



The Region of Peel's

# Active Transportation Study

## ACTIVE TRANSPORTATION PLAN IMPLEMENTATION STRATEGY

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FINAL REPORT

NOVEMBER 2011



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# 1 Implementation Overview

The Region of Peel Active Transportation Plan is the overarching strategic document that provides a framework for how the Region of Peel will increase the share of trips by walking and cycling and linked trips with transit, and create a pedestrian and cycling friendly environment. It describes and recommends a variety of policies, programs and an active transportation network to be implemented over time with partners, including the area municipalities.

The primary purpose of the Active Transportation Plan is to guide the Region of Peel's related decision making. The Active Transportation Plan is not a provincially legislated requirement, and therefore has no statutory authority. That authority is provided through the Region of Peel's Official Plan. The Active Transportation Plan also provides the public with clear identification of the pedestrian and cycling infrastructure that will be provided along Regional roads phased in over time. In addition, it is not just a plan of infrastructure actions. It also provides the policy frameworks on which to make concrete operational decisions for the Region of Peel. Finally, it identifies programs for the Region of Peel to support a shift in travel behaviours towards more trips on foot and by bicycle.

## 1.1 Organization of the Implementation Strategy

Part 2: The Active Transportation Plan Implementation Strategy is organized into six sections:

- Section 1 "Implementation Overview" outlines the purpose of the plan, summarizes principles for effective action based on best practices from Canadian communities, and presents the need for master plan review and updating.
- Section 2 "Phasing of Implementation" discusses timeframes (short, medium and long-term) for the phasing in of recommended policies, programs and network, including demonstration projects.
- Section 3 "Financial Requirements" describes capital unit costs and costs for implementing the 20-year active transportation network. Funding sources, both current and new / innovative are summarized. A recommended financial structure is presented.
- Section 4 "Tools for Implementation" discusses conventional institutional structure and performance monitoring and evaluation as tools to support the implementation of the plan, along with options for the Region of Peel.
- Section 5 "Asset Maintenance and Management" discusses preventative, routine and responsive maintenance; winter control maintenance and asset management

Recommendations of the Active Transportation Plan are in **bold** and repeated in **blue boxes**.

## 1.2 Best Practices in Canada

The Transportation Association of Canada report on *Active Transportation - Making It Work in Canadian Communities* (2010) presents critical factors for successful implementation of active transportation strategies in Canadian communities. Based on a survey of TAC members, interviews with practitioners and focus group discussions, the report outlines lessons learned to assist local, regional, provincial and federal Canadian governments. In regard to “Strengthening Foundations for Effective Action”, the following four principles are presented:

- **Principle 1—Leadership:** Successful AT programs require leaders with a sincere interest in active transportation. These leaders may emerge from municipal staff, credible local advocates, community leaders or politicians. Leaders may be motivated by many different factors including the environment, cost savings, tourism or health benefits; so getting them to see how active transportation is linked to these benefits is key.
- **Principle 2—Partnership:** Active transportation is a multi-disciplinary issue requiring a multidisciplinary approach. Working across departments and jurisdictions can greatly accelerate progress.
- **Principle 3—Public involvement:** Involve members of the public through non-traditional approaches, target multiple stakeholders, and ensure that consultation remains focused and interesting. For larger municipalities, divide public engagement efforts into smaller neighbourhoods.
- **Principle 4—Financial and Human Resources:** Address financial and staffing resource limitations through creative solutions and strong partnerships, as well as alternative approaches to budgeting that better reflect the benefits of active transportation.
- **Principle 5—Knowledge and Skills:** Build knowledge and skills through AT-specific training for staff and other stakeholders. Gain valuable understanding and experience through data collection and pilot projects.

Many communities have fostered and assembled the champions, leaders and supporters needed to create change and we see their success in Canada: Montreal, Toronto, Guelph, Saskatoon, Whitehorse, Kamloops, Vancouver, Victoria, and emerging in Cape Breton, Ajax, Minden, Edmonton and Winnipeg to name a few. Yet a stable and sustainable approach requires that active transportation friendly policies and attitudes be internalized throughout municipal institution and structures. The approach of depending on a few leaders and champions can be haphazard and unpredictable. “Sound” active transportation policy is “formal” policy; “sustainable” active transportation practice is “standing” practice.

## 1.3 Review and Updates

The Active Transportation Plan is not intended to be a static document. It must be regularly reviewed to ensure it meets the needs of the Region of Peel. Changing community expectations or

growth and development patterns can necessitate a re-investigation of the Plan. The on-going review process will involve:

**AT Plan Implementation: Annual updates** of the Active Transportation Plan will occur through the Region of Peel's 20-year Capital Improvement and budgeting process. An **annual staff report** to Council will be prepared on active transportation conditions, behaviours, needs and trends, including an annual implementation budget with joint input from the area municipalities.

- **Annual updates** through the Region of Peel's 20-year Capital Improvement Program and budgeting process.
- Preparation of an **annual staff report to Council** on active transportation conditions, behaviours, needs and trends, including an annual implementation budget with joint input from the area municipalities. In addition to the performance measurement process presented in Section 4.3, page 31, this annual report will include:
  - Status on the implementation of the various components of the plan (specific policies, programs and network projects)

- Summaries of public feedback on active transportation issues, programs and projects implemented;
- Status of related area municipal active transportation initiatives;
- Status of provincial initiatives, policies and funding programs; and
- Any need to review, amend or update components of the Active Transportation Plan
- An annual implementation budget for programs and the network implementation including committed funding for projects through various Region of Peel budgets, funding sought from other sources, and partnerships.

**AT Plan Implementation: The Active Transportation Plan** will undergo a **full review at the next five-year mandatory review of the Official Plan, and every five years thereafter** in association with future statutory assessments of the Official Plan.

The Active Transportation Plan requires regular updating to remain relevant and effective in dealing with the Region of Peel's transportation needs. Therefore, **it is further recommended that**

**the Active Transportation Plan undergo a full review at the next five-year mandatory review of the Official Plan, and every five years thereafter in association with future statutory assessments of the Official Plan.**

Excerpt from City of Hamilton's *Water and Wastewater Sustainability Report Card*



## 2 Phasing of the Implementation

There are three main elements of the Active Transportation Plan that will be implemented over time:

- Policies, including revisions to the Official Plan policies, and policies of the Active Transportation Plan.
- Programs, including the recommendations related to shifting travel behaviours, and other supportive initiatives related to public bike systems, tourism and bicycle parking.
- Network, including the projects that are part of the Capital Improvement Program, those required to fill smaller gaps in the existing network, those retrofitting Regional roads corridors that are not in the Capital Improvement Program; regional trail corridors and trail crossings that require working with the area municipalities and other partners; and interchange improvements that require working with area municipalities and the Ministry of Transportation, Ontario (MTO).

The three time periods for the phasing are as follows:

- Short-term implementation: 1 to 5 years
- Medium-term implementation: 6 to 20 years
- Long-term implementation: 20+ years

### 2.1 Policies

#### 2.1.1 Official Plan Policies

##### **AT Plan Implementation:**

Recommended revisions to active transportation policies in the Regional Official Plan to reflect the vision as developed in this study will be **incorporated into the Regional Official Plan Amendment 26**. The need for an active transportation schedule will be reviewed at the next Regional Official Plan update.

The Active Transportation Plan identifies a need to update the active transportation policies in the Regional Official Plan to reflect the vision as developed in this study. **These policy revisions are recommended to be incorporated into the Regional Official Plan Amendment 26. The need for an active transportation schedule will be reviewed at the next Regional Official Plan update.**

## 2.1.2 Active Transportation Plan Policies

**AT Plan Implementation:** Some of the Active Transportation Plan policies will require further discussion and refinement, while others can be put into action with the adoption of this plan. The Region of Peel's Public Works and Public Health departments will jointly provide the leadership to the Active Transportation Plan Policies by way of the Active Transportation Leadership Working Group in partnership with the area municipalities. **Suggested timeframes for development / adoption of recommendations and implementation / continued execution are presented in the Implementation Strategy.**

Policies are recommended to provide elaboration and specificity on the Regional Official Plan Policies in active transportation. These policies are organized around four key themes:

- Build Knowledge and Design Strategies;
- Implement the AT Plan;
- Shift the Regional Road Character; and
- Create AT-friendly Developments and Communities.

Some of these policies will require further discussion and refinement, while others can be put into action with the adoption of this plan. The Region of Peel Public Works and Public Health departments will jointly provide the leadership to the Active Transportation Plan Policies by way of the Active Transportation Leadership Working Group in partnership with the area municipalities. Potential partners to assist in the implementation, the recommended action and timeframe for implementation are presented in Exhibit 1. The policies have been summarized for brevity.

**Exhibit 1: Implementation Plan for the Active Transportation Plan Policies**

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
<b>Build Knowledge and Design Strategies</b>					
Develop and improve processes to better accommodate active transportation into the Region's decisions and responsibilities until such accommodations become routine.	AT Leadership Working Group AT Network Co-ordinator AT Program Co-ordinator Public Health	Identify and prioritized processes in 2011	●	●	➔
Continue the Active Transportation Leadership Working Group comprised of staff from Region of Peel's Public Works and Public Health departments in partnership with the area municipalities.	AT Leadership Working Group	On-going	➔	➔	➔
Allocate staff to oversee the implementation of the Active Transportation Plan (programming and network implementation). They will co-ordinate across departments in the Region of Peel, area municipalities, neighbouring municipalities, the Province / Metrolinx, and other governments and agencies, collaborate with all stakeholders in the public, private and non-profit sectors, and communicate with the public until such time accommodation becomes routine.	AT Leadership Working Group AT Program Co-ordinator Public Health Public Works	Establish AT Network Co-ordinator staff position in 2013; evaluate position in 5 years; Allocate adequate public health staff	●	➔	➔

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
Reference and apply current and professionally supported guides for the promotion, planning, design, maintenance and operation of active transportation facilities, including any approved standards related to the Ontarians with Disabilities Act, and engineering design manuals as appropriate.	AT Network Co-ordinator AT Leadership Working Group Planning Public Works Region of Peel Accessibility Committee	Establish library of resources immediately	●	➔	➔
Review and update Regional documents that affect the planning, design, operation and maintenance of Regional facilities to explicitly integrate active transportation facilities, with exceptions to best practices justified transparently.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Appropriate Departments in Area Municipalities	Identify and prioritized documents in 2012	●	●	●
Enable opportunities to discuss and resolve design strategies that go beyond current design practices	AT Leadership Working Group AT Network Co-ordinator Planning Public Works	Initiate discussions as opportunities arise through corridor studies	●	●	●
<b>Implement the Region of Peel Active Transportation Plan</b>					
Establish and review funding agreements on capital and maintenance of the active transportation facilities with area municipalities.	AT Leadership Working Group Public Works Corporate Finance	Initiate with DC by-law update; re-evaluate in 5 years	●	●	●
Implement the active transportation plan for short, medium and long term as recommended in this Active Transportation Plan, establishing partnerships with the area municipalities, MTO, Metrolinx, and other potential stakeholders to leverage funding for projects and improvements outside the Region of Peel's Capital Road Improvement Program.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Corporate Finance Appropriate Departments in Area Municipalities	Identify and respond to alternative funding sources as they become available	●	➔	➔
Work with the local municipalities to encourage them to establish an audit process for the continual improvement of existing active transportation facilities, including addressing safety issues associated with multi-use trails located along Regional road with frequent driveways and intersections.	AT Leadership Working Group Appropriate Departments in Area Municipalities	Establish process in 2011 / 2012 and implement in subsequent years	●	➔	➔
Through the development of specific design strategy policies, enable the active transportation network to evolve to incorporate the latest demonstrated, beneficial initiatives as they develop in North America within a changing legislative environment, using demonstration projects and associated communication plans to inform the public about new ideas.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Appropriate Departments in Area Municipalities External Stakeholders Public	Initiate discussions as opportunities arise through corridor studies	●	●	●

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
Require the gratuitous dedication to the Region of additional land beyond Schedule F, if needed and where feasible, where an active transportation facility is planned in the future road widening, resurfacing or reconstruction improvements. The need for an active transportation schedule will be reviewed at that time of future updates of the Regional Official Plan.	AT Network Co-ordinator Planning Public Works Legal and Risk Management	As needed and with future update to Regional Official Plan	●	➔	➔
Collaborate with the local municipalities to develop a coordinated signage strategy that communicates the convenience and accessibility of the routes through destination, direction, and distance or time information; and implement and maintain such signage strategy as it applies to Regional roads. The local municipalities will be responsible for the operation and maintenance of signage.	AT Leadership Working Group AT Network Co-ordinator Public Works Legal and Risk Management Appropriate Departments in Area Municipalities External Stakeholders Public	Develop strategy in 2012 and implement in subsequent years Account for established trail signage strategies in Brampton, Mississauga and Caledon Consider incorporating the Walk and Roll Peel logo	●	➔	➔
Collaborate with transit authorities to integrate active transportation facilities including bicycle parking into transit corridors, creating connections to cross such corridors, and at transit / mobility hubs, stations and stops, where such transit corridors coincide with Regional roads and properties.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Metrolinx Local Transit Authorities	On-going	●	➔	➔
Use demonstration projects, for example, an intersection retrofitted to have reliable signal detection for cyclists or a block along a Regional road recommended for pedestrian enhancements, to demonstrate early commitment, refine roles and responsibilities, test different approaches and generate stakeholder interest.	AT Leadership Working Group AT Network Co-ordinator Public Works Appropriate Departments in Area Municipalities External Stakeholders Public	Select locations in each area municipality in 2011; define project and implement in 2012	●	●	
Encourage the area municipalities to establish and implement maintenance practices to provide year-round, quality active transportation facilities along Regional roads, setting priorities based on estimated or latent demand and integration with transit, and quality standards based on municipal and accessibility legislation and best practices.	AT Leadership Working Group AT Network Co-ordinator Public Works Appropriate Departments in Area Municipalities	Review maintenance agreements in 2012 Modify / evaluate in subsequent years	●	➔	➔
Adopt a performance monitoring process for the Active Transportation Plan within the Region's Long Range Transportation Plan overall performance monitoring and evaluation process.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Planning Public Health	Establish process in 2012 Report annually	●	➔	➔

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
Review and co-ordinate updating of municipal by-laws, as required, pertaining to permitted users of the AT network (multi-use trails, sidewalks and bikeways), having regard to Provincial regulations on e-bikes and other new vehicles.	AT Leadership Working Group AT Network Co-ordinator Public Works Legal and Risk Management Appropriate Departments in Area Municipalities	Address by-laws regarding e-bikes in 2012 Undertake by-law review within next 5 years Create a bicycle lane by-law at such time this type of facility is implemented to allow regulating and enforcing traffic use until HTA Regulation 615 is amended to include the reserved bicycle lane sign.	●	➔	➔
Develop the overall active transportation programming plan to support the use of the existing active transportation network and coordinate with changes to the network over time.	AT Leadership Working Group AT Program Co-ordinator Public Health Public Works	On-going	●	➔	➔
Develop, implement and evaluate behaviour change programming in neighbourhoods that support the use of the existing active transportation network and coordinate with changes to the network over time.	AT Leadership Working Group AT Program Co-ordinator Public Health Public Works	On-going	●	➔	➔
Review the AT Plan every five years, or whenever deemed necessary, to determine the need for and undertake an update.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Planning Public Works Public Health Appropriate Departments in Area Municipalities External Stakeholders Public	Initiate review in 2016 or during next five-year mandatory review of the Official Plan		●	●
Collect pedestrian and cycling data to conduct statistical analyses on the status and trends on walking and cycling, and monitor the different aspects of active transportation behaviour to assist in evaluating the effectiveness of various aspects of the Plan.	AT Leadership Working Group AT Network Co-ordinator Public Works Public Health	Initiate review in 2012	●	➔	➔

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
<b>Design for Active Transportation on the Regional Roads in Balance with the Needs of Other Modes</b>					
During the planning process of road widening strategies, continue to consider the long-term goals and objectives of transportation demand management strategies, improved efficiencies and provision of high quality active transportation facilities.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Appropriate Departments in Area Municipalities External Stakeholders Public	Initiate discussions as opportunities arise through planning studies	➔	➔	➔
Evaluate and provide attractive and accessible crossings as required where employment, commercial, institutional or residential land uses exist or planned to exist on both sides of the road	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Appropriate Departments in Area Municipalities External Stakeholders Public	Initiate discussions as opportunities arise through intersection and corridor studies, and development applications	●	●	●
Adopt a philosophy of providing intersections on Regional roads that improve the safety, accessibility, and comfort of all road users, explicitly considering pedestrians and cyclists, and other priority populations.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works	On-going	●	➔	➔
Work with area municipalities to develop a program for providing missing sidewalk links or boulevard multi-use trails on Regional roads not part of the Region of Peel's Capital Road Improvement Program. A detailed inventory of sidewalk locations is recommended to confirm locations and conditions.	AT Leadership Working Group AT Network Co-ordinator Appropriate Departments in Area Municipalities	Establish program in 2012 and implement in subsequent years Complete a detailed inventory of sidewalk locations to confirm locations and conditions in 2012 / 2013	●	➔	➔
Include active transportation infrastructure in every new Regional road and Regional road widening / reconstruction / resurfacing project, and in other linear Regional corridor capital projects, other than freeways, with exceptions justified transparently.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Appropriate Departments in Area Municipalities External Stakeholders Public	Initiate discussions as opportunities arise through planning and design projects.	●	➔	➔
Work with the Ministry of Transportation, Ontario (MTO) and area municipalities to improve freeway crossings, improve the comfort and safety of all road users with explicit considerations for pedestrians, cyclists, and priority populations; and seek opportunities to build grade-separated pedestrian / cycling crossings of freeways where the frequency of roadway crossings and improvement alternatives are limited.	AT Leadership Working Group AT Network Co-ordinator Planning Public Works Public Health MTO Appropriate Departments in Area Municipalities	Develop strategy in 2012 / 2013 and implement in subsequent years	●	➔	➔

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
<b>Incorporate Active Transportation Responsibilities</b>					
Adopt a road maintenance approach (find—fix—manage) incorporating the vulnerability of active transportation users and priority populations with regard to the operation and maintenance practices for Regional roads, including hazard removal / protection, debris and snow clearing, road safety strategies, traffic signal operations, etc.	AT Leadership Working Group AT Network Co-ordinator Public Works Legal and Risk Management Appropriate Departments in Area Municipalities	Develop strategy in 2012 / 2013 Modify / evaluate in subsequent years	●	➔	➔
Provide for and maintain active transportation access and mobility through construction areas on Regional roads, including both public and private encroachments, with traffic management plans that recognize the need for direct, safe and comfortable alternatives.	AT Leadership Working Group AT Network Co-ordinator Public Works Legal and Risk Management	Update traffic management plan criteria in 2012 / 2013	●	➔	➔
Incorporate the need to protect active transportation users with explicit considerations for priority populations from road dangers into road safety and enforcement strategies. Enforcement of the Highway Traffic Act as it applies to pedestrians and cyclists should focus on those infractions that are more likely to result in injury or death such as riding through red traffic signals, than low risk infractions such as not having a bell on a bicycle.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Police Public Health Public Works Communications Legal and Risk Management Appropriate Departments in Area Municipalities	Update strategies in 2012 / 2013; re-evaluate in 5 years	●	●	●
Make active transportation a visible part of Regional public facilities, including basic and enhanced amenities for users (e.g. street furniture, bicycle parking, etc.), with explicit considerations for priority populations.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Public Works Communications Public Health	Initiate review of facilities in 2012 / 2013 and identify priorities for retrofit in subsequent years	●	●	➔
<b>Create Active Transportation-friendly Developments and Communities</b>					
Encourage local municipalities to develop live / work land-use strategies that shorten trip lengths and promote active transportation.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Public Health Planning Public Works Appropriate Departments in Area Municipalities	Establish guidelines and initiate discussions as opportunities arise through OP amendments, strategic plans and master plan studies	●	➔	➔
Encourage the local municipalities, in developing community plans and in the review of development applications, to create walkable and bicycle-friendly plans that link with public transit and reduce the reliance on the private automobile and associated expansion of the Regional road network.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Public Health Planning Public Works Appropriate Departments in Area Municipalities	Establish guidelines and initiate discussions as opportunities arise through secondary plan studies and development applications	●	➔	➔

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
Encourage and support the local municipalities to require transportation demand management strategies to be incorporated into the development approval process, explicitly addressing ways to increase active transportation mode share and link active transportation to public transportation services.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Public Health Planning Public Works Appropriate Departments in Area Municipalities	Establish guidelines and initiate discussions as opportunities arise through development applications	●	➔	➔
Require transportation studies and traffic impact studies for new development or re-development to explicitly analyze, the needs of active transportation users and priority populations, the impact of the development on AT, and AT facilities required to service the development.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Planning Public Works Public Health Appropriate Departments in Area Municipalities	Update TIS guidelines in 2012 / 2013	●	➔	➔
Require new AT facilities to be built and open for use at the same time that other new transportation systems and new development are opened for use.	AT Leadership Working Group AT Network Co-ordinator Public Works Appropriate Departments in Area Municipalities	Initiate discussions on occupancy and building permit requirements in 2013 / 2014		●	➔
Support area municipalities in adopting end-of-trip facilities for AT, such as bicycle parking (both number of spaces and type of rack, locker or lock-up room / cage), and change rooms, in their zoning by-laws and adopting appropriate guidelines for their design based on land-use type and size.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Planning Public Works Public Health Appropriate Departments in Area Municipalities External Stakeholders Public	Secure commitment to update by-laws in 2012 / 2013		●	➔
Encourage area municipalities through the site development plan approval process to review the requirements for active transportation design elements, such as public furniture, transit shelters, shade trees / canopies, bicycle parking, etc., in order to facilitate accessible, comfortable and attractive travel for pedestrians and cyclists, and priority populations.	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Planning Public Works Public Health Appropriate Departments in Area Municipalities External Stakeholders Public	Establish guidelines and initiate discussions as opportunities arise through the development applications process	●	➔	➔

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Recommended Policy	Partners	Action Required	Timeframe		
			Short	Medium	Long
Work with area municipalities, school boards, and other key stakeholders to explore options to further enhance active transportation infrastructure in new and existing areas in Peel. Examples of projects could be identifying selected schools or neighbourhoods to assess the potential for enhancing the use of the active modes of transportation through improved active transportation facilities and incorporating walkable and cycling design concepts	AT Leadership Working Group AT Program Co-ordinator AT Network Co-ordinator Public Works Public Health Appropriate Departments in Area Municipalities	Initiate review of schools or neighbourhoods in 2012	●	➔	➔

## 2.2 Active Transportation Programming

Behavioural change strategies support active transportation efforts in the Region of Peel through the design and delivery of marketing and outreach programs that encourage the use of human-powered modes of transportation while ensuring infrastructure elements provide the benefits desired by residents.

A good active transportation plan provides a balance of facilities and programs. Facilities and programs go together—like providing minor sports services. The administration and promotion of teams and leagues is as critical as supplying quality sports facilities. So it is with walking and cycling; one needs attractive places to walk and cycle in order to encourage people to do so, and programming to raise awareness of the viability. Programming efforts must focus on areas in the Region of Peel where active transportation facilities exist, expanding as the network expands. Thus the timing of programs must be co-ordinated with the development of the AT network.

### 2.2.1 Behavioural Shift Programs

**AT Plan Implementation:** Short-term behavioural shift program strategies for the Region of Peel’s Walk and Roll Team will be **delivered in year 1 and onward**.

Recommended **short-term strategies** for the Region of Peel’s Walk and Roll Team, **with delivery in year 1 and onward** include:

- Continue to deliver and monitor the Walk + Roll Peel campaign
- Meet annually with stakeholders regarding Walk + Roll Peel
- Assist in the delivery of the Region of Peel’s Five Year TDM Social Marketing Plan
- Develop an annual business plan for the above
- Work with the area municipalities to review the options and feasibility of experiential marketing and guerrilla efforts near and on active transportation infrastructure

- Encourage area municipalities to continue to provide marketing and communications support for the Walk + Roll Peel campaign

**AT Plan Implementation:** Medium to long-term behavioural shift program strategies consisting of the Region of Peel conducting community-based social marketing efforts in partnership with the area municipalities will be **delivered in year 2 and onward**, following the Trans-theoretical Model of Behaviour Change.

Recommended **medium to long-term strategies with delivery in year 2 and onward** consist of the Region of Peel conducting community-based social marketing (CBSM) efforts amongst neighbourhoods and/or activity centres with access to existing active transportation infrastructure. This should be done in collaboration and partnership with the area municipalities, including program development, implementation and evaluation. The timing of the implementation of the program links to the trans-theoretical model of behaviour change, as illustrated in Exhibit 2.

**Exhibit 2: Trans-theoretical Model of Behaviour Change and Recommended AT Programming**

**LEGEND:**

- Development or adoption of recommendation
- ➔ Implementation or continued execution

Stages of Change	Recommended Programming	Timeframe		
		Short	Medium	Long
<b>Pre-contemplation</b>	Promote and Expand Overall Active Transportation Communications	➔	➔	➔
<b>Contemplation</b>	<ul style="list-style-type: none"> <li>▪ Promote and expand active transportation social media communications, such as WalkandRollPeel.ca</li> <li>▪ Promote and expand maps for trails/paths and destinations</li> </ul>			
<b>Preparation</b>	Supportive Network Policies and Infrastructure <ul style="list-style-type: none"> <li>▪ Development of accessible, safe and integrated active transportation policies and networks in Peel</li> </ul> Community Engagement and Mobilization <ul style="list-style-type: none"> <li>▪ Conduct stakeholder engagement (e.g. workshops, champion support) at regional/municipal, community/neighbourhood, workplace and school-levels to support capacity building and continued development of active transportation supportive policies and programming in Peel</li> </ul>	●	●	➔
<b>Action</b>	Develop, Implement and Evaluate Behaviour Change Programming to encourage use of the Active Transportation Network, including:	●	●	➔
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>▪ Tailored community-based social marketing /neighbourhood-level encouragement programming, building on existing Walk and Roll strategies</li> <li>▪ Tailored school-level encouragement programming, building on existing Peel Safe and Active Routes to School strategies</li> </ul>		➔	➔

## 2.2.2 Other Supportive Initiatives

### Public Bike Systems

Similar to car-sharing programs, public bike systems make bikes available to subscribers at strategic locations city-wide. Patrons access a bike with an electronic card, use it as needed, and return it to the same or another parking rack when finished. Public bicycle programs have significantly increased the number of trips made by bicycle in cities that have launched major programs. A network of cycling infrastructure is complementary to the success, creating comfortable places for people to ride. It is less successful at lower population densities outside urban cores.

**AT Plan Implementation:** Provide support to the area municipalities in monitoring public bike systems and a high-level feasibility review in the **short-term over the next five years.**

Before implementing a public bike program, a business strategy is required. **It is recommended that the Region of Peel support area municipalities in monitoring the implementation of public bike systems in North America and provide support of a high-level feasibility review over the next five years.**

### Active Transportation Tourism

**AT Plan Implementation:** Implement active transportation tourism recommendations in the **short-term (1 to 5 years)**

The Ministry of Tourism and Culture, Ontario has recently developed Regional Tourism Organizations (RTOs) in the province's 13 new tourism regions. Each Regional Tourism Organization is independent, industry-led and not-for-profit and responsible for building and supporting competitive and sustainable tourism. This strategy is intended to help attract more visitors, generate more economic activity,

and create more jobs across the province. **The Region of Peel and area municipalities should work with the Regional Tourism Organizations to promote active transportation tourism in the region. The Region of Peel's Active Transportation Program Co-ordinator, with support from Public Health could take a liaison role between the RTOs and the area municipalities.** It is an opportune time to become involved as the new RTOs define their strategies and products.

**Short-term (1 to 5 years)** approaches could include:

- Support municipalities in leveraging promotional activities for major events such as festivals and sporting events, encouraging visitors to access events on foot or by bicycle, and developing a strategy of bicycle valet parking. This includes the 2015 Pan Am games.
- Continue to support promotion of the Lake Ontario Waterfront Trail, the Tour de Greenbelt, the Tour de Mississauga, and the Tour de Terra Cotta.
- Support municipalities in extending programs such as Go by Bike ([www.BikesandTransit.com](http://www.BikesandTransit.com)) that markets GTA visitors to take their bicycle on the GO train on weekends and travel to a municipality to explore their bike routes and trails.
- Continue to promote walking, hiking and cycling trails and routes through the Walk and Roll Peel campaign and provide support by linking to other tourism strategies.

### Bicycle Parking

**AT Plan Implementation:** Assist in providing bicycle parking and other end-of-trip facilities. In the **short-term (1 to 5 years)**, encourage adoption of bicycle parking design guidelines and revisions to zoning by-laws, as required; provide end-of-trip facilities at Regional-owned properties as appropriate; and work with the area municipalities to develop a bicycle parking program to retrofit bicycle racks at existing developments.

It is recommended that the Region of Peel assist in providing bicycle parking and other end-of-trip facilities. **Short-term (1 to 5 years)** strategies include:

- Encourage the area municipalities who have not done so to adopt design guidelines for new and retrofit shorter-term bicycle parking (bicycle racks), long-term, more secure bicycle parking (enclosures, lockers, bicycle rooms, etc.) and shower / change rooms and amenities.
- Encourage the area municipalities who have not done so to revise zoning by-laws and development policies, as required, for all land uses other than single family to address the need for shorter-term bicycle parking for visitors and longer-term, more secure bicycle parking for residents or employees. If longer-term bicycle parking is required, encourage the expansion of the by-laws to include complimentary change rooms / showers and related amenities.
- Provide end-of-trip facilities at all Regional-owned properties as appropriate based on visitor and employee latent demand and best practices.
- Work with the area municipalities to develop a bicycle parking program to encourage the retrofit of bicycle racks at existing developments including schools, considering bulk-purchase, subsidy, advisory services on locating the racks, or other mechanisms.

## 2.3 The Active Transportation Network

Developing an active transportation network takes time. Implementation has to be both opportunistic, taking advantage of efficiencies in co-ordinating with capital projects or operational improvements and related funding sources; and systematic, filling in gaps in the network over time outside of the other project opportunities.

The recommended active transportation network for Region of Peel can be categorized and phased as follows:

- **Capital Improvement Program:** Sidewalks, boulevard multi-use trails and paved shoulders planned as part of Regional road projects in the 20-year Capital Improvement Program and resurfacing program. Phasing of these facilities is tied to the phasing of these programs.
- **Rapid transit or intensification corridors:** Sidewalks, boulevard multi-use trails and bikeways (including segregated bike lanes) in future rapid transit or intensification corridors that will undergo change to accommodate higher-order transit and development intensification. Phasing of these facilities will be tied to corridor improvements for transit and will be in the medium to long term.
- **Long-term rural improvements:** Bike lanes, and one section of paved shoulder and multi-use trail in the rural communities in the Town of Caledon will be implemented beyond the 20-year capital planning horizon, i.e. in the long-term.

- **Long-term sidewalk replacement:** Replacement of deteriorating sidewalks in the long-term with boulevard multi-use trails along Regional roads not in Capital Improvement Plan will be implemented beyond the 20-year capital planning horizon, i.e. in the long term.
- **Filling gaps and critical links:** Other active transportation facilities that will fill gaps and complete the network, not part of the above programs, are assumed to be implemented in the short and medium terms, where possible and feasible.
- **Regional trails:** Regional trail projects will be implemented according to the timing of area municipal plans.

Improvements such as pedestrian countdown signals, high visibility crosswalks, ‘crossrides’, bicycle detection, pedestrian enhancements, etc. are assumed to be part of the above projects. An allowance has been made in the estimated unit costs of construction to include these improvements. Interchange improvements will be a separate program partnered with the area municipalities and Ministry of Transportation, Ontario to be defined through this partnership.

New design strategies, such as multi-use trails on both sides of Regional roads, bike lanes and segregated bikes lanes, outside the current practice may be implemented at any time based on opportunities to discuss, evaluate and incorporate in corridor projects or as demonstration projects. They are placed in the long-term implementation phase. However, it should be recognized that as active transportation policies are implemented that build knowledge and shift current philosophies and practices, such projects may be implemented in a nearer term.

The length of the various types of facilities in the recommended active transportation network for the Region of Peel by phase is presented in Exhibit 3.

**Exhibit 3: Length (km) of Proposed Active Transportation Facilities by Phase**

Caledon	Phase 1 (1-5 years)	Phase 2 (6 to 20 years)	Phase 3 (beyond 20 years)	Total
Sidewalk (linear km)	3	23	1	27
Multi-Use Trail (linear km)	5	4	2	11
Paved Shoulder (centreline km)	34	90	14	138
Bike Lane (centreline km)			19	19
Shared Use Signs/Markings (centreline km)	12			12
Pedestrian Enhancements (centreline km)	1			1
<b>Total Length AT Facilities</b>	<b>55</b>	<b>117</b>	<b>36</b>	<b>208</b>
Trail Crossings to Improve (no.)	3	4		7

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Brampton	Phase 1 (1-5 years)	Phase 2 (6 to 20 years)	Phase 3 (beyond 20 years)	Total
Sidewalk (linear km)	24	51	5	80
Multi-Use Trail (linear km)	28	94	25	147
Bike Lane (centreline km)			4	4
Segregated Bike Lane (centreline km)			12	12
Pedestrian Enhancements (centreline km)	9	12		21
<b>Total Length AT Facilities</b>	<b>61</b>	<b>157</b>	<b>46</b>	<b>264</b>
Interchange Improvements (no.)		5	4	9

Mississauga	Phase 1 (1-5 years)	Phase 2 (6 to 20 years)	Phase 3 (beyond 20 years)	Total
Sidewalk (linear km)	15	6	6	27
Multi-Use Trail (linear km)	44	38	25	107
Bike Lane (centreline km)		5		5
Pedestrian Enhancements (centreline km)	6	8		14
<b>Total Length AT Facilities</b>	<b>40</b>	<b>57</b>	<b>31</b>	<b>153</b>
Trail Crossing (no.)	1	3	1	4
Interchange Improvements (no.)		5	4	9

### 2.3.1 Demonstration Projects

**AT Plan Implementation:** Implement demonstration projects in each of the area municipalities along Regional roads in the **short-term (1 to 5 years)**, including pedestrian enhancements and bicycle intersection access improvements.

One of the Active Transportation Plan policies is to use demonstration projects to demonstrate early commitment, refine roles and responsibilities, test different approaches and generate stakeholder interest. These demonstration projects should be “quick wins”, i.e. projects that are most beneficial to pedestrians and cyclists but without any disbenefits to other corridor users, and fairly easy and economical to implement. **It is recommended that demonstration projects be implemented in the short term (1 to 5 years)** consisting of a pedestrian enhancement project in each area municipality, retrofitting

cross-rides on a boulevard multi-use trail along a Regional road in Brampton and Mississauga, and bicycle intersection improvements at key intersections in each area municipality. Locations and types of treatments to test should be determined in consultation with the area municipalities, and the Ministry of Transportation, Ontario, if required (for traffic control devices currently not in the Ontario Traffic Manuals or for locations near their facilities).

## 3 Financial Requirements

The Region of Peel Active Transportation Plan has identified infrastructure projects, policies and programs that require implementation and therefore funding throughout the life of the plan. The following sections provide a breakdown of the estimated financial investment to implement the Active Transportation Plan.

### 3.1 Capital Costs

Capital costs to build the recommended sidewalks, multi-use trails, and bikeways are based on an estimate of unit costs of construction. These are presented in Exhibit 4.

The estimated cost for each phase of the recommended network is provided in Exhibit 5 based on funding planned through the Region of Peel and area municipalities' Capital and Resurfacing programs plus Development Charges, developer funded, and currently unfunded. The City of Mississauga also has an annual capital budget for cycling programs and improvements which is largely funded from Development Charges. For Phases 1 and 2 (short and medium term for the next 20 years), \$75 M of the recommended facilities (approximately 60% of the total estimated cost of implementation) have planned funding. An additional \$52 M in funding is required for recommended facilities outside the planned funding (approximately 40% of the total estimated cost of implementation). The active transportation facilities proposed in the short-term and medium-term network will require additional funding from multiple partners to implement at an estimated level of approximately \$2.6 M per year over 20 years. Partners will include the Region of Peel (share to be determined), area municipalities, MTO, and others as identified through alternative funding sources.

**Exhibit 4: Estimated Unit Cost of Construction for Active Transportation Infrastructure  
(2011 Dollars)**

Item	Description	Unit <sup>1</sup>	Estimated Unit Price <sup>2</sup>
<b>Sidewalks</b>	Concrete, 1.8 m wide; contingency allows for drainage, curb ramps / detectable warnings, thicker sidewalk through commercial / industrial driveways	Linear km	\$165,000
<b>Boulevard Multi-use Trails</b>	Asphalt, 3.0 m wide; includes signs; contingency allows for drainage, detectable warnings, thicker trail through commercial / industrial driveways	Linear km	\$200,000
<b>Off-road Multi-use Trail</b>	Asphalt, 4.0 m wide; includes signs; contingency allows for drainage, additional minor grading; assumes normal site conditions (good sub-grade, etc.)	Linear km	\$300,000
<b>Signed/Marked Share Lanes</b>	Paint in existing general purpose lanes; includes signs; contingency allows for some sign removals / additions, additional markings at spot locations	Linear road km	\$9,000
<b>Bike Lanes (Retrofit)</b>	Reconfigure and repaint existing travelway; includes signs	Linear road km	\$28,000
<b>Paved Shoulders</b>	Pave existing 1.5 m wide granular shoulders; includes pavement markings and signs	Linear road km	\$160,000
<b>Segregated Bike Lanes <sup>3</sup></b>	Construct as part of larger road reconstruction project	Linear road km	\$400,000
<b>Pedestrian Enhancements</b>	Basic streetscaping; includes 60 mm calliper tree every 10 m, benches every 200 m, massing shrubs every 40 m	Linear road km	\$100,000
<b>Intersection Improvements</b>	Cross-ride	Each	\$2,000
	Bicycle loop detector	Each	\$2,000
	Bicycle push-button	Each	\$2,000
	High visibility crosswalk marking major road	Each	\$5,000
	Pedestrian countdown signal (all four legs)	Each	\$6,000
<b>Interchange Improvements <sup>4</sup></b>	Lane markings, conflict area markings and warning signs	Each	\$80,000
	Jug-handle crossing	Each	\$50,000
<b>Grade-separated structure</b>	Costs varies depending on span, height and site conditions		\$2 M to \$5 M

Notes:

1. Linear km includes facility on one side of the road only; linear road km includes facility on both sides of the road
2. Based on 2011 Dollars; includes a 20% contingency, 15% design and administration costs; does not include utility relocation costs or property acquisition costs
3. The cost of segregated bike lanes in North America is highly variable depending on the type of separator, intersection treatments, retrofitting or reconstructing, etc.
4. Consider ramp improvements (e.g., pavement markings, signage) and lane width re-striping adjacent and across existing structures. Individual interchanges will need to be assessed to determine where lane width modifications to accommodate continuous active transportation routes are feasible, or where structure widening or construction would be required. Subject to more detailed evaluation, costs for ramp improvements and lane width re-striping for one interchange are likely in the order of \$250,000. Increasing the width of a structure is likely in the order of \$2 million.

**Exhibit 5: Estimated Cost to Implement the Recommended Network by Phase (2011 Dollars)**

	Phase 1 (Year 1-5)	Phase 2 (Year 6-20)	Subtotal Phase 1 & 2	Phase 3 (Year 20+)
<b>Planned Funding <sup>1</sup>:</b>	\$21.1 M	\$52.7 M	\$73.8 M	
<b>Developer Funding:</b>		\$1.4 M	\$1.4 M	
<b>Additional Funding Required <sup>2, 3</sup>:</b>	\$13.5 M	\$38.6 M	\$52.1 M	\$25.6 M

Notes:

1. Includes Region of Peel's Capital and Resurfacing Programs, and Development Charges; does not include Mississauga's annual Cycling Capital Budget funding
2. Multiple partners required to implement: Region of Peel, area municipalities, MTO, developers, or others, to be identified
3. Includes estimated cost for interchange improvements in the order of \$250,000/interchange—see Exhibit 4, page 21, Note 4.

## 3.2 Funding

### 3.2.1 Potential Sources

Commonly-used funding sources for implementing municipal active transportation infrastructure are as follows:

- **Development Charges (DCs):** Levied on new residential, commercial and institutional developments to fund growth-related capital projects, these can include active transportation projects. This is being pursued successfully by the City of Mississauga for sidewalks and multi-use trails along major roads including Regional roads. The Region currently incorporates AT facilities in Regional projects wherever possible and feasible in consultation with area municipal staff. Under the DC By-law approved by Regional Council on October 4, 2007, provisions are now in place for the Region to collect for this infrastructure for future road widenings. The Development Charges Act requires the capital costs to be reduced by 10%; lower tier governments should continue to request revisions to the Act to allow full recovering of capital costs.
- **Developer Funded:** New developments or in-fill developments provide the opportunity to have the active transportation facilities paid for by the developer as part of the site plan conditions. This could only apply to those active transportation facilities along Regional roads that are not accounted for in the DC By-law, and may be a source of funding to fill gaps in the existing network along roads that are not in the Region of Peel's Capital Improvement Plan.
- **Tax Levy:** Capital works not funded by DCs and operations are funded via the local property tax levy. Taxes are collected to fund both Regional and area municipal projects.
- **Federal and Provincial programs and grants:** The Federal Gas Tax Fund has been a consistent source to support environmentally sustainable municipal infrastructure projects with the current agreement in Ontario starting in 2005 but terminating in 2015. Other programs are available often with specific mandates or priorities. The Region of Peel requires resources to identify, respond and implement these opportunities. Programs that have been available recently or are currently available from governments and other foundations include:

- Federal and Provincial infrastructure renewal programs such as the recent Canada's Economic Action Plan including Infrastructure Stimulus Fund, Recreational Infrastructure Canada Program and the National Recreational Trails Fund (through the National Trails Coalition).
  - Ministry of Transportation, Ontario's Transportation Demand Management Municipal Grant Program can be used to encourage cycling, walking, transit, and trip reduction.
  - Ministry of Health Promotion, Ontario's Trails for Life, Healthy Communities Fund and Communities In Action Fund provided funds to partnerships supporting active living. These programs are currently closed.
  - Metrolinx provides funding to a wide variety of projects and programs such as Bikelinx (bike racks on buses and bicycle parking at mobility hubs), Stepping It Up (development of school travel plans) and Smart Commute transportation management associations.
  - The Ontario Trillium Foundation supports the building of healthy and vibrant communities through community-based initiatives that strengthen the capacity of organizations in the arts and culture, environment, human and social services and sports and recreation sectors. Healthier and more physically active Ontarians is identified as a granting priority. The Region of Peel would only be eligible as a partner with an eligible community organization.
  - The Heart and Stroke Foundation has identified obesity as a key area of research and strategic focus and has funded programs around healthy eating and active living encompassing schools, workplaces, the built environment and public policy.
  - The Federation of Canadian Municipalities' (FCM) Green Municipal Fund™ (GMF) provides below-market loans and grants, as well as education and training services to support municipal initiatives that improve air, water and soil quality, and protect the climate.
- **Private Investment / Donations:** Individuals, service clubs, corporations and other community organizations contribute financially or with in-kind services to community projects and events. The Town of Caledon, for example, has a memorial trees and benches program in Town parks and long trails. The Waterfront Regeneration Trust and Trans Canada Trail accepted donations towards their projects and programs.

New and innovative funding sources that should be studied and pursued to pay for the programs and projects identified in the Active Transportation Plan, and their future operations and maintenance are as follows:

- **User-pay** focuses on generating revenues from those that utilize and directly benefit from the service. The Region of Peel already receives funds from the **Federal Gas Tax grant** which is a user-pay source. Other user fees that may serve as a long-term strategy to fund transportation capital projects, including active transportation infrastructure, include parking fees, license fees, congestion tolls and access fees. These should be considered within the broader context of the Region of Peel Transportation Master Plan.
- **Public-private partnerships and joint developments** add value to both the private sector and the Region of Peel by sharing the risks and benefits of infrastructure developments. In addition, innovative partnerships may open the door for additional

provincial or federal funding contributions. Pedestrian enhancements or end-of-trip facilities can be incorporated into larger projects that fit this funding structure.

- **Tax incremental financing** is a funding strategy that involves the financing of capital projects or improvements using revenues from higher property taxes that result from the proposed redevelopment. Although this method of financing projects requires provincial endorsement and additional regulations, the Region of Peel should undertake studies and work with the area municipalities and the Province to explore potential opportunities to implement TIF as an alternative funding source. This should be considered within the broader context of the Region of Peel Transportation Master Plan.

**AT Plan Implementation:** The Region of Peel should pursue other funding opportunities such as Provincial and Federal government sources.

**To assist in reducing taxpayer costs and pressure on development charges, the Region should also pursue other funding opportunities. The Region should look to the Provincial and Federal governments for possible sources of funding.**

### 3.2.2 Current Mechanisms

Currently active transportation facilities in Regional road corridors are funded from development charges, financed through the annual resurfacing envelope, by developers as new developments are constructed, from the area municipal tax levy and from special funds / grants, as summarized in Exhibit 6.

During the planning and design phases of Regional road capital projects, the Region in consultation with area municipal staff review and incorporate area municipal pedestrian and cycling networks within the Regional road rights-of-way wherever possible and feasible. Previously, on Regional road reconstruction projects, the majority of costs to install sidewalks and multi-use trails on Regional roads were borne by the area municipalities although the Region does cover design, utility, and property costs. Under the Region's development charges By-law 115-2007, provisions are in place for the Region to collect the funds for active transportation facilities for future road widening projects, in consultation with area municipalities as part of the capital budget process. Nonetheless, under current practice, sidewalks and multi-use trails along Regional roads are municipal assets. The maintenance and operation of such facilities are the responsibility of the lower-tier municipalities including providing signage and pavement markings.

The funding mechanisms used by other regional governments in southern Ontario based on various related master plans are summarized in Exhibit 7. Generally these regions are providing some cost sharing with the local municipalities to fund cycling and / or pedestrian projects that align with Regional roads or priorities.

**Exhibit 6: Current Area Municipal Funding Sources for active Transportation Capital Projects**

Funding Sources	Caledon	Brampton	Mississauga
<b>Tax Levy</b>	<p><b>Town:</b> Sidewalk and multi-use trails projects are dealt with on a case-by-case basis (no on-going funding)</p> <p>Sidewalks, boulevard trails and streetscaping (if there is an approved Streetscaping Guideline for corridor / area) along Regional roads in the capital plan are considered on a case-by-case basis.</p> <p><b>Region:</b> pays for paved shoulders along Regional roads through the Region's resurfacing program (Region maintain, provide signage and pavement markings)</p>	<p><b>City:</b> Missing links in existing sidewalks are constructed from an annual sidewalk capital program currently at \$300,000/year</p> <p>Multi-use paths are funded through the Parks capital program.</p>	<p><b>City:</b> Five-year transit accessibility program identifies sidewalks or multi-use boulevard trails connecting to transit stops.</p>
<b>Development Charges (DC)</b>	<p><b>Town:</b> Some projects are covered if included in the by-law.</p> <p><b>Region:</b> Some projects (e.g. The Bolton Arterial Road) for multi-use trails along Regional roads are covered in the Region's DC as part of Regional road widening projects.</p>	<p><b>City:</b> Some of the sidewalks and multi-use trails built along Regional roads in the capital plan in new development areas are included in the 2009 DC by-law, but most are migrating over to the Region's DC by-law.</p> <p><b>Region:</b> Intends to collect DCs for sidewalks / boulevard trails for future Regional road widening projects.</p>	<p><b>City:</b> Sidewalks and multi-use boulevard trails built along all major roads (including Regional roads) are funded through DCs or developer contributions in new development areas. Note that the current DC by-law (2009) is under appeal.</p> <p><b>City:</b> Annual capital budget for the Cycling Program until 2020 from Mississauga DCs.</p> <p><b>Region:</b> Intends to collect DCs for sidewalks and multi-use trails for future Regional road widening projects.</p>
<b>Developers</b>	<p>Sidewalks and multi-use paths are funded by developer contributions in new developments, if not part of DCs (above)</p>	<p>Sidewalks and Multi-use paths are funded by developer contributions in new developments, if not part of DCs (above).</p>	<p>Sidewalks and multi-use boulevard trails built along all major roads (including Regional roads) are funded through DCs or developer contributions in new development areas.</p>
<b>Infrastructure Stimulus Funding (ISFs)</b>			<p><b>City:</b> Sidewalk links that would have been constructed in another program were accelerated through ISFs.</p>
<b>Other</b>	<p><b>Town:</b> Previously requested that when the Region is reconstructing any road within an urban area or where development is going to occur that it be built to an urban cross-section so that sidewalks can be constructed as needed, either immediately or at some future time.</p>	<p><b>City:</b> Proposed on-road bikeway plan is on-going: too early in process to identify funding sources.</p>	<p><b>City:</b> Other funds are actively pursued such as Metrolinx grants, etc. Generally the philosophy is changing to context sensitive design / complete streets, i.e. funding for pedestrian and cycling facilities is in the forefront, along with transit and goods movement.</p>

**Exhibit 7: Other Regional Government Funding Sources**

Regional Government	Master Plan	Funding Sources
Region of Niagara	Bikeway Master Plan Study (2002)	<ul style="list-style-type: none"> <li>▪ Regional and local governments and partners</li> <li>▪ Regional Council should commit annual funds to infrastructure and programming</li> <li>▪ Secure alternative funding</li> </ul>
Region of Waterloo	Regional Cycling Master Plan (2004)	<ul style="list-style-type: none"> <li>▪ Region annual budget for implementation</li> <li>▪ On Regional road, Region pays 100%</li> <li>▪ On local road, Region contributes 50%</li> <li>▪ Off-road, Region contributes 50%</li> <li>▪ Pursue alternate funding</li> </ul>
	Sidewalk Policy (2010)	<ul style="list-style-type: none"> <li>▪ Region constructs, and funds construction and maintenance of sidewalks along Regional roads</li> <li>▪ Funds for maintenance are transferred to the local municipality to undertake this operation</li> <li>▪ Multi-use trails along Regional roads are funded 50%</li> </ul>
Region of Halton	Transportation Master Plan (TMP) component: Appendix I—Cycling and Pedestrian Infrastructure Plan (2004)	<p>TMP mentions the following general funding sources (funding sources specific to active transportation are not provided):</p> <ul style="list-style-type: none"> <li>▪ Development charges</li> <li>▪ Metrolinx potential mobility hub investment fund</li> </ul>
Region of York	Pedestrian and Cycling Master Plan (2008)	<ul style="list-style-type: none"> <li>▪ Region to commit annual funding for implementation</li> <li>▪ Pedestrian and Cycling Master Plan Municipal Partnership Program: Cost-share 50/50 local pedestrian and cycling infrastructure that match Regional priorities and goals of the Master Plan: \$500,000/year in 2007</li> <li>▪ Pursue alternate funding</li> <li>▪ Co-ordinate with Transportation 10-year capital budget and forecast</li> <li>▪ Revise Regional DC by-law to permit DC funds to be used for providing / improving bikeways in Regional road ROWs</li> </ul>
Region of Durham	Regional Cycling Plan (2008)	<ul style="list-style-type: none"> <li>▪ Cycling Spine on Regional urban roads, Region pays for platform to build boulevard trail on one side, including land acquisition, utility relocations, grading, bridge structures; area municipality to pay for granular, asphalt, signage, markings, amenities, maintenance (regular and replacement)</li> <li>▪ Cycling Spine on Regional rural roads, Region pays for shoulder platform both sides including land acquisition, utility relocations, grading, bridge structures; area municipality to pay 50% for granular, asphalt, signage, markings, amenities; Region maintains</li> <li>▪ Cost of bikeways other than boulevard trails to be determined on case-by case basis to be approved by Council</li> <li>▪ Region currently undertaking a review on their funding strategy for active transportation infrastructure and improvements.</li> </ul>

## 3.3 Financial Structure for the Region of Peel Active Transportation Plan

By developing an Active Transportation Plan, the Region of Peel is moving away from long-range planning for transportation to move motorists, and is moving towards long-range planning to move people and goods, a “complete streets” approach. The “complete streets” approach also means using the investment of existing dollars differently to make improvements for all road users.

The Active Transportation Plan is a long-term strategy that consists of three implementation phases. The first two phases (1-5 years and 6-20 years) form a recommended 20-year implementation plan (up to 2031). The third phase forms the longer term strategy (2031+).

### 3.3.1 Capital for Implementing AT Infrastructure

**AT Plan Implementation:** A majority of the proposed multi-use trails, sidewalks and paved shoulders are included in the Regional road Capital and Resurfacing Programs. The Cities of Mississauga and Brampton, and Town of Caledon also have programs for pedestrian and cycling infrastructure improvements. Thus, the estimated investment of additional funding required to implement the recommended pedestrian and cycling network from all partners is about \$52 M over the next 20 years with an annual average expenditure of about \$2.6 M.

Infrastructure needs and improvements account for the majority of the Active Transportation Plan’s estimated cost. **A majority of the construction of multi-use trails and sidewalks as proposed in the pedestrian and cycling networks has been identified as component costs within planned Regional road widening projects as part of the road construction program. The majority of the construction of paved shoulders along rural Regional roads would be part of the annual resurfacing program. The Cities of Mississauga and Brampton, and Town of Caledon also have programs for pedestrian and cycling infrastructure improvements as discussed in Exhibit 6. As a result, the total estimated investment (excluding the improvements identified in the Region and municipal capital infrastructure construction programs) to implement the proposed pedestrian and cycling networks is about \$52 M over the next 20 years with an annual average expenditure of about \$2.6 M.**

The proposed Active Transportation Plan network improvements without planned funding include:

- **Long-term sidewalk replacement** (replacement of deteriorating sidewalks in the long-term with boulevard multi-use trails along Regional roads not in the Capital Improvement Plan)—Consider area municipal asset management funds. Partial funding from the Region of Peel is rationalized so that the cycling network that would typically be accommodated on the road but is provided in the boulevard of Regional roads can be completed. Funding can potentially be leveraged by Provincial and Federal infrastructure funding programs and consider the Gas Tax Fund for these projects.
- **Regional Trail Corridors** (multi-jurisdictional and regional trail projects)—Consider partnering with the area municipalities to complete these regional trails. Consider establishing an annual funding program jointly with the area municipalities and Region of Peel with potential for inclusion in development charges (as currently done in Mississauga for sidewalks along major roads) and leveraged by Provincial and Federal infrastructure funding programs and consider the Gas Tax Fund for these projects.

- **Filling gaps and critical links** (active transportation facilities that will fill gaps that are less than 1 km long and complete the network), and **intersection improvements**— Consider an annual capital program funded jointly by the area municipalities and Region of Peel with potential for inclusion in development charges (as currently done in Mississauga for sidewalks along major roads) and leveraged by Provincial and Federal infrastructure funding programs.
- **Interchange improvements**—Consider a funding program partnered with the area municipalities and the Ministry of Transportation, Ontario (MTO) in completing these improvements, with potential Gas Tax Funding.
- **Pedestrian enhancements areas**—Developers should be encouraged to include pedestrian enhancements as part of their site plans and subdivisions and be review and approve as part of the development approval process. The Region may also consider working in collaboration with the area municipalities in providing pedestrian enhancements areas, and consider the Gas Tax Fund. The local municipalities will be required to maintain these areas.
- **Rapid transit or intensification corridors** (sidewalks, boulevard multi-use trails and bikeways in future rapid transit or intensification corridors)—Use transit and developer financing for developments within these corridors, and/or leveraged by Provincial and Federal infrastructure funding programs.
- **Long-term rural improvements** (bike lanes and sidewalks in the rural communities in the Town of Caledon when rural Regional roads are urbanized)—Consider incorporating into future development charge by-laws and Capital and Resurfacing programs, and /or leveraged by Provincial and Federal infrastructure funding programs.

### 3.3.2 Other Funding Implications

Incremental cost to maintain AT facilities is considered negligible compared to annual road and sidewalk budgets. Municipalities should consider these incremental maintenance costs in their annual budgets as infrastructure is implemented.

The Region of Peel's current funding for programs is \$150,000 annually. As programs are further defined, the cost for developing, executing, maintaining and monitoring the programs should be included in an annual business plan as part of the overall Transportation Demand Management program.

An annual implementation budget is recommended to be included in the annual progress report to Council on active transportation conditions, behaviours, needs and trends with joint input from area municipalities.

## 4 Tools for Implementation

All levels of government spend considerable time and effort to develop policies, to ensure that policies are in the best interests of the public and other stakeholders, and that they are achievable publically, politically, financially and institutionally. All policies require as a minimum budget allocation for staff to administer the policy, and many require additional resources to undertake actions to meet objectives, whether it is collecting data, communicating ideas, running programs, or building and maintaining infrastructure. Governments can underestimate or not dedicate resources needed to implement policies, to overcome implementation barriers, and to ensure that policy goals are met and public impacts are realized.

Decision-makers need tangible tools to support policy implementation—to move from ideas to execution and results. Such tools should assist in implementation, address obstacles as they come up, and allow adaptation as needed to changing circumstances while still meeting the policy goals. A strategy is needed to shift from policy development and into policy implementation.

### 4.1 Conventional Institutional Structure

It was observed in the early 1990s that bicycle-friendly communities had the following elements in common—the “three-legged stool” supporting a shift to a cycling culture:

- **Staff leaders**—until the planning and design of bicycle-friendly communities is routine within a municipality, a strategy of dedicating resources to cycling initiatives is required. There are two ways to structure staff commitment: a part- or full-time cycling coordinator or senior staff with shared responsibilities for implementation.
- **Political champions**—taking political leadership and making fiscal commitments to implement recommendations of the master plan
- **Public supporters**—an active and effective cycling committee or independent advocacy group that can provide a link between the community and the City.

Each partner in this powerful and stable “three-legged stool” has its natural areas of strength, and these can be effectively leveraged by coordinating activities such as community outreach, media advocacy, government services, public funding, political support, legislation and so on. The short-comings to the three-legged stool model is that sometimes one of the legs is weak: staff responsibilities can shift or individuals change employers; political champions can get voted out perhaps on other issues; and public groups offer up ranting, sketchy web-surfing knowledge, or become sidetracked by the strengths and issues of one member.

### 4.2 Performance Monitoring and Evaluation

An alternative to having the right “partners” or people resources championing, leading and supporting policy implementation is to have in place a “process” that monitors progress, evaluates

deficiencies and strengths, and reports on actions. Report-based monitoring and evaluation processes have been in use by health organizations, water and wastewater providers, the recycling industry, aid agencies, etc. It is designed to help people who are trying to improve social conditions in our communities.

The Transportation Association of Canada's Briefing on *Strategies for Sustainable Transportation Planning* identifies "measure performance" as one of four key principles under the theme "the way ahead".

The Briefing explains that:

*Most transportation plans start to become obsolete soon after they are approved: external conditions change, action plans are adjusted, costs rise or revenues fall, and early initiatives shift the playing field for later ones. Given this fact, one way to provide decision makers with continuously relevant guidance is to follow a rigorous performance measurement process. This process would focus on actions taken and progress made toward strategic objectives (both qualitative and quantitative), but could also identify changes in analytical assumptions, shifts in social or economic circumstances, and updated financial positions. The major elements of a thorough transportation plan performance measurement strategy include key targets and indicators to be monitored, data collection activities and schedules, reporting parameters and frequencies, and required resources.*

#### **Principle 11**

##### **Measure performance**

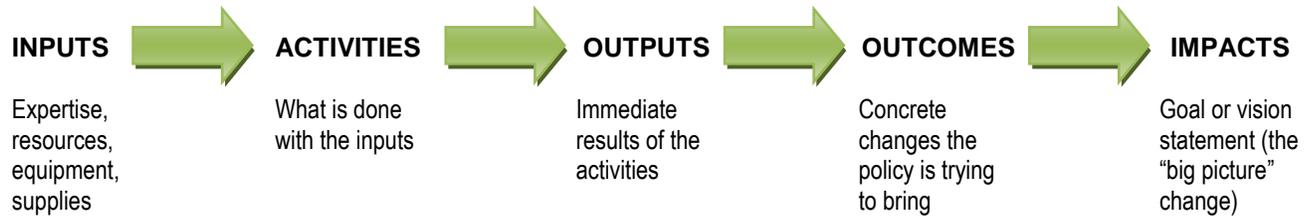
- Highlight the need for a performance measurement program to monitor progress toward planning goals.
- Identify a performance measurement framework that is tied to the plan's strategic framework and monitors outputs, outcomes and external influences.
- Identify a reporting strategy to effectively communicate performance measurement results.

From TAC Briefing: *Strategies for Sustainable Transportation Planning* (2004)

Reporting is a key aspect of performance measurement, because the knowledge generated by monitoring and analysis is only useful if decision makers and stakeholders are aware of it. Reports presenting readable information in a way that effectively communicates successes and ongoing challenges can capture the attention of community groups and the media, helping to raise public awareness of results achieved and the need for continued action.

Performance measurement and evaluation entails developing a framework with a sequence of results that would be expected from the Region of Peel Active Transportation Plan vision, objectives and policies. This "results chain" is usually expressed as a flowchart from inputs to outputs to outcomes to impacts, as illustrated in Exhibit 8.

**Exhibit 8: Results Chain for Performance Monitoring**



### 4.3 Options for the Region of Peel

**AT Plan Implementation:** The Region of Peel adopt both an institutional and performance monitoring approach to make progress on the implementation of the Active Transportation Plan.

**It is recommended that the Region of Peel adopt both an institutional and performance monitoring approach to make progress on the implementation of the Active Transportation Plan.** Such processes should align with Regional and Departmental processes. In addition, they should consider incorporating metrics that assess the progress towards increasing the share of trips made by active transportation. Specifically, in the next five years, as a result of the network improvements and educational / promotional programs, the

Region of Peel is aiming to increase active transportation trips from five to seven percent of all trips, and double it to ten percent in the longer term. These targets are estimated based on the potential short distance trips by automobile that could otherwise be travelled by walking or bicycling.

The **institutional structure** recommended models itself on internal resources with explicit responsibilities for the plan, coupled with internal and external co-ordinating bodies:

**AT Plan Implementation:** Region of Peel staff will oversee the implementation of the education and promotional programming and oversee the implementation of the network. Review staff time commitment and make adjustments as required to support the management and coordination of expanded active transportation planning and programming.

- The recommended policies include allocating Region of Peel staff to oversee the implementation of the education and promotional programming and oversee the implementation of the network. There is already an Active Transportation Coordinator in the Transportation Planning section of the Public Works department responsible for implementing the active transportation components of the Region of Peel’s Transportation Demand Management Plan, and will co-ordinate the programs recommended in the Active Transportation Plan. In Peel Public Health , there are staff members in Chronic Disease and Injury Prevention division currently assigned to active transportation and work jointly with Transportation Planning to support and implement all components of the active

transportation plan. A new staff position is recommended within Public Works to oversee the implementation of the active transportation network and related improvements. This person will be required to introduce new approaches into the current practices of Public Works staff responsible for capital and operational projects on Regional roads. **It is recommended that staff time commitment be reviewed and adjustments made as required to support the management and coordination of expanded active transportation planning and programming.**

**AT Plan Implementation:** Continue the Active Transportation Leadership Working Group comprised of staff from Region of Peel’s Public Works and Public Health departments in partnership with the area municipalities

- Region of Peel’s Public Works and Public Health departments bring unique skills and strengths in promoting active transportation in the Region. There are already a number of programs jointly offered that promote walking and cycling. Continuing the partnership and shared leadership will build enhanced supports for active transportation. Specifically, the recommended policies include **continuing the Active Transportation Leadership Working Group comprised of staff from Region of Peel’s Public Works**

**and Public Health departments in partnership with the area municipalities.** This team can review, recommend and evaluate policy development, and behaviour shift programming and network implementation. Sub-committees of this Working Group can be set up to deal with specific strategies such as signing, interchange improvements, individual marketing plans, funding agreement reviews, multi-jurisdictional trail development, etc., and inviting key stakeholder from other departments and agencies on a project-by-project basis. It is envisioned this group would meet at least quarterly, but perhaps monthly or bi-monthly as dictated by decision-making needs of the various policies and programs they are advancing.

**AT Plan Implementation:** Active Transportation Co-ordinators will undertake a communication role with civic societies.

- In order to build interest and support for the plan, it is recommended that the **Active Transportation Co-ordinators play a communication role with civic societies** in Peel region. Annual updates could be provided to these groups, the co-ordinators could attend schedule meetings to provide information and solicit feedback on

specific projects and programs, or an annual or bi-annual workshop could be co-ordinated by the Region of Peel to share ideas with all groups attending. Example groups would include:

- Government advisory committees: City of Mississauga Cycling Advisory Committee, the proposed Brampton Cycling Advisory Committee, and something similar to the former Cycling on Caledon Roads Committee
  - Area municipal and Region of Peel Accessibility Committees
  - Smart Commute Mississauga and Smart Commute Brampton-Caledon
  - Associations such as SafeCity Mississauga, Brampton Safe City Association, Headwaters Communities in Action Trails Working Group, Caledon Cycling Club and Brampton Cycling Club

**AT Plan Implementation:** Consider options for implementing a performance monitoring process including:

- Integrate the Active Transportation Plan performance monitoring into the performance monitoring of the Region’s Long Range Transportation Plan
- Develop a mini performance monitoring “report card” with checklists associated with the Active Transportation Plan goals and objectives, and remarks on the progress being made towards those goals

There are several **options available to the Region of Peel in terms of implementing a performance monitoring process:**

- Integrate the Active Transportation Plan performance monitoring into the performance monitoring of the Region’s Long Range Transportation Plan. In this way it is strategically placed within a larger data gathering, analysis and evaluation framework and can be compared to performance of other modes.

Region of Peel  
Active Transportation Plan Implementation Strategy

- Develop a mini performance monitoring “report card” with checklists associated with the Active Transportation Plan goals and objectives, and remarks on the progress being made towards those goals. This is a process that can be undertaken by the Active Transportation Co-ordinators, and reported to the Active Transportation Leadership Working Group and civil societies for review and confirmation before being reported to Council.

Ideally, a performance monitoring process would be combined with strategies that raise the institutional and public profile of active transportation so that progress (or lack of progress) is given greater attention. The ability to use any strategy, however, will depend on the readiness and capacities of the institution—within the bureaucracy and elected body.

## 5 Asset Maintenance and Management

Operating an active transportation network involves numerous tasks to maintain an appropriate level of service and integrity of the system as a long-term asset, provide for user safety, comfort and efficiency, and meet Provincial regulation on minimum quality standards for road maintenance. Maintenance can be approached as follows:

- Preventative, routine and responsive maintenance
- Winter control maintenance
- Asset management

In considering active transportation design strategies outside the current practice as recommended in the Active Transportation Plan (Section 8.5), any additional costs to maintain the new types of facilities should be evaluated along with other benefits and trade-offs. This may be an issue for off-road facilities such as multi-use trails that are wider than sidewalks.

Inspections and reporting are important elements of asset maintenance and management in order to identify deficiencies and manage the exposure to risks and associated liability.

Municipalities can limit liability by clearly documenting their policy on maintenance and asset management, including the interval of inspections, reporting procedures, level of service, timelines for action, etc.

**AT Plan Implementation:** Review maintenance agreements to ensure that liability is well-managed, level of service allows for the safe, comfortable and efficient use of the AT facilities balanced with meeting users' expectations, and Provincial regulations are met.

**It is recommended that the Region of Peel review maintenance agreements to ensure that liability is well-managed, level of service allows for the safe, comfortable and efficient use of the AT facilities balanced with meeting users' expectations, and Provincial regulations are met.** Maintenance and asset management best practices and levels of service across the area municipalities can be co-ordinated around the activities described in the subsequent sections.

### 5.1 Preventative, Routine and Responsive Maintenance

Upkeep of sidewalks, trails and bikeways is necessary to preserve facilities and ensure user safety and comfort. In the Region of Peel, sidewalks and trails within Regional road rights-of-way are under the jurisdiction of the area municipalities and is maintained by the area municipalities, while the road itself and traffic control signals are maintained by the Region of Peel. The level of maintenance required depends on the type of facility, its environment and the frequency of use.

Preventative activities comprise of sweeping of debris, vegetation pruning, and unblocking drainage structures; while corrective activities include repair to minor surface defects, reapplying pavement markings, replacing deteriorating or missing signs, and repairing mal-functioning traffic control signals. Recommended activities include:

- **Debris removal**—Spring sweeping should be done as early as possible after the snow melts to eliminate residual abrasives and debris that build up during winter months. Sidewalk and boulevard trail cleaning is usually not needed during the season, except on commercial streets and after public events. In fall, dead leaves should be removed from areas where they accumulate since they can become very slippery when wet. The frequency of sweeping of paved shoulders and on-road bikeways will depend on how much debris and granular materials accumulate. For paved shoulders, the amount that accumulates can be reduced if unpaved entrances are paved in part adjacent to the shoulder. The design of segregated bike lanes should take into account the width of the machinery that will be used to sweep debris.
- **Landscape maintenance**—The amount of horticultural maintenance needed will depend on the environment. Preventative tree pruning in the boulevard near sidewalks and boulevard trails every 5 to 10 years keeps trees healthy. In urban areas, grass is mowed regularly. In rural areas, mowing borders adjacent shoulders or trails once or twice a year and pruning overhanging branches as needed is adequate.
- **Drainage maintenance**—Good drainage along sidewalks, trails and bikeways is required to ensure that users can travel without encountering puddles or being splashed by adjacent motorists, and also promotes the longevity of the pavement structure. Annual inspections of ditches and culverts are necessary to ensure that they are not clogged with sediment, debris or vegetation. Cleaning of catch basin grates may be required more frequently to ensure that they do not become blocked by accumulated waste of debris. Attention should be paid to intersections, particularly at the bottom of curb ramps. Water accumulated in these locations can result in wheelchair users “dipping their hands” into these puddles as they attempt to cross the road. Water will turn to ice and slush further hindering the ability of those with mobility impairments to negotiate road crossings.
- **Surface repairs**—Although good-quality asphalt and concrete pavements can last for decades when used by pedestrians and cyclists only (no motorized traffic), minor deterioration or more serious defects require attention. Cracking can be filled with sealant, and scaling and minor rutting can be treated with a thin layer of surface material. Defects such as heaving of sidewalks or buckling of asphalt may require milling of irregular edges, resurfacing, or even replacement of the upper layers of the base coat. Corrective maintenance of surface defects is required when an irregularity of more than 25 mm occurs in concrete or asphalt surfaces.
- **Signs and pavement markings**—Traffic signs require regular maintenance to ensure they remain legible and effective. Signs are subject to a variety of assaults such as theft, damage from adjacent motor vehicles or maintenance vehicles, vandalism, discolouration and loss of reflectivity caused by sunlight and harsh weather. Signs should be regularly inspected once a year and replaced if damaged. Regulatory and warning signs must be replaced as soon as is practicable after their loss or damage is detected. Pavement markings lose reflectivity and fade due to wear caused by traffic. Damaged can also be sustained by winter maintenance equipment. Depending on the pavement marking material in use, annual spring applications may be required.

Transverse markings such as crosswalks that are subject to continual traffic wear, can be upgraded to durable or in-laid materials that can last 5 to 20 years. Signs informing users of the road (including cyclists if using an on-road bikeways) are to be maintained by the Region of Peel to minimum roadway sign inspection and replacement standards. Signs along trails and sidewalks (not directed to road users) are maintained by the area municipalities.

- **Other**—Structures such as bridges and tunnels; traffic control signals including signal heads, detection and controllers; and amenities such as benches, bicycle racks, lighting, waste receptacles, etc. all need routine and preventative maintenance program to ensure their safe, comfortable and efficient use.

## 5.2 Winter Control Maintenance

The Region of Peel's winter snow removal performance standard for Regional roads is clearing with accumulation not exceeding 2.5 cm of snow. Surfaces shall be maintained as bare as possible through the continued use of all assigned personal, equipment and materials suited to the conditions. Frequency of coverage for sanding, salting, and ploughing shall average 3-4 hours.

Clearing of snow and ice from sidewalks, trails and bikeways facilitates for walking and cycling which are still efficient modes of travel during winter. Snow-covered routes, slippery surfaces and dirt are the main obstacles to winter walking, particularly for those with disabilities, and cycling—not cold temperatures. Cyclists are particularly vulnerable to slippery surfaces when the temperatures are around the water freezing point. Cyclists can compensate for slippery conditions somewhat by travelling slower, reducing power to the pedals, not leaning into turns, not over-steering, and using studded tires.

Winter maintenance activities involve ploughing, the application of abrasives or de-icers, and snow removal.

On-road bikeways are cleared of snow at the same time as adjacent lanes. Sidewalks and trails will require smaller tractors to plough snow. The design of segregated bike lanes should take into account the width of the machinery that will be used to clear snow. The location of the active transportation facilities should take into account the need for snow storage areas for these facilities and for adjacent roadways.

Snow clearing activities require attention to timing and order. Giving active transportation facilities a high level of service not only addresses the needs of these users but can encourage more people to use active transportation or take transit during snow events, reducing the number of motorists on the road. However, clearing of active transportation facilities is inefficient if it is followed by road clearing resulting in the snow windrows partially or completely piled on the active transportation facility. The location of the active transportation facilities should take into account the need for snow storage areas for these facilities and for adjacent roadways. To ensure adequate snow storage is maintained between the back of curb and edge of trails or sidewalk, the Region of Peel recommends a one metre wide, paved splash pad along Regional roadways and to be included in future capital projects, where possible and feasible.

Another element to consider in snow clearing is the accumulation of light snowfalls, normally melted by passing traffic that may result in a hard crust of snow or ice in bikeways at the side of the road or on sidewalks and trails. This type of snow crust may be difficult to clear in colder weather. As temperatures rise, however, it begins to soften with sun and rain, and is much easier to remove.

Thus it is important to carry out snow ploughing operations during these periods, even if there is no snow falling at the time.

Snow clearing of sidewalks at 5 cm of accumulation is useful; however, approaching 10 cm is essential.

Maintaining traction can be accomplished by spreading abrasives. Fine aggregates (approximately 5 mm in diameter or less) is the most effective material in terms of slip resistance for motorists, pedestrians and cyclists alike and is the least harmful and messy for vehicles, including bicycles and mobility devices. Sand can be ineffective after only a few millimetres of snow and damages car and bicycle parts. De-icing salt is ineffective on accumulated snow more than a few centimetres thick or at temperatures below -10°C and is harmful to concrete, clothing, metal bicycle components, and the environment. Residue from de-icers can form airborne dust as traffic passes over it posing a health hazard. Experimentation is on-going with best practices in traction materials and applications, and these should consider applicability to for active transportation facilities.

Sidewalks and boulevard trails winter control maintenance should be given priority along public transit routes and at mobility hubs. Snow removal by snow-blowers and haulage trucks may be required when it piles up in an undesirable area. Where the snow windrow blocks pedestrian access or in commercial areas, snow removal should be considered.

Winter control maintenance priority should be given to sidewalks and boulevard trails along public transit routes and at mobility hubs. Priority should also be given to sidewalks and boulevard trails that lead to hospitals and emergency services, schools, seniors and nursing homes, institutions, and higher density residential and employment buildings. Critical links for cyclists on roads include overpasses and underpasses, and bridges. Critical trail links through open space that either provide a short-cut or overcome a barrier that may be present on an alternative route should also be of high priority.

Municipalities can publish winter control maintenance routes for sidewalks, trails and bikeways so that active transportation users can adjust their routes and schedule in the winter to take advantage of these routes. This helps avoid switching to motorized vehicles and can reduce the time spent house-bound by those with disabilities.

### 5.3 Asset Management

Properly designed pavements made of good materials and well constructed result in very resilient surfaces. Asphalt may last 30 years and concrete 50 years if traffic is limited to cyclists, pedestrians and pedestrians with mobility devices. However, a process is required to ensure that these facilities are replaced at the end of their useful life. Sidewalks and trails in the boulevard along Regional roads should be included in the asset management process of the area municipalities, and on-road bikeways and paved shoulders on Regional roads included in the asset management process of the Region of Peel.

As with asset management goals for other Regional and municipal infrastructure, the goal for sidewalks, trails and bikeways should be to deliver infrastructure renewals and replacement programs at the best life cycle schedule so that the renewal cost, quality of service, timing of delivery, and safety to the public are all in alignment along with the fiscal commitment of government.

## 5.4 Inspections and Reporting

Preventative and corrective maintenance and asset management need a method of regular inspection to determine short-term conditions that need relatively immediate attention and long-term deterioration that requires facility replacement. Inspections aid in planning the maintenance priorities, and will also reduce / limit the municipal liability, and help to ensure that the intended level of service and safety is achieved.

A user feedback plan can enhance an inspection program. A procedure should be developed for timely and effective response to public reporting of hazards and other issues with the condition of sidewalks, trails and bikeways.

Documentation or record keeping of inspections and public feedback is an important element of the process. Maintenance reports provide a means to record and prioritize repairs to be conducted immediately or at a later time, and, in addition, provide a means of tracking the history of works conducted at a site specific level. This is important in the event of an incident and will assist the municipality to reduce its exposure to liability.