the proposed network plan in the AT Plan will occur from time to time and that this is consistent with a goal of ensuring the Plan is flexible and can respond to changes and new opportunities.

6-10: Work to encourage AT (pedestrian & cycling) friendly streetscaping, urban design and AT and trail oriented land development in collaboration through planning and design studies and development reviews.

6-11: Incorporate land use planning initiatives and policy development such as mixed land use, higher density urban areas and pedestrian and cyclist friendly streetscapes to promote / facilitate an increased quality of life and liveability throughout the City of Orillia.

6-12: Continue to increase pedestrian and cycling connectivity to key destinations and develop continuous links to public transit and trails as well as shorter blocks.

6-13: The City should adopt a Pedestrian Charter to help facilitate and promote the development of a walkable and pedestrian friendly environment.

6-14: The City should promote the development of residential communities with mixed land uses including development in close proximity to schools and transit to decrease time spent travelling and increase the likelihood of walking and cycling to key destinations throughout the community.

6-15: The City should consider elements of active transportation and trail planning when addressing land use planning and design considerations throughout the City. These could include the design of street, additional pedestrian and cycling routes, trail development and transit planning.

7.0 RECOMMENDED ACTIONS & NEXT STEPS

7.1 SUMMARY OF RECOMMENDED ACTIONS

The Active Transportation Plan includes a set of proposed actions for the active transportation network and implementation. The proposed actions relate to City practices, policies, by-laws and initiatives relevant to walking and cycling in Orillia. **Table 7-1** lists the proposed actions included in the AT Plan and outlines the implementation schedule for each action, as well as associated network and program costs for the long term Implementation Plan.

The Active Transportation Plan includes a set of proposed actions for the active transportation network and implementation.

7.2 OUTREACH

By adopting the Active Transportation Plan and its recommendations, the City of Orillia has the opportunity to create a more cycling and pedestrian friendly environment for residents and visitors. Infrastructure such as bike lanes, paved shoulders, trails, benches,

pavement markings and sign treatments are all components of this study, and will assist in creating a complete active transportation network. However, facilities and the implementation of the proposed network alone will not support a successful active transportation environment. The Simcoe Muskoka District Health Unit and the Trails for Life Committee (reconstituted as an AT Advisory Committee) should expand upon their leadership role and work with City staff to develop and implement an expanded outreach program. The outreach program will be used to help educate residents about the importance of improving air quality and reducing greenhouse gas emissions, pedestrian and cycling safety, and to encourage residents to walk and cycle more often for both utilitarian and recreational purposes. It is anticipated that the City will provide support but not lead the outreach initiatives proposed.

A key objective of the outreach strategy in this plan is to develop and enhance education programs that are targeted to existing and future active transportation facility users.

7.2.1 Education

A key objective of the outreach strategy in this plan is to develop and enhance education programs that are targeted to existing and future active transportation facility users.

Education can have a positive influence on the behaviour and attitudes of pedestrians, cyclists, motorists and the general public to produce safer conditions for all, and provide incentives to encourage more active transportation. Formal pedestrian and cycling education and training encourages people to use alternative modes, and can shift their transportation choices to walking and cycling [1].

People of all ages and abilities should be educated on the proper use of the City's cycling network and pedestrian/trail system for both recreational and commuting purposes. Implementing educational programs will teach proper pedestrian habits, improve cycling skills and raise public awareness of the benefits of walking and cycling.

[1] Bike BIZ. "BikeAbility Training Converts Cyclists Says Research" (http://www.bikebiz.com/news/30845/BikeAbility-training-converts-cyclists-says-research), July 21, 2009.

	RECOMMENDED ACTIONS	IMPLEMENTATION SCHEDULE			SUGGESTED INVESTMENT
	✓ Implementation Phase → Continued in this Phase	PHASE 1	PHASE 2	PHASE 3	
	Section 4 The Proposed Active Transportation Network				
4-1	Adopt the Active Transportation Plan including the route selection principles.	✓			Existing Resources
4-2	Implement the active transportation network generally consistent with the route alignments and facility types proposed in the Active Transportation Plan.	✓	→	→	Future $
4-3	Recognize that the proposed active transportation network will change over time by adding missing links and opportunities offered by unopened road allowance, hydro rights-of-way, open green space and future roadway improvements.	✓	→		Existing Resources
	Section 5 – Design Guidelines				
5-1	Apply prevailing recognized and best available guidelines and standards in the planning, design, construction, maintenance and operations of active transportation facilities.	→	→	→	Existing Resources
5-2	Refer to the suggested guidelines set out in the Orillia AT Plan, TAC Bikeway Traffic Control Guideline and the MTO Bikeway Planning and Design Guidelines when implementing the AT Plan.	→	→	→	Existing Resources
	Section 6 – Implementation Strategy				
6-1	The City should adopt in principle the 15+ year active transportation network implementation plan identified in the AT Plan and amend schedule E in the City's Official Plan (when next updated) to align with the AT Route network in this Plan.	✓	→		Existing Resources
6-2	The City's Planning and Development Department should coordinate active transportation network implementation with the City's Parks and Recreation capital programs, as well as the capital works program for Simcoe County.	✓	→	→	Existing Resources
6-3	The City should create an Active Transportation Advisory Committee. It is proposed that this AT Committee include at least one member of Council, City staff, interested residents and other stakeholders as determined by the City.	✓	→	→	$5,000 / year
6-4	The City should initially assign the responsibility of "Active Transportation Coordinator" to an existing staff position. This staff member should be responsible for the "championing" of AT related issues, initiatives and programming throughout the City. It may be necessary in the future to consider adding and additional staff position to assist in this staff role.	✓	→	→	$5,000 / year
6-5	The "Active Transportation Coordinator" should be responsible for the implementation and follow-up of the AT Plan at the City level and provide updates on the progress of the study when necessary to Council on annual basis.	✓	→	→	Existing Resources
6-6	The AT Coordinator and AT Advisory Committee should review the proposed five-step process tool as a means of guiding the implementation of active transportation facilities in the City of Orillia and adapt it as necessary.	✓	→	→	Existing Resources
6-7	The AT Coordinator and City staff should consult with Simcoe County to ensure that the proposed active transportation network is contiguous with any pedestrian and cycling facilities outlined in County Plans.	✓	→	→	Existing Resources
6-8	The AT Plan should be reviewed and given consideration when addressing local municipal roads, and other capital infrastructure projects that are identified and scheduled within the City of Orillia.	✓	→	→	Existing Resources
6-9	That the City should recognize that adjustments to the proposed network plan in the AT Plan will occur from time to time and that this is consistent with a goal of ensuring the Plan is flexible and can respond to changes and new opportunities.	✓	→	→	Existing Resources
6-10	Work to encourage AT (pedestrian & cycling) friendly streetscaping, urban design and AT oriented land development in collaboration through planning and design studies and development reviews.	✓	→	→	Existing Resources
6-11	Explore land use planning initiatives and policy development such as mixed land use, higher density urban areas and pedestrian and cyclist friendly streetscapes to promote / facilitate an increased quality of life and liveability throughout the City of Orillia.	✓	→	→	Existing Resources
6-12	Continue to increase pedestrian and cycling connectivity to key destinations and develop continuous links to public transit and trails as well as shorter blocks.	✓	→	→	Existing Resources
6-13	The City should adopt a Pedestrian Charter to help facilitate and promote the development of a walkable and pedestrian friendly environment.	✓			Existing Resources
6-14	The City should promote the development of residential communities with mixed land uses including development in close proximity to schools and transit to decrease time spend travelling and increase the likelihood of walking and cycling to key destinations throughout the community.	✓	→	→	Existing Resources
6-15	The City should consider elements of active transportation planning when addressing land use planning and design considerations throughout the City. These could include the design of street, additional pedestrian and cycling routes, trail development and transit planning.	✓	→	→	Existing Resources

RECOMMENDED ACTIONS		IMPLEMENTATION SCHEDULE			SUGGESTED INVESTMENT
✓ Implementation Phase → Continued in this Phase		PHASE 1	PHASE 2	PHASE 3	
Section 7 - Recommended Actions and Next Steps					
7-1	Implement the Recommended Actions identified in the AT Plan as per the suggested schedule contingent on the available capital funding and Council authorization.	✓	→	→	Contingent on available Capital Funding
7-2	Develop and distribute newsletters and / or digital newsletters to promote and educate the public on AT opportunities, recommendations for routes and destinations and updates on available and safe routes. These initiatives are proposed to be undertaken as a combined effort by the Health Unit as well as the local area municipalities.	✓	→	→	Joint costs w/ Simcoe Muskoka Health Unit
7-3	Utilize educational programming and materials to promote and inform people of the benefits of AT on the health, environment, economy and tourism of Orillia. The coordination of these programs and materials will be coordinated and development by the Health Unit in collaboration with the local area municipalities.	✓	→	→	Joint costs w/ Simcoe Muskoka Health Unit
7-4	Work with the Safe Routes to School Program to develop an Active and Safe Routes to School program for Orillia.	✓			School Boards
7-5	The City and its partners should apply the principles of CBSM (Community-based Social Marketing) in their respective marketing and promotional efforts related to the AT Plan.	✓	→	→	TBD
7-6	A comprehensive approach should be put in place by the Health Unit and the City to encourage students and employees to walk or cycle to school or work, and to combine these modes with transit (where available) for longer distance trips.	✓	→	→	Joint costs w/ Simcoe Muskoka Health Unit

The following sections outline methods of achieving the overall objectives of education for the Orillia Active Transportation Plan.

Pedestrian and Cycling Education Information

Making active transportation information easily available is a core element of any educational strategy. The City, Simcoe Muskoka District Health Unit, and local partners should consider the implementation of cycling and pedestrian/trail education programs and partner with other not-for-profit organizations, school boards, and agencies to educate residents on walking and cycling. Examples of education materials from other jurisdictions are numerous, and could be adapted for a nominal cost for use in Orillia. Many of these publications have a host of contributing partners, including Ministry of Transportation, Ministry of Health Promotion, Transport Canada, Health Canada and the Canadian Safety Council, as well as not-for-profit organizations like Green Communities and the Share the Road Coalition as well as private sector sponsors. This underscores the importance of cooperation and the need to share expertise and resources.

Newsletters or digital e-newsletters could focus on active transportation, with information about existing and planned facilities, statistics, recommended routes and destinations, safety and training information, and tips for pedestrians and cyclists. They could also include information about initiatives by others, for example walking and cycling events (local trail organizations, charities, etc.), bicycle parking at local destinations (businesses and City facilities) and the benefits of walking and cycling (Simcoe Muskoka District Health Unit, Heart and Stroke Foundation, Health Canada, etc.).

Education topics could include those related to:

- Implementation of the Active Transportation Plan;
- Pedestrian and cyclist safety;
- Walking or cycling to school or work;
- Winter / inclement weather conditions;
- Particular age groups, such as elderly persons or young children;

The City, Simcoe Muskoka District Health Unit, and local partners should consider the implementation of cycling and pedestrian/trail education programs and partner with other not-for-profit organizations, school boards, and agencies to educate residents on walking and cycling"

- The rules and regulations for pedestrians and cyclists, plus walking / cycling etiquette for on-road and off-road routes;
- The benefits of active transportation (health, financial, environmental, etc.); and
- Intermodal connections, for example between cycling and transit, or walking and carpooling.

Educational information should be developed in a language and style appropriate for the age group being targeted, such as children and seniors.

Distributing Active Transportation Education Information

Information on active transportation education could be provided to residents, employees and visitors through the following methods:

- The Simcoe Muskoka District Health Unit and/or the City's website, ideally via a specific web page(s) dedicated exclusively to pedestrian and cycling issues, with posted information, downloadable files, and links to other relevant walking- and cycling-related websites;
- The production of hardcopy pamphlets and brochures to inform and educate residents on safe operating procedures for pedestrians, cyclists and other road and trail users, which could be made available at City facilities (e.g. City Hall, community centres, arenas, libraries, etc.), delivered as part of mailings (e.g. Councillor newsletters, resident information mailings, etc.), distributed at events (e.g. Orillia's various festivals, Canada Day celebrations, etc.) and circulated through community partners (e.g. neighbouring municipalities, the OPP, the Simcoe Muskoka District Health Unit, etc.); and
- The implementation of education programs through partnerships between the Simcoe Muskoka District Health Unit, neighbouring municipalities and Simcoe County, agencies, and other groups to educate residents on walking and cycling in general.

Educational information should be developed in a language and style appropriate for the age group being targeted, such as children and seniors.

The same methods could generally be used for the distribution of promotional materials.

Active and Safe Routes to School

Active and Safe Routes to School is a school-based initiative that strives to create an environment that is conducive and supportive of

safe walkable communities. It is a world-wide program that encourages children of all ages to utilize alternate modes of transportation to travel to and from school, with a primary focus on walking. As stated on the Green Communities website (the promoter and champion of the program), "Active and Safe Routes to School promotes the use of active and efficient transportation for the daily trip to school, addressing health and traffic safety issues while taking action on air pollution and climate change".

The program is comprised of several activities and initiatives that can be utilized by other schools including the Walking School Bus, Walking Wednesdays, iWalk (International Walk to School Week/Day), Walk a Block, Neighbourhood Walkabout, Walking Buddies, No Idling at School, and Classroom Mapping.

7.2.2 Encouragement

In order to encourage residents, employees and visitors in Orillia to walk and bike more often, a strong and focused range of programs aimed at encouraging and promoting active transportation, as well as a supporting marketing strategy and convenient infrastructure, is required. One of the objectives of the AT Plan is to change the attitudes and behaviours of Orillia's residents, employees and visitors, resulting in a higher number of people of all ages that walk and cycle and utilize other non-motorized modes of transportation, and thus support a greater frequency of walking and cycling trips.

… to encourage residents, employees and visitors in Orillia to walk and bike more often, a strong and focused range of programs aimed at encouraging and promoting active transportation, as well as a supporting marketing strategy and convenient infrastructure, is required.

Community-based Social Marketing

People can be encouraged to adopt more sustainable transportation habits, including walking and cycling more often, through community-based social marketing (CBSM)[2] . CBSM is a practical approach that stresses direct contact among community members and focuses on removing structural barriers that prevent people from changing their behaviour. A CBSM program involves five steps:

[2] Transport Canada Urban Transportation Showcase Program. "The Role of Community-based Social Marketing in Supporting Active and Sustainable Transportation", May 2008.

1. Identify the desired behaviour change;
2. Identify barriers;
3. Design the program;
4. Pilot the program with a small segment of the community; and
5. Evaluate and improve the program on an ongoing basis as it is implemented.

A number of examples of CBSM programs from other communities show how public attitudes and behaviours can effectively be influenced, and include "tools" such as:

- **Obtaining a commitment** – People are asked to pledge or agree to carry out a specific action (example: the City of Mississauga's "Towards an Idle-Free Zone" anti-idling campaign asked drivers to commit to reducing the frequency and duration of engine idling and to declare their commitment by placing a decal on their vehicle's windshield).
- **Prompts** – Prompts are used to remind people to perform a particular action (example: the City of Ottawa's "Walk the Talk" program provided participants with a bright yellow card and memo holder to remind them to track their walking, cycling and transit trips).
- **Personalized communication** – Information is tailored to a target audience's specific needs, with particular information and images (example: the City of Vancouver's "TravelSmart" program provides a form to interested households with which they can request specific materials on select topics that suit their travel needs, be it transit maps, cycling guides, trail maps, bike shop discount coupons, etc.).
- **Norm appeals** – Making group standards, or the behaviour and attitudes that people observe around them, more apparent to encourage a desired behaviour (example: the national "Commuter Challenge" encourages the senior staff of participating workplaces to lead by example in adopting more sustainable transportation choices for their commute).
- **Word-of-mouth** – Information that people hear from family, friends or colleagues, which they often respond best to because it comes from someone they trust (example: the City of Seattle's "In Motion" initiative provided lawn signs to participants who received

information about travel options, stimulating conversation within their neighbourhoods about the program).

- **Overcoming specific barriers** – Information or initiatives targeted at specific issues or groups that have been identified as significant (example: British Columbia's "Bike Smarts" program provided specific information about bicycle safety to parents and children, since this was identified as the primary concern for parents).
- **Incentives and disincentives** – Rewards for desired behaviour or punitive measures for the behaviour being discouraged (example: the Government of Canada's change to the Canadian Income Tax Act to make the cost of monthly transit passes deductible in order to encourage regular transit use).
- **Feedback** – Demonstrating the outcomes, particularly the positive impacts, or behaviour changes (example: the successes of the City of Boulder's "Go Boulder" program were publicized in local newspapers and on the community television channel, highlighting the results of the program's initiatives aimed at encouraging residents to shift to more sustainable travel modes).

The City of Orillia, the Health Unit, Simcoe County and neighbouring municipalities are advised to apply the principles of CBSM in their respective marketing and promotional efforts related to the AT Plan.

Leadership by Example

Expanding the utilitarian active transportation population will be essential to reaching future mode share targets. To achieve this, employers should be motivated to encourage and support walking, cycling and the use of non- motorized modes of transportation among their employees. A comprehensive approach should be put in place to encourage public (city) and private sector employees to walk or cycle to work, and to combine these modes with transit for longer distance trips. A Pollution Probe Survey in 2001 provided information on the number of employers in the United States and Canada that have included walking / cycling-supportive initiatives and programs to encourage more employees to walk or ride their bicycles to work and decrease the use of single-occupant motor vehicles for work related

A comprehensive approach should be put in place to encourage public (city) and private sector employees to walk or cycle to work, and to combine these modes with transit for longer distance trips.

trips.[3] Initiatives include bike racks, showers, lockers, cycling subsidies and transportation allowances. As well as fighting congestion, these programs reduced expenses, increased workplace morale and were considered a valuable employee recruiting and retention tool.

The City and its partners can lead by example in encouraging walking and cycling by:

- Creating an incentive program and develop contests for employees who walk or cycle to work, perhaps based around car-free commuter days;
- Organizing a bicycle mentoring program that allows employees who want to cycle to work to find a colleague with whom they can share the ride;
- Making CAN-BIKE or similar courses available to all Health Unit, and City staff to maximize their exposure to safe cycling skills when commuting to work and using a bicycle;
- Ensuring bicycle access to all municipal owned buildings by conducting an inventory of trip-end facilities available at these buildings, then create a prioritized schedule to install expanded or new facilities; and
- Incorporating trip-end facilities within building lease negotiations.

Collecting data to evaluate the different and changing aspects of pedestrian and cyclist behaviour will assist in evaluating the effectiveness and overall contribution of various activities to achieve the stated vision and goals of the AT Plan.

7.3 MEASURES OF SUCCESS

Implementation of the Active Transportation Plan is expected to begin in 2012. It is recommended that the City implement the active transportation network infrastructure plan on an annual basis in accordance with the proposed phasing and available capital funding, as directed by Council.

Collecting data to evaluate the different and changing aspects of pedestrian and cyclist behaviour will assist in evaluating the effectiveness and overall contribution of various activities to achieve the stated vision and goals of the AT Plan.

[3] Pollution Probe. "North American Workplace-based Trip Reduction Programs", November 2001.

Data collection should begin in 2012 in order to support the various AT Plan initiatives. If funding is available, this could include conducting a public attitude survey in partnership with other public and potential private sector partners. The data will establish a benchmark with which to compare later data as the AT Plan is implemented.

The data collection could be used to:

- Confirm the overall direction and implementation of the AT Plan;
- Confirm statistics on the number and type of pedestrians and cyclists;
- Verify the route selection process; and
- Identify the supply and demand for bicycle parking.

Over time, the AT monitoring system should identify changes in route preference to assist in determining where to implement changes to "hard and soft" pedestrian and cycling infrastructure. The results of this assessment may be used to determine the success of implementing various types of pedestrian and cycling facilities. However, caution must be used in relying on an immediate response to a given improvement. An extended timeframe should be established to ensure that pedestrian and cycling awareness initiatives are in place to assist in changing travel patterns and habits.

…the AT monitoring system should identify changes in route preference to assist in determining where to implement changes to "hard and soft" pedestrian and cycling infrastructure.

Assessing the impact and costs of the implementation program might be based on information such as:

- Origin/destination counts;
- Screen line counts on a finer scale that are appropriate to pedestrian and cycling travel patterns;
- Intersection counts to coincide with routes on which improvements are proposed, and also on parallel routes; and
- User counts on major trails.

This information should be collected every two to three years (maximum every five years) and during the cycling season.

Data collected through evaluation / monitoring programs along with information collected through on-going public consultation exercises, such as user surveys and public attitude surveys conducted every five

years can inform and assist in preparing the list of annual priorities and measuring the performance of the AT Plan.

7.4 NEXT STEPS

The vision identified in Section 1, designed to guide the AT Plan study, will also act as a measure to evaluate the AT Plan. Each component of the vision should be accomplished in implementing the AT Plan. The vision statement is:

"The City of Orillia is a pedestrian and cycling supportive community that encourages safe, active transportation for both utilitarian and recreational travel through:

- *Ensuring where feasible and appropriate, that streets accommodate pedestrians and cyclists;*
- *Establishing promotional and educational policies and programs in partnership with City employees and key stakeholders throughout the community; and*
- *Implementing a City-wide visible and connected active transportation and recreation network of on and off-road facilities designed with safety and connectivity in mind that are comfortable, convenient and accommodate the needs of existing and future users."*

There are a number of recommended steps that Orillia should take in 2011 to advance the Active Transportation Plan:

- Submit the AT Plan to Council with a recommendation that it be received. Issue a public notice announcing the completion of the AT Plan and note that the report is available for public review for a 30 day period, following which, if there are no major concerns, it will be adopted by Council. The draft report should be posted in digital format on the City's website so that it can be viewed and downloaded by the public and copies made available at City Hall. All stakeholders and agencies that were invited to comment during the study should be emailed the link to the AT Plan along with an invitation to review and provide comments within the time period defined (30 days proposed);
- Copies of the AT Plan should be provided to all City Departments and relevant City Committees;

- Issue a digital copy of the AT Plan to neighbouring townships, Simcoe County, the Ontario Ministry of Transportation (Policy Branch and Design Branch), and local school boards for information and as input to their long range planning initiatives.

Recommended Actions:

7-1: Implement the Recommended Actions identified in the AT Plan as per the suggested schedule contingent on the available capital funding and Council authorization.

7-2: Develop and distribute newsletters and / or digital newsletters to promote and educate the public on AT opportunities, recommendations for routes and destinations and updates on available and safe routes. These initiatives are proposed to be undertaken as a combined effort by the Health Unit as well as the local area municipalities.

7-3: Utilize educational programming and materials to promote and inform people of the benefits of AT on the health, environment, economy and tourism of Orillia. The coordination of these programs and materials will be coordinated and development by the Health Unit in collaboration with the local area municipalities.

7-4: Work with the Safe routes to School Program to develop an Active and Safe Routes to School Program for Orillia

7-5: The City and its partners should apply the principles of CBSM (Community-based Social Marketing) in their respective marketing and promotional efforts related to the AT Plan; and

7-6: A comprehensive approach should be put in place by the District Health Unit and the City to encourage students and employees to walk or cycle to school or work, and to combine these modes with transit (where available) for longer distance trips.