Halton ACTIVE Transportation Master Plan

Halton REGION

REPORT

IBI

MAY 2015

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT'D)

APPENDICES

LIST OF EXHIBITS

TABLE OF CONTENTS (CONT'D)

Executive Summary

The Halton Region Active Transportation Master Plan (ATMP) outlines the strategy, infrastructure, initiatives and programs required to create an active transportation plan that is safe, affordable and sustainable. The Vision for the ATMP has its basis in the Halton Region Transportation Master Plan (2031) – The Road to Change. The ATMP will help to promote an integrated, sustainable, accessible, affordable and efficient multi-modal transportation network where Active Transportation will be a viable alternative to strengthen linkages between communities and municipalities.

What is Active Transportation?

Active transportation is any form of human-powered transportation, including walking, cycling, in-line-skating, skateboarding and moving with mobility devices. It is about getting to work or school, going shopping, running errands, visiting friends and family or other trips by *walking, biking and rolling.* An active transportation network includes sidewalks, multi-use trail, crosswalks, on-road bikeways and off-road trails.

There are many benefits of active transportation:

- Transportation: improve safety, reduce congestion, and increase access and transportation choice
- Environment: improve air quality and contribute to vibrant communities
- Health: increase physical activity and reduce chronic disease
- Economy: reduce household travel costs, and support local business

A Master Plan for Active Transportation

The Active Transportation Master Plan (ATMP) is the first ever such plan for Halton Region. In the context of the Region, the ATMP focuses on the two most common forms of active transportation, cycling and walking. The focus is on Regional roads, a network of major arterial roads that Halton Region is responsible for planning, constructing, operating, maintaining, and improving for the transport of people and goods in a safe and efficient manner. The ATMP is designed to support

policies and growth set out in the Halton Transportation Master Plan (TMP) – The Road to Change (2031) and Halton's Regional Official Plan Amendment (ROPA) 38. It is a long-range plan that addresses and accommodates cycling and walking along Regional roads to fulfill transportation needs in Halton Region to the year 2031. The ATMP will feed into the next Transportation Master Plan update.

Active Transportation Master Plan VISION

- The Active Transportation Master Plan will help to promote an integrated, sustainable, accessible, affordable and efficient multi-modal transportation network where Active Transportation will be a viable alternative to strengthen linkages between communities and municipalities.
- The transportation system identified to 2031 must accommodate growth in travel demand in a manner that supports the vision and guiding principles of the TMP while maintaining current levels of service.
- An increase in the use of active transportation as a year-round travel mode option available for all members of the community.
- The Active Transportation Master Plan must guide the Region to meet the mode share target for active transportation of 5% of all PM peak hour trips by 2031 from less than 2% in 2011. This represents a seven-fold increase over the 1,600 PM peak hour trips made by cycling and walking in 2011 to 11,500 trips by 2031.

The ATMP involves a multi-disciplined strategy to facilitate and promote active transportation in the Region. The preferred strategy requires investment in infrastructure and programs as well as supportive policies and practices.

Study Partners and Consultation

The study considered the active transportation needs within Halton Region from many stakeholders in order to develop the ATMP. Three groups were formed to guide the study and to incorporate perspectives from multiple disciplines: the Project Team, the Active Transportation Advisory Committee (ATAC) and the Technical Advisory Committee (TAC). Two series of meetings were held with the Local Municipalities to review the Cycling and Walking Networks and study recommendations. In addition, two workshops and two public information centres were held in various locations throughout Halton Region to engage the public in the study at key study milestones.

The Active Transportation Network

An active transportation network is a fundamental part of achieving the Vision of the ATMP. It was developed to be an integrated, sustainable, accessible, affordable and efficient multi-modal transportation network, strengthening linkages between communities and municipalities. The existing and planned cycling and walking facilities will provide a safe, comfortable and convenient network for people to walk and cycle for trips to work, school, for shopping, running errands, visiting family or friends.

The proposed Regional Cycling and Walking Networks consist of the following.

- **Active transportation facilities along all Regional roads.** Regional roads in Urban Areas need cycling and walking facilities to serve residents, neighbourhoods and destinations located on both sides of the roads. Regional roads in rural areas need

paved shoulders that connect residents and destinations over longer distances; these facilities can also be used by pedestrians.

- **Routes of Regional Significance along local municipal corridors.** These consist of existing or planned active transportation facilities along Local municipal roads or corridors (parks, rivers, hydro corridors, etc.) that help make connections between communities for longer distance cycling trips and to regional destinations for shorter walking trips. These are necessary to create a connected network to key destinations that are not served by Regional roads.

The existing active transportation facilities (up to and including 2014) on Regional roads are shown on **Map 1** and **Map 2**. The proposed Regional Cycling Network and Regional Walking Network are shown in **Map 3** and **Map 4.**

The most cost-effective and efficient method to implement cycling and walking facilities is to construct them as part of roadway resurfacing and capital road projects. The Implementation Strategy to build the Regional Active Transportation Network has been developed to align with Halton Region's Roads Capital Program and Roads Resurfacing Program. A large majority of the Regional roads within the urban boundaries will be reconstructed as part of the Roads Capital Program to the year 2031. Regional roads are also resurfaced to maintain safe and comfortable road conditions. Stand-alone active transportation projects will be required where there is no opportunity to build the proposed AT facilities as part of roadway capital or resurfacing projects.

The approximate cost to construct the proposed Regional Cycling and Walking Network is $113 M (2013 Dollars) with the breakdown by implementation strategy as follows:

- $86 M as part of the Roads Capital Program (76% of total AT network costs)
- $16 M as part of the Roads Resurfacing Program (14% of total AT network costs)
- $11 M for separate Active Transportation Projects (10% of total AT network costs)

Consistent with the Municipal Act, funding for active transportation facilities on Regional roads is designated as follows:

- Halton Region is responsible for the construction of bikeways located on-road (e.g. bike lanes, buffered bike lanes, and paved shoulders). (Approximately $57 M)
- The Local Municipality is responsible for the construction of <u>new</u> sidewalks and multi-use trails off-road in the boulevard. This is based on the responsibilities as set out in the Municipal Act[1]. (Approximately $37 M)
- Halton Region is responsible for the <u>replacement of existing</u> sidewalks and multi-use trails off-road in the boulevard that must be relocated when the Regional road is widened. (Approximately $19 M)

Supportive Recommendations

The Halton Region Transportation Master Plan (2031) – The Road to Change recommends pursuing a coordinated approach to active transportation. Education, enforcement and tourism

[1] Municipal Act, Upper-tier sidewalks, Section 55. (1) An upper-tier municipality is not responsible for the construction and maintenance of sidewalks on its highways and the lower-tier municipality in which the highways are located is responsible for the construction and maintenance of the sidewalks and has jurisdiction over that part of the highway, unless the municipalities agree otherwise. 2001, c. 25, s. 55 (1).

strategies are important supportive recommendations to help fulfill the Vision of the ATMP. The initiatives outlined below will guide Halton Region's Public Works efforts. As outcomes are evaluated, initiatives can be modified to better respond to the Region's needs and the Vision of the ATMP. Other departments at Halton Region, including the Health Department, are pursuing initiatives that complement or expand on those of Public Works.

Education and Outreach:

- Establish an Active Transportation Working Group (ATWG) with staff from the Local Municipalities to facilitate coordination of active transportation initiatives and infrastructure
- Continue to update the web portal www.halton.ca/activetransportation
- Promote cycling and pedestrian safety as part of Drive SAFE (Safety Awareness For Everyone) Campaign to communities, organizations and schools
- Continue to promote Active Transportation through Smart Commute Halton with employer outreach events and workshops/clinics, and develop a guideline for a bicycle-friendly workplace
- Develop an Active Transportation map and trip planning tool
- Continue annual reporting of active transportation infrastructure progress through the Public Works Transportation Progress Report
- Pursue Bicycle Friendly Community and Walk Friendly Ontario designations

Regulations and By-laws

- Continue to support the Ministry of Transportation of Ontario (MTO) to review, as required, the Highway Traffic Act to support cycling and walking
- Develop Regional by-laws for on-road bicycle lanes for better enforcement
- Support Local municipalities in developing by-laws for non-motorized users, particularly on off-road facilities not regulated by the Highway Traffic Act

Tourism

- Support planning for Cycling and Walking events
- Develop a Regional walking and cycling way-finding and destination signage strategy
- Continue involvement with tourism-based organizations, such as Ontario By Bike, Waterfront Regeneration Trust, etc.

ATMP into Action

The Active Transportation Master Plan provides the Region targets for on-road and off-road infrastructure to 2031. As the Region grows and matures so will the transportation network and active transportation infrastructure. The proposed Active Transportation infrastructure to be implemented within the 2015-2031 timeframe is outlined below, totals are exclusive of existing infrastructure.

Exhibit ES-0-1: Proposed (2015-2031) Active Transportation Infrastructure by Municipality

Type of Active Transportation Facility (km)	Burlington	Oakville	Milton	Halton Hills	Total
On-road	107	65	181	117	470
Off-road	52	85	158	64	359
Total	**159**	**150**	**339**	**181**	**829**

As part of this plan, the vision is for Active Transportation facilities to be on all Regional roads, which is consistent with the TMP to provide a balanced and multi-modal transportation system serving all road users, including cyclists and pedestrians. The majority of the proposed Active Transportation infrastructure will be planned, designed and incorporated within the Region's Roads Capital and Road Resurfacing Programs.

1. Introduction

The Halton Region Active Transportation Master Plan (ATMP) outlines the strategy, infrastructure, initiatives and programs required to create an active transportation plan that is safe, affordable and sustainable. The ATMP was a recommendation of the Halton Region Transportation Master Plan – the Road to Change (2031) to facilitate and promote active transportation.

1.1 Background

In 2011, Halton Region approved its Transportation Master Plan (TMP) – The Road to Change to address the transportation needs of Halton Region safely and efficiently to 2031. The TMP provides the strategies, tools and policies to develop a sustainable, integrated transportation system that considers all modes (automobile, transit, cycling and walking) and supports the policies and objectives arising out of the Halton Region Official Plan Amendment (ROPA) 38.

As set out in the TMP, the transportation system identified to 2031 must accommodate growth in travel demand in a manner that supports the vision and guiding principles while maintaining current levels of service. The TMP supports an increase in the use of active transportation as a travel mode option available for all members of the community. It sets a mode share target for active transportation of 5% of all PM peak hour trips by 2031 (currently less than 2%). This target can be realized through investments in cycling and walking infrastructure and the introduction of policies and supportive programs to encourage shifts from auto travel to active modes for trips generally less than 10 km in length.

1.2 What is Active Transportation?

Active transportation is any form of human-powered transportation, including walking, cycling, in-line-skating, skateboarding and moving with mobility devices. It is about getting to work or school, going shopping, running errands, visiting friends and family or other trips by *walking, biking and rolling.* An active transportation network includes sidewalks, multi-use trails, crosswalks, on-road bikeways and off-road trails.

There are many benefits of active transportation:

- Transportation: improve safety, reduce congestion, and increase access and transportation choice

- Environment: improve air quality and contribute to vibrant communities
- Health: increase physical activity and reduce chronic disease
- Economy: reduce household travel costs, and support local business

1.3 A Master Plan for Active Transportation

"Master Plans are long range plans that integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine an infrastructure system or group of related projects in order to provide a framework for planning for subsequent projects and / or developments" (Municipal Class Environmental Assessment, October 2000, as amended in 2007 and 2011). Master Plans are typically reviewed every five years to coincide with an Official Plan review, and updated if the conditions on which they were developed have changed.

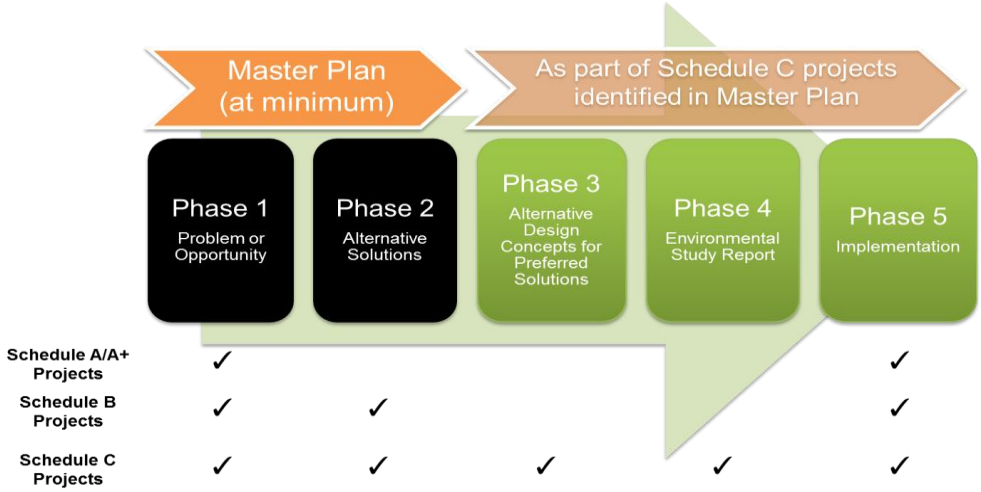
The Active Transportation Master Plan (ATMP) is the first ever such plan for Halton Region. In the context of the Region, the ATMP focuses on the two most common forms of active transportation, cycling and walking. Other forms of active transportation typically fit within the laws and by-laws applicable to these modes. The focus is on Regional roads, a network of major arterial roads that Halton Region is responsible for planning, constructing, operating, maintaining, and improving for the transport of people and goods in a safe and efficient manner.

The ATMP is designed to support policies and growth set out in the TMP and Halton Region Official Plan Amendment (ROPA) 38. It is a long-range plan that addresses the accommodation of cycling and walking along Regional roads to fulfill transportation needs in Halton Region to the year 2031. The ATMP will feed into the next Transportation Master Plan update.

1.4 Municipal Class Environmental Assessment Planning Process

The development of the ATMP adhered to the planning and design process of the Municipal Class Environmental Class Assessment (Class EA), (October 2000, as amended in 2007 and 2011). It incorporated key principles of successful environmental planning under the Ontario Environmental Assessment Act. The Class EA process is depicted in Exhibit 1-1.

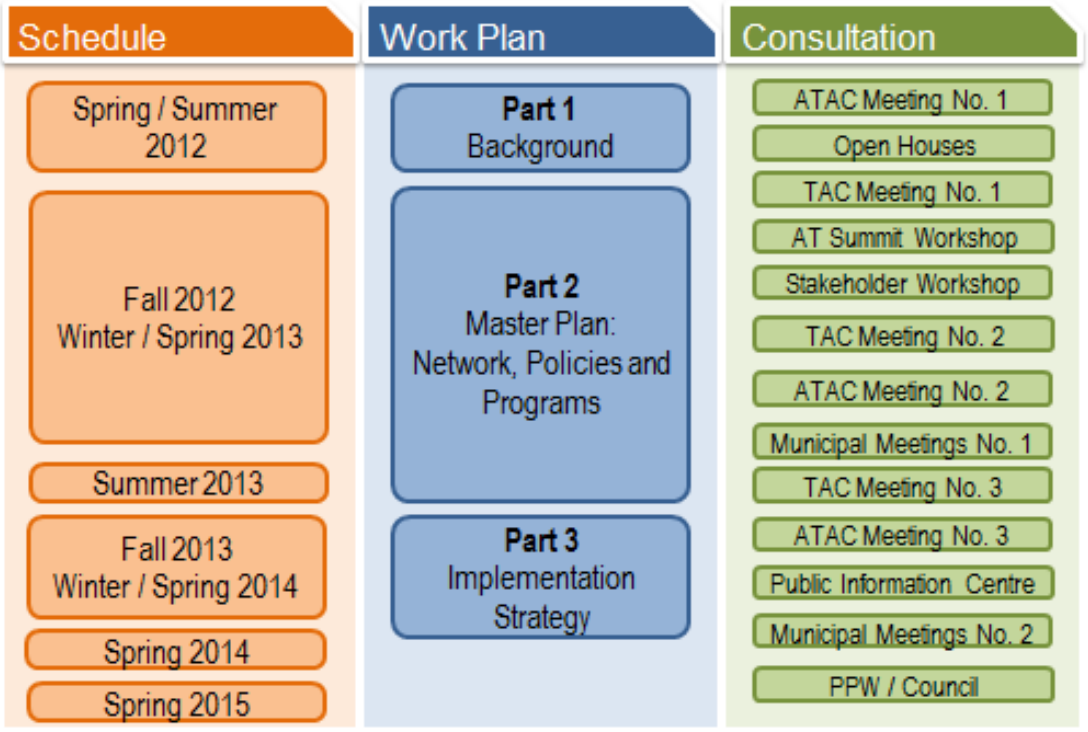
Exhibit 1-1: Municipal Class EA Process



As with the TMP, the ATMP satisfies Phase 1 and Phase 2 of the Class EA Process. The type and scope of projects identified in the ATMP dictates if additional phases of the Municipal Class EA are required. Construction or operation of sidewalks or bicycle paths or bike lanes within an existing right-of-way are pre-approved Schedule A+ projects, however, a municipality is required to notify the public prior to project implementation. If a roadway is being reconstructed or widened and cycling and walking facilities are part of that project, then the active transportation facilities would be assessed as part of the overall road project environmental assessment study. The ATMP was undertaken in three phases, as shown in Exhibit 1-2, to fulfill these requirements:

- **Phase 1** Technical Assessment and Background Review
- **Phase 2** Development of the Plan (i.e. Network, Policies, Programs)
- **Phase 3** Development of the Implementation Strategy and Reporting

Exhibit 1-2: The Active Transportation Master Plan Study Process and Schedule



1.5 Other Relevant Policies and Plans

The need for and direction of Halton Region's ATMP is based on the recognition of the benefits of active transportation at every level of government. Policies and plans of the Federal, Provincial and local municipalities that support active transportation are summarized below.

1.1.1 Federal Policies

Federal legislation, policy, programs and funding regarding active transportation span federal departments creating a complex array of government interventions with direct and indirect implications for active transportation. The main areas and respective federal departments with stated interests in active transportation are transportation and infrastructure, health and environment. Although the federal government only has jurisdiction over interprovincial and

international travel, i.e., longer trips not conducive to active transportation, it has actively used its spending power to influence provincial policies and programs, particularly in the areas of health care and social services, and more recently with the Gas Tax Fund (GTF) for municipalities. The GTF supports municipal infrastructure that contributes to cleaner air, cleaner water and reduced greenhouse gas emissions. Many municipalities have applied to use the GTF successfully for active transportation projects.

1.1.2 Provincial Policies

Provincial Policy Statement (2014)

Ontario's Provincial Policy Statement (PPS), includes a number of policy areas that directly affect active transportation. The "Vision for Ontario's Land Use Planning System" recognizes that "efficient development patterns optimize the use of land, resources and public investment in infrastructure and public service facilities. These land-use patterns promote a mix of housing, including affordable housing, employment, recreation, parks and open spaces, and transportation choices that increase the use of active transportation and transit before other modes of travel." Specific policies regarding active transportation include:

- **Policy 1.1.3.2** Land use patterns within settlement area shall be based on: a) densities and a mix of land uses which: 4. support active transportation

- **Policy 1.4.3** Planning authorities shall provide for an appropriate range and mix of housing types and densities to meet projected requirements of current and future residents of the regional market area by: d) promoting densities for new housing which efficiently use land, resources, infrastructure and public service facilities, and support the use of active transportation and transit in areas where it exists or is to be developed.

- **Policy 1.5.1** Healthy, active communities should be promoted by: a) planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity.

- **Policy 1.6.5** Public service facilities should be co-located in community hubs, where appropriate, to promote cost-effectiveness and facilitate service integration, access to transit and active transportation.

- **Policy 1.6.7.4** A land use pattern, density and mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and active transportation.

- **Policy 1.8.1** Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and climate change adaptation through land use and development patterns which: b) promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas.

Accessibility for Ontarians with Disabilities Act (2005)

The *Accessibility for Ontarians with Disabilities Act, 2005* (AODA) calls on the private and public sectors to develop, implement and enforce mandatory accessibility standards. Accessibility standards are the rules that businesses and organizations in Ontario will have to follow to identify, remove and prevent barriers to accessibility. For active transportation, *Regulation 413, Design of Public Spaces Standards (Accessibility Standards for the Built Environment)* applies. The built environment includes Recreational Trails and Beach Access Routes, Outdoor Public Use Eating Areas, Outdoor Play Spaces, Exterior Paths of Travel (outdoor sidewalks or walkways), Accessible

Parking, Obtaining Services, and Maintenance. The regulation will come into force for public sector organizations January 1, 2016.

Ministry of Transportation #CycleON: Ontario's Cycling Strategy (2013)

The Ministry of Transportation released its Cycling Strategy in 2013, an update to the 1992 Bicycle Policy. It sets out a vision for the year 2033 that "cycling in Ontario is recognized, respected, and valued as a core mode of transportation that provides individuals and communities with health, economic, environmental, social and other benefits." The five goals for 2033 are:

1. Ontario recognized as the best Canadian province for cycling and ranked among the top 10 jurisdictions worldwide for cycling. At least one Ontario city is ranked among the 10 most bike-friendly cities in the world.

2. The built environment in most Ontario communities supports and promotes cycling for all trips under 5 km.

3. Ontario's cycling environment is safe for people of all ages, striving to achieve a record of zero fatalities and few serious injuries.

4. Ontario's cities and towns have interconnected networks of safe cycling routes enabling people to cycle to work, school, home and key destinations.

5. Ontario has an integrated, province-wide network of cycling routes.

Five strategic directions to address the number and safety of cyclists in Ontario are outlined:

1. Design healthy, active and prosperous communities

2. Improve cycling infrastructure

3. Make highways and streets safer

4. Promote awareness and behavioural shifts

5. Increase cycling tourism opportunities

Metrolinx: The Big Move—Transforming Transportation in the Greater Toronto and Hamilton Area (2008, updated 2013)

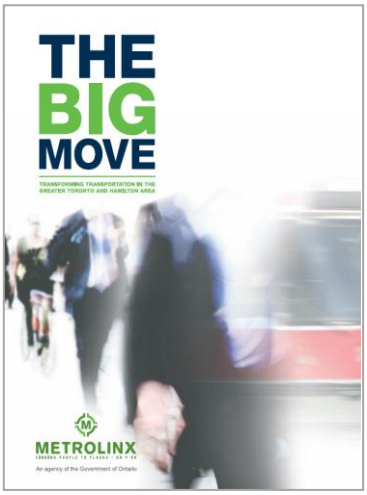
The Regional Transportation Plan (RTP), *The Big Move,* was released in November 2008 and updated in 2013 to reflect current priorities and the longer term transportation goals and objectives of the GTHA. "In 25 years, the [Greater Toronto and Hamilton Area] GTHA will have an integrated transportation system that enhances our quality of life, our environment and our prosperity…." Related to cycling and walking, the RTP identifies four general goals and objectives:

- GOAL C—Active and Healthy Lifestyles
  Objective 8—Increased share of trips by cycling and walking

- GOAL D—Safe and Secure Mobility
  Objective 11—Improved safety for cyclists and pedestrians

- GOAL G—Reduced Dependence on Non-Renewable Resources
  Objective 16—Increased ratio of trips taken by transit, cycling and walking

- GOAL H—Foundation of an Attractive and Well-Planned Region
  Objective 21—More transit and pedestrian-friendly streetscapes, and improved cycling and walking amenities



These goals are further translated into three specific targets for the entire GTHA: “one in five trips to work will be taken by walking or cycling, 60% of children will walk or cycle to school. There will be six times more bike lanes and trails than today.”

1.1.3 Area Municipal Policies and Plans

Each local municipality in Halton Region has promoted active transportation through their Official Plans and through cycling and / or pedestrian master plans. The Councils of each area municipality have all adopted their own versions of the Pedestrian Charter. The Charter actively encourages a culture of walking throughout the community. Local municipal active transportation master plans are listed below.

City of Burlington, Cycling Master Plan (2009) and Community Trails Strategy (on-going)

In July 2009, the Cycling Master Plan was adopted as a guide for implementing City-wide cycling facilities. The 2009 plan builds upon the City of Burlington Multi-Use Pathways and Bikeway Plan, completed in 1997. The plan includes recommendations for policies to support the development of bicycle-friendly communities and to build a network of over 330 km of bikeways and multi-use pathways.

The City of Burlington is developing a Community Trails Strategy that is anticipated to be approved in 2015. The strategy will include a plan to create a connected network of trails throughout Burlington, continue the trail signage program and identify maintenance standards for trails.

Town of Halton Hills, Cycling Master Plan (2010)

The vision of the Halton Hills Cycling Master Plan (HHCP) is for the Town of Halton Hills to be *a cycling supportive community that embraces the “complete streets” concept and encourages both utilitarian and recreational travel. Residents are encouraged to leave their cars at home and commute to work, school and other destinations by active modes, while visitors come to enjoy the healthy lifestyle and attractions throughout the cycling network.* The Plan also includes planning, design and operations guidelines for the cycling network along with policy updates to bring its Official Plan in line with the recommendations in the Cycling Master Plan. Over 290 km of cycling facilities are planned.

Town of Milton, Trails and Cycling Master Plan Update (2014)

This is an update to the Town of Milton’s 2007 Trails Master Plan. It focuses on the planning and technical aspects of a trail and cycling network throughout the Town, expanding on the role of cycling given the growing interest and participation in Milton. The goal of the plan is to provide for non-vehicular travel as identified in other Town documents by maintaining the built network in pace

with new development and redevelopment. It complements the Town's work on the Mattamy National Cycling Centre and the Cycling Participation Strategy. The plan expands the existing bikeway and trail network from almost 200 km to 680 km to be implemented over the next ten years.

Town of Oakville Active Transportation Master Plan (2009)

The vision for the Oakville Active Transportation Master Plan is that *the Town of Oakville is a pedestrian and cycling supportive community that encourages active transportation for both utilitarian and recreational travel.* In addition to guiding the development of a cycling and walking network, the Master Plan recommends several supportive policies. These recommended policies relate to encouragement and promotion, safety and security, land use planning and development and construction. The planned network consists of over 270 km of cycling facilities, 165 km of new sidewalks, and 87 km of multi-use trails.

In 2015, the Town of Oakville plans to undertake an update to the Town of Oakville Active Transportation Master Plan to assess current conditions and develop an improved implementation plan to expand the network, and promote cycling and walking in Oakville

1.6 Study Partners

Active transportation in Halton Region relates to the infrastructure and services of the Province, the Region, Local Municipalities and neighbouring municipalities.

With the objective of a sustainable, integrated transportation system, it was important for the study to consider the transportation needs within Halton Region from many stakeholders in order to develop the ATMP. Three groups were formed to guide the study and to incorporate perspectives from multiple disciplines.

1.6.1 Project Team

A "Project Team" was established to guide the development of the ATMP. The Project Team was comprised of representatives from Halton Region's Public Works and Health Department. Halton Region retained IBI Group to develop the ATMP under their direction.

1.6.2 Active Transportation Advisory Committee

The Halton "Active Transportation Advisory Committee" (ATAC) is an Advisory Committee established by Regional Council (Report PW-47-11). The purpose of ATAC was to provide advice and assistance in developing an overall Active Transportation Master Plan for Halton Region to 2031. Advice provided was utilized in the development of the master plan.

ATAC was comprised of four members of Regional Council representing each of the four Local Municipalities, and the Chair or designate from each Local Municipalities' Active Transportation Committee or other appropriate representative as may be determined by the local municipality.

The ATAC convened three times during the development of the ATMP at key milestones:

- The first meeting was held in May 2012. Committee discussions focused on aspirations for the study; questions or issues that the study may address; the key issues, strengths, challenges and opportunities; and trends or considerations that must be taken into account in the study.

- The second meeting was held in November 2012. ATAC was updated on the consultation and study progress. Committee members provided feedback on strategies to develop an active transportation network.

- The third meeting was held in October 2013. This meeting provided a more detailed overview of the draft cycling and walking networks, including the estimated costs to implement the facilities. Other supportive recommendations were discussed, including design guidance, pilot projects, and programs related to active transportation tourism, education and enforcement.

Minutes of the ATAC meetings are provided in Appendix A.

1.6.3 Technical Agencies Committee

A "Technical Agencies Committee" (TAC) was established to engage key technical agencies. Invitations to join the committee were sent to the Local Municipalities, neighbouring municipalities, transportation authorities as well as other potential agencies and Regional Departments affected by the ATMP. Exhibit 1-3 lists the agencies invited to participate in the TAC.

The Project Team also met separately with each Local Municipality to review the draft cycling and walking networks, and discuss specific opportunities and concerns. These meetings were held in Summer 2013 and Spring 2014.

The TAC convened three times during the development of the ATMP at key milestones.

- The first meeting was held in October 2012. TAC members provided information about on-going active transportation initiatives within their organization including key challenges and opportunities. Members also provided input into the vision for active transportation for Halton Region and initial comments about barriers and connectivity issues, activity centres and corridors of regional significance, and a classification framework for active transportation facilities.

- The second meeting was held in November 2012. Issues identified by ATAC, the public and other stakeholders were presented and the network alternatives, evaluation and classification of active transportation facilities were discussed.

- The third meeting was held in September 2013. Draft cycling and walking networks were presented to TAC for feedback as well as pilot projects, and supportive recommendations for an active transportation design tool box, pilot projects, and initiatives in tourism, education and enforcement. TAC members reported local practices for monitoring active transportation initiatives.

- As noted, separate meetings were held in June 2013 with each Local Municipality to review the draft cycling and walking networks and in April 2014 to review the final cycling and walking networks as well as the related infrastructure costs.

Minutes of the TAC meetings are provided in Appendix A.

Exhibit 1-3: Technical Agencies Committee Contact List

Technical Agencies Committee	
Local and Neighbouring Municipalities	**Other Halton Region Departments**
City of Burlington	Economic Development
Town of Milton	Emergency Medical Service
Town of Halton Hills	Halton Region Police Service
Town of Oakville	Health Department
City of Hamilton	Planning Department
Peel Region	Social and Community Services
City of Brampton	
Town of Caledon	
City of Mississauga	
Wellington County	
Transportation Authorities	**Other Agencies**
GO Transit	Conservation Halton
Burlington Transit	Grand River Conservation Authority
Milton Transit	Credit Valley Conservation
Oakville Transit	Niagara Escarpment Commission
CN/ CP	Halton Catholic District School Board
407ETR	Halton District School Board
Metrolinx (GTHA)	Halton Student Transit Service
Ministry of Transportation Ontario (MTO)	Halton Regional Police Service
	Burlington Fire Department
	Halton Hills Fire Department
	Milton Fire Department
	Oakville Fire Department

1.6.4 First Nations

First Nations were contacted twice during the study: in January 2013 to notify them of the Notice of Commencement/PIC No. 1 and in November 2013 prior to PIC No. 2. The list of First Nations contacted is provided in Exhibit 1-4.

Exhibit 1-4: List of First Nations

First Nations contact in January and November 2012		
Curve Lake First Nation	Mohawks of Akwesasne First Nation	The Mohawks of the Bay of Quinte First Nation
Hiawatha First Nation	Oneida Nation of the Thames	Wahta Mohawks First Nation
Mississaugas of Scugog Island First Nation	Six Nations of Haudenosaunee Confederacy Council	Alderville First Nation
Mississaugas of New Credit First Nation	Six Nations of the Grand River	

1.7 ATMP Report Organization

This report fulfills the Class EA requirement to clearly and systematically document the study process and provide a traceable decision-making process. It is structured as follows:

- **Section 1** describes the rationale for the study and its process
- **Section 2** discusses the consultation with stakeholders and the public
- **Section 3** establishes the vision of the ATMP, including the identification and evaluation of alternatives to achieve this vision
- **Section 4** outlines the development of the Regional Cycling and Walking networks, as part of the preferred solution
- **Section 5** outlines the implementation strategy for the network described in Section 4
- **Section 6** outlines other supportive recommendations for active transportation, as part of the preferred solution
- **Section 7** describes other information needed to put the plan into action: roles and responsibilities, maintenance, and pilot projects

2. Consultation and Communications

Consultation was an important component of the Halton Region Active Transportation Master Plan (ATMP) Study. Feedback from the public and other stakeholders was used to guide and direct the ATMP study, including the development of the network and supporting recommendations.

2.1 Public Consultation

The Consultation process undertaken called for dialogue and feedback from the public and other stakeholders. Two rounds of Public Information Centres (PICs) were held to provide information to the public, gather feedback and respond to questions. The first PIC was held at the initiation of the study. The second was held after the preparation of draft recommendations. There were also two other opportunities to solicit public input: at the 2012 Halton Active Communities Summit and at a Stakeholder's Workshop.

Each of these four consultation events, as well as other outreach efforts, is discussed below. Memorandums summarizing each event are provided in Appendix B.

2.1.1 Public Information Centre #1

The first round of PICs was held on June 13, 16, and 21, 2012 consisting of drop-in areas at shopping centres in the four local municipalities. Its purpose was three-fold:

1. Introduce the study to the public;
2. Generate interest and collect contact information for a public mailing list; and
3. Gather general feedback about cycling and walking among the public.

In total, the project team engaged approximately 165 people. A copy of the newsletter with the details of PIC #1 and the feedback received in each municipality is provided in Appendix B. The key themes of the feedback were:

- **Safety and Comfort:** For many people, the need to feel safe is an important factor when deciding to cycle or walk. People expressed that cyclists (novice or experienced) can feel intimidated by congested streets, but these main corridors are destinations that cannot be avoided.

- **People with Different Needs and Skills**: A wide variety of potential active transportation users were identified including youth, seniors, families and people with mobility or vision impairments.

- **Improved Cycling and Walking Infrastructure**: There was general consensus that more bikeways and pedestrian facilities are needed. Various types of facilities were mentioned including bike lanes, multi-use trails, and improvements to intersections such as more visible crosswalks, pedestrian refuge islands and bike boxes where cyclists can wait to make a left-turn in two stages. Maintenance was also mentioned as an important element to support the investment in infrastructure.

- **Connecting to Key Destinations**: People identified locations where they would like to be able to walk or cycle. Among these destinations were popular trails such as the Bruce Trail and Waterfront Trail, 'main streets' with many retail and commercial uses, GO stations and other transit stations, and Conservation Areas. Connections between communities were also important.

2.1.2 Halton Active Communities Summit

Share the Road Coalition, Halton Region and the Local Municipalities jointly hosted the Halton Active Communities Summit on October 18, 2012. The ATMP study team hosted an exhibit of displays and a brainstorming session during the summit. Following a brief presentation, attendees were asked to write their ideas regarding three topic areas:

- Promotion
- Priorities
- Barriers and Opportunities

2.1.3 Stakeholder's Workshop

On November 5, 2012, the study team hosted the Stakeholders Workshop over two separate sessions: one in the afternoon and one in the evening. Twenty-four (24) people attended the workshop to provide feedback on six (6) topic areas:

- Improvement Options
- Walking Network
- Cycling Network

- Pilot Projects
- Promotions
- Trip Planning

2.1.4 Public Information Centre #2

The second round of PICs was held on November 19 and 20, 2013. Two open house events were hosted: one in the north area of the Region (Milton Centre for the Arts) and another in the south (Regional Headquarters in Oakville). The purpose of the Public Information Centre was to:

- Review the study background, vision and alternative solutions for active transportation in Halton Region
- Review and gather feedback about the proposed active transportation (cycling and walking) networks and supporting recommendations

In total, approximately 25 people attended the PICs on November 19 and November 20, 2013. An additional five people contacted the study team regarding the PIC as they were unable to attend. Below is a summary of the key themes from the comments received following the PIC No. 2:

- Support for making Regional roads safe for motorists and cyclists to support utilitarian cycling trips by providing dedicated cycling lanes
- Support for providing safe, non-motorized options across Halton
- Identify trail connections at the Burlington Canal lift bridge
- Add Bruce Trail crossings of Regional roads to the network to improve pedestrian safety, comfort and convenience
- Improvements to Guelph Line from Upper Middle Road to the QEW are supported to connect to key destinations, such as the GO Station, shopping plazas, high school, recreation centre and nearby trails
- Best practices for cycling facilities used in The Netherlands

2.2 Communication Initiatives

In addition to consultation events, Halton Region launched the following outreach initiatives:

- **Website**—The website www.halton.ca/ActiveTransportation was launched May 25, 2012. The website is a valuable dynamic tool for residents interested in the study. The website provides background information, updates on the status of the study and an on-line feedback form. Residents who provide feedback have the option of providing their contact information to be added to the project mailing list, and will automatically receive study updates. A formal media release regarding the site was issued in April 2012.

Materials from the two Public Information Centres along with newsletters summarizing feedback are available on the website.

- **Web Survey**—A survey was launched on the website in November 2012. Participants were asked to answer questions about their travel habits, i.e., how often they rode a bicycle or walked as a form of transportation, why they chose active transportation, and what prevented them from using active transportation in Halton Region. Approximately 262 people responded to the survey. (Survey results are discussed in Section 3.1)

- **Bookmarks**—Bookmarks were developed and used as a tool to spark interest in the study. They were valuable at the PIC's as a quick method to link the public to the study through the website. In fact, several residents who received a bookmark while walking-by displays at the first Public Information Centre, returned to seek-out more information regarding the study and provided input. In addition, the bookmarks were distributed in July 2012 to all public libraries within Halton.

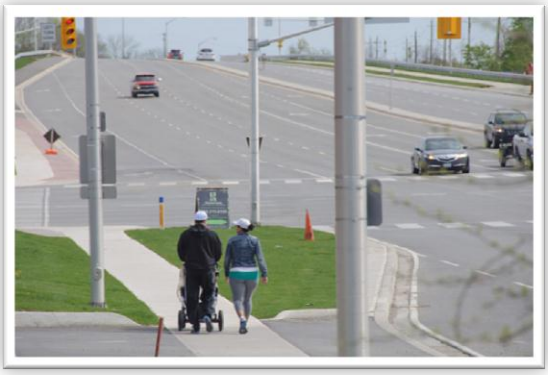
- **Enhanced Displays**—In August 2012, the Region developed two large displays which will be used at future public events and open houses. They are similar to the bookmarks as they provide project information and define Active Transportation. They were featured at PICs, Halton Active Communities Summit and Stakeholder Workshops.

- **Posters**—In September 2012, the Region developed three types of posters to promote interest in the study. They included three targeted groups; Youth, Families and Seniors. Each poster was designed and tailored to each group and directed them to the project website. The posters are shown in Appendix B.

A summary of all feedback received from First Nations and members of the public is provided in Appendix C.

3. Vision

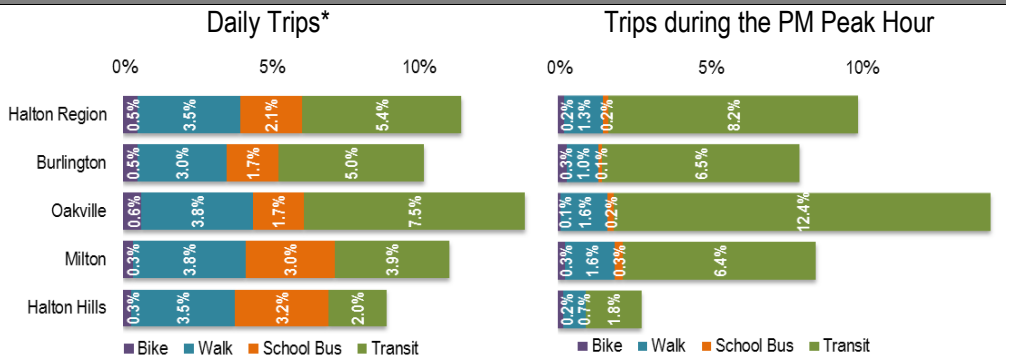
The Vision for the ATMP has its basis in the Halton Region Transportation Master Plan (2031) – The Road to Change. The ATMP will help to promote an integrated, sustainable, accessible, affordable and efficient multi-modal transportation network where Active Transportation will be a viable alternative to strengthen linkages between communities and municipalities.

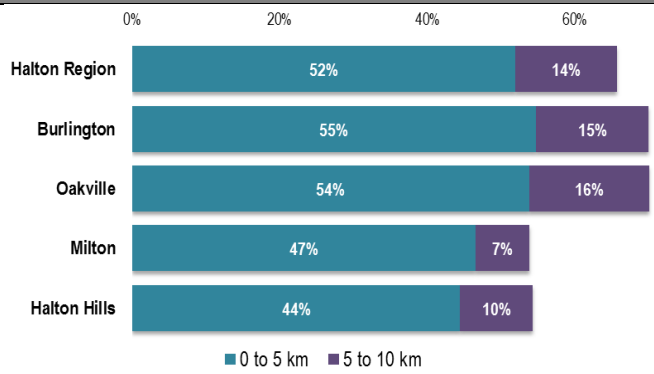


3.1 Existing Travel Characteristics

The 2011 Transportation Tomorrow Survey (TTS) provides information about daily and PM peak hour trips made by all modes of transportation in Halton Region. Key trip characteristics are described and illustrated in Exhibit 3-1.

Exhibit 3-1: Travel Trends in Halton Region

Key Travel Characteristic	Data from 2011 Transportation for Tomorrow Survey
Trips by Mode of Travel	
Approximately 4.0% of all daily trips* in Halton Region are by active transportation (0.5% by cycling and 3.5% by walking). During the PM Peak Hour, 1.5% of all trips are by active transportation (0.2% by cycling and 1.3% walking) * A daily trip is a one-way journey from one location to another made by any form of motorized transportation, bicycle or walking during the day period.	

Key Travel Characteristic	Data from 2011 Transportation for Tomorrow Survey
Car Trips by Length	
Approximately 50% of all car trips are 5 km long or less; and approximately 15% of car trips are between 5 and10 km long. This travel pattern suggests that there is an opportunity to increase active transportation in the Region by encouraging a shift of existing auto trips to cycling and walking.	

In a survey on the project website, participants were asked to identify destinations where they would like to be able to walk and/or cycle. Approximately 80% of the 244 respondents who answered the question indicated they would like to be able to bicycle or walk to shops, banks, restaurants and other services; and parks, trails, community centres or libraries. Approximately 40% to 50% wanted to bicycle or walk to work or neighbours, friends and relatives. In the same survey, about 50% of the 217 respondents who answered the question noted that their top barriers to cycling and walking are roadways that are too busy, and the lack of active transportation infrastructure (sidewalks, bike lanes, trails, etc.), and places are too far apart. Approximately 20% to 30% responded that the trip takes too long, the weather conditions are poor, they are concerned about their security, or there is no bicycle parking / amenities at their destinations. These findings are consistent with 2011 randomized surveys[2] conducted by the Halton Region Health Department, which indicated that the ability to walk to places and having interconnected sidewalks and pathways was very or somewhat important to more than 87% and 94% respectively of adult Halton residents' ideal neighbourhood. Overall, this information suggests that an investment to facilitate and promote active transportation is required to increase the active transportation mode share.

3.2 The Vision

The Vision for the ATMP is consistent with the vision, guiding principles and goals of *Halton Region's Transportation Master Plan (2031) – The Road to Change*, which in turn supports the policies and objectives arising out of the Halton Region Official Plan Amendment (ROPA 38) to the year 2031. Input from the public, Project Team, ATAC and TAC, as well as other stakeholders all contributed to shape the Vision. The Vision, as follows, serves as the opportunity statement as per Phase 1 of the Class EA process:

[2] 2011 Urban Development – Walking Distances Health Indicator Report (RRFSS), Halton Region, http://www.halton.ca/common/pages/UserFile.aspx?fileId=68777

Active Transportation Master Plan VISION

- The Active Transportation Master Plan will help to promote an integrated, sustainable, accessible, affordable and efficient multi-modal transportation network where Active Transportation will be a viable alternative to strengthen linkages between communities and municipalities.
- The transportation system identified to 2031 must accommodate growth in travel demand in a manner that supports the vision and guiding principles of the TMP while maintaining current levels of service.
- An increase in the use of active transportation as a year-round travel mode option available for all members of the community.
- The Active Transportation Master Plan must guide the Region to meet the mode share target for active transportation of 5% of all PM peak hour trips by 2031 from a less than 2% in 2011. This represents a seven-fold increase over the 1,600 PM peak hour trips made by cycling and walking in 2011 to 11,500 trips by 2031.

3.3 Achieving the Vision

Two levels of strategies were developed to achieve the Vision. These strategies respond to Phase 2 of the Municipal Class EA, identifying all reasonable and feasible solutions to the opportunity statement (or vision). Tier 1 Alternative Strategies are high-level strategies to encourage more cycling and walking throughout the Region that are non-structural and structural and fit within the mandate of Halton Region Public Works. Tier 2 Alternative Networks is a subset of alternatives consisting of various approaches towards the development of Regional Cycling and Walking Networks.

Note that "Status Quo / Do Nothing" is considered in both tiers of alternative strategies as recommended by the Municipal Class EA, and provides a baseline for the evaluation. A decision to implement the "Status Quo / Do Nothing" alternative is typically made if the costs of all other alternatives, both financial and environmental, significantly outweigh the benefits.

3.3.1 Tier 1 Alternative Strategies

Four high-level strategies were identified to encourage more cycling and walking throughout the Region to fulfill the Vision of the ATMP:

- **Strategy A. Status Quo / Do Nothing:** Continue implementing current transportation networks, education and outreach initiatives, and policies and practices, some of which may address active transportation.
- **Strategy B. Develop a Regional Cycling and Walking Network:** Implement pedestrian facilities and bikeways in the Region that are convenient and safe to support cycling and walking as efficient, healthy and affordable modes of transportation (see Tier 2 Alternative Networks).
- **Strategy C. Develop Active Transportation Education and Outreach Initiatives:** Implement initiatives independently or in partnership to promote safe cycling and walking in the Region as convenient, efficient, healthy and affordable modes of transportation.
- **Strategy D. Update Active Transportation Policies, Practices and Guidelines:** Integrate active transportation into current and new policies, procedures, by-laws, maintenance and design guidelines (enhancing the Regional Right-of-way Guidelines), performance monitoring, funding strategies and administration roles in order to enhance

the safe and efficient use of active transportation as an affordable, healthy and convenient mode of transportation.

For Tier 1 Alternative Strategies, the evaluation of alternatives involves an assessment of its alignment with the objectives of the *Halton Region Transportation Master Plan (2031) – The Road to Change*. The TMP recommends pursuing a coordinated approach to active transportation in Halton Region. Thus, the TMP directs the development of an ATMP with strategies that define the:

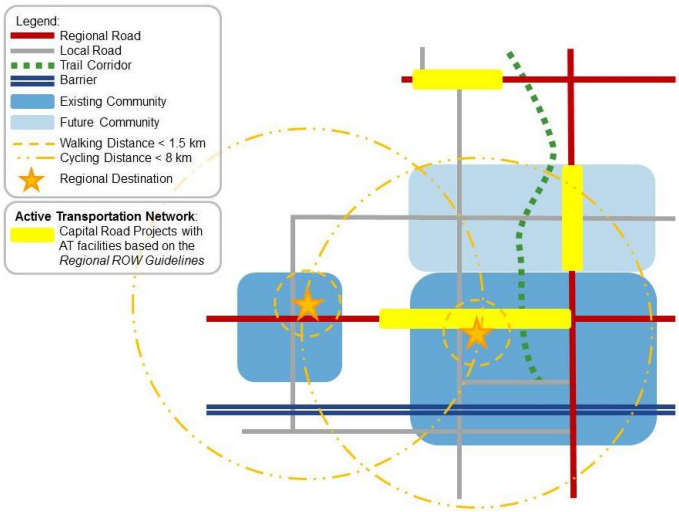
- Investment in cycling and walking infrastructure to facilitate active transportation;
- Introduction of policies to encourage shifts of auto travel to active modes, especially for short trips; and
- Development of educational and outreach initiatives to promote active transportation

In short, the TMP calls for an ATMP that demonstrates an increased dedication to the planning and design for active transportation, and the promotion of cycling and walking in the Region. This rationale precludes Strategy A (the Status Quo / Do Nothing option) as a reasonable and feasible solution as it does not support the direction of the TMP. The Status Quo option would maintain current policies, practices, programs and infrastructure projects that would limit the Region's ability to fulfill the Vision of the ATMP. The exclusion of one or more of the other Tier 1 Alternative Strategies (B, C and D) would also undermine the direction of the TMP.

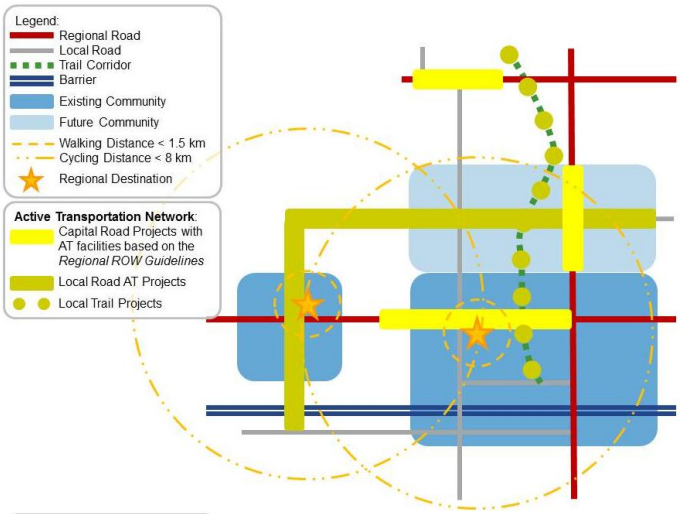
Therefore the preferred strategy involves a combination of Strategy B, C and D: develop Regional cycling and walking networks; develop active transportation education and outreach initiatives; and update active transportation policies, practices and guidelines. All three strategies are important components of the preferred solution to fulfill the Vision of the ATMP.

3.3.2 Tier 2 Alternative Networks

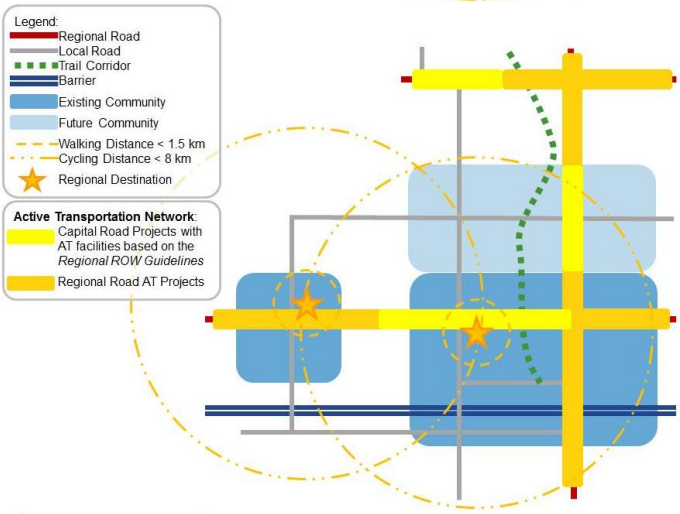
Five network-level alternatives were identified to develop a Regional Cycling and Walking Network to support the Vision of the ATMP:



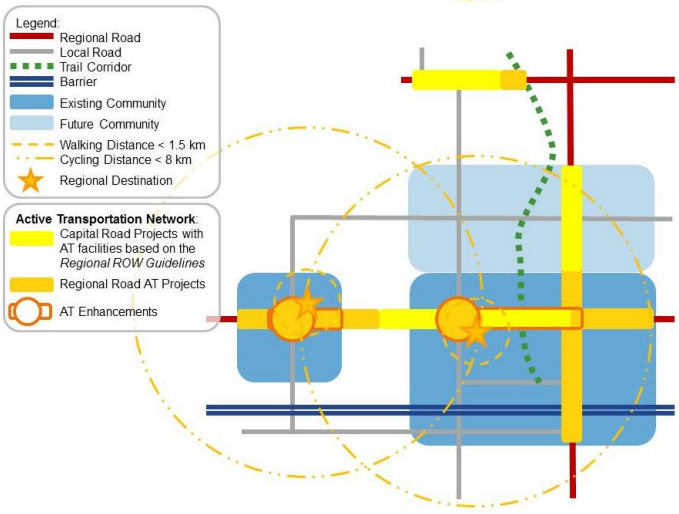
Strategy B.1. Status Quo / Do Nothing: Continue implementing Capital Road Projects with AT facilities based on the current Regional Right-of-way (ROW) Guidelines on a project-by-project basis.



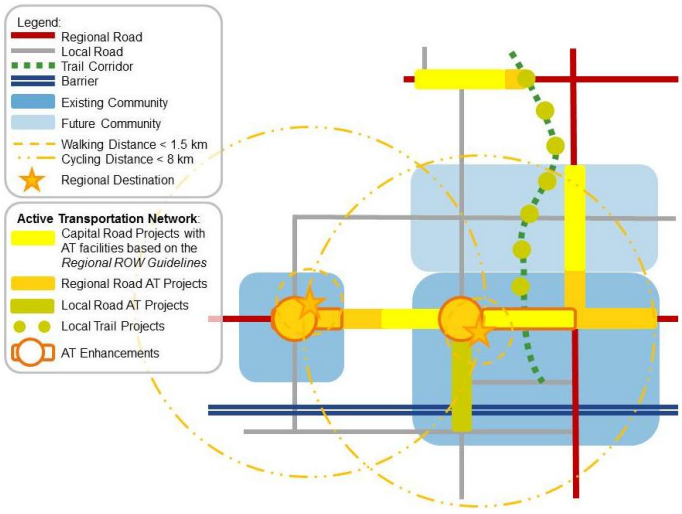
Strategy B.2. Support Local Municipalities in developing their AT Networks: Co-ordinate implementing an AT network with the local municipalities on local roads and trails. The Region would continue implementing active transportation facilities by incorporating with the Roads Capital Projects (as described in B.1 Status Quo / Do Nothing). In addition, they would co-ordinate these efforts with the local municipalities as they implement their local AT networks to achieve a regional network.



Strategy B.3. Provide AT Facilities on all Regional Roads: Implement AT facilities in all Regional ROWs within the timeframe of the master plan (2031). The Region would continue implementing active transportation facilities within Roads Capital Projects (as described in B.1 Status Quo / Do Nothing). Additional pedestrian facility and bikeway capital projects would be added in order to provide facilities within ALL Regional ROWs, including those roads not planned for reconstruction or expansion within the current Roads Capital Program (to 2031).



Strategy B.4. Develop a Strategic AT Network along Regional Roads: Implement a targeted network along Regional ROWs, with AT enhancements to the ROW guidelines. This option involves implementing a targeted network along Regional rights-of-way; the resulting network may not designate AT facilities within all Regional rights-of-way within the timeframe of the master plan (2031). Additional enhancements to improve the safety, comfort and convenience of cycling and walking trips beyond the basic facilities presented in the current Regional Right-of-way Guidelines would be considered for specific areas.



Strategy B.5. Develop a Strategic Regional Corridors Network: Implement a targeted network along Regional ROWs, local roads and trails, with AT enhancements to the ROW guidelines. This option involves implementing a targeted network along Regional rights-of-way; the resulting network may not designate AT facilities within all Regional rights-of-way within the timeframe of the master plan (2031). In addition, the Region would co-ordinate these efforts with the local municipalities as they implement their local AT networks, so some local roads and trail corridors would become part of a regional network. Additional enhancements to improve the safety, comfort and convenience of cycling and walking trips beyond the basic facilities presented in the current *Regional Right-of-way Guidelines* would be considered for specific areas.

For Tier 2 Alternative Networks, the study team identified 17 evaluation criteria in the four major criteria groups for transportation projects. These criteria were developed under guidance of the Project Team in consideration of input from ATAC, TAC and other stakeholders. Each Tier 2 Alternative Network was assessed in consideration of the criteria listed in Exhibit 3-2 and described in Exhibit 3-3.

Exhibit 3-2: Network Evaluation Criteria

Exhibit 3-3: Definitions for the Evaluation Criteria

Transportation	
Criteria	**Description**
AT mode share target	Ability to advance the active transportation (cycling and walking) mode share to reach the TMP target of 5% during the PM peak hour by 2031
Connected network	Potential to implement continuous infrastructure in a connected network
Safe AT facilities	Provision of facilities likely to reduce the number and severity of injuries and fatalities
Convenient and direct routes	Provision of direct routes to regional destinations, and between residential communities to and from employment and commercial land uses; consideration for time and distance of routes to prospective trip maker
Year-round accessibility	Availability of the network to sustain cycling and walking trips during all four seasons on a daily basis
Transit integrations	Connections to transit routes, stops and station areas, and AT enhancements that improve safety, convenience and comfort of transit users
Infrastructure efficiency	Potential use of existing network or requirement for new infrastructure to accommodate multi-modal transportation
Social / Cultural	
Criteria	**Description**
Recreation / tourism opportunities	Potential for the resulting transportation infrastructure to connect to recreation and tourism resources, including recreational trails and AT routes
Promotion of health and wellness	Support an active lifestyle that includes cycling and walking as a means of transportation, provide opportunities for physical activity and connects to resources to promote active living
Cultural / Heritage resources	Potential for the resulting transportation infrastructure to affect cultural and heritage resources through its construction and/or operation
Connect communities and regional destinations	Linkages between communities and access to destinations of regional significance and economic growth centres
Compatibility with TMP / ROPA 38 policies	Conformity with the Regional vision and policies outlined in the Transportation Master Plan and the Regional Official Plan – Amendment 38
Property Impacts	Potential to impact adjacent properties
Natural Environment	
Criteria	**Description**
Air quality	Smog and greenhouse gas emissions
Environmentally sensitive areas and features	Potential to affect designated environmentally sensitive areas due to construction / operation of transportation infrastructure
Aquatic and terrestrial environment	Potential to affect aquatic and terrestrial habitat as well as natural hazards

Economic	
Criteria	**Description**
Implementation costs	Estimated capital and long-term replacement costs and timing of expenditures (include property, utility relocation, construction costs)
Operating and maintenance costs	Annual operating costs including winter maintenance considerations
Cost-effective mode of travel	Accessibility to viable transportation options for individuals
Opportunities for partnership	Collaborations with other agencies and the private sector to share knowledge and resources where compatible with area plans and goals

Strategy B.1 Status Quo / Do Nothing: The potential outcome is a fragmented AT network where there is a lack of continuity both in terms of the network (i.e. gaps / disconnected routes) and types of facilities. It represents lower costs in terms of implementation, operations and maintenance. It also has relatively low impact on property and on resources because the network will be less comprehensive (smaller) so will have lower impacts. This alternative, however, does not meet the transportation criteria. It represents a "business as usual" condition that will not allow Halton Region to meet its increased target mode share for active transportation, with low AT network connectivity and low compatibility with the TMP and ROPA 38 policies. Therefore, **Strategy B.1 is not recommended.**

Strategy B.2 Support Local Municipalities in developing their AT Networks: The alternative is that Halton Region would co-ordinate local AT projects to fill in gaps between Regional Road Capital projects to create a regional AT network. However, the Region would have less control over investment, timing, and impacts. Some regional connections and direct routes along Regional roads would be lacking. This approach has the potential to lack continuity at the local boundaries and between communities. It will likely result in only a modest shift in the mode share for walking in local areas, and even less so for cycling. Therefore, **Strategy B.2 is not recommended.**

Strategy B.3 Provide AT Facilities on ALL Regional Roads within the timeframe of the ATMP: Although it will help Halton Region meet its increased target mode share for active transportation, with relatively high AT network connectivity on Regional roads and compatibility with the TMP and ROPA 38 policies, it will cost the most to implement, operate and maintain. By using only Regional roads, this network will provide direct routes to destinations on those roadways, but may not provide connections to regional destinations accessed only by Local roads and trails. Short trips by pedestrians are less likely to be served by a regional AT network on Regional roads. Longer trips by cyclists will be well served. **Strategy B.3 has merits to achieve the Vision of the ATMP.**

Strategy B.4 Develop a Strategic AT Network along Regional Roads: It provides flexibility to limit impacts and improve connections by targeting strategic Regional roads that achieve these effects. Given that Regional roads provide access to adjacent land uses and communities, it would be difficult to set priorities for targeting some Regional roads over others. The role that Local roads and trails could play to create safer and more comfortable and direct routes to some regional destinations as part of a regional AT network is not taken into consideration. **Strategy B.4 is not recommended.**

Strategy B.5 Develop a Strategic Regional Corridors Network: It provides the greatest flexibility to include Regional roads, Local roads and trails and AT enhancements where they are in greatest demand or most needed. It provides flexibility to limit impacts and improve connections by targeting Regional and Local roads and trails that achieve these effects. It also recognizes that Local roads and trails could potentially provide more comfortable and direct routes to some regional destinations

as part of a regional AT network. It will cost more than Strategy B.1 Status Quo / Do Nothing and probably more than Strategy B.2 Support Local Municipalities in developing the AT Networks. However, it has the greatest potential to meet cycling and walking mode share targets and improve air quality and health by better integrating with regional and local network, and connecting with various destinations that may be regionally significant, or cultural, recreation or health resources. AT enhancements in some locations are intended to further improve the safety, convenience and comfort of pedestrians and cyclists, contributing to the mode shift. Halton Region can show support for local municipal AT plans by recognizing the role some Local roads and trails have as part of the Regional AT Network. **Strategy B.5 has merits to achieve the Vision of the ATMP.**

Through the TMP, Halton Region identified roadway improvements required to accommodate travel demand. Many of the Regional roads in urban areas are planned for reconstruction by 2031, and in rural areas will require resurfacing within that timeframe. Thus, by 2031, the majority of Regional roads will have already been reconstructed and incorporated AT facilities. Adding active transportation facilities to a roadway is more cost effective when in conjunction with larger construction or resurfacing projects. This leads to a recommendation that **Strategy B.3 Provide AT Facilities on ALL Regional Roads** is achievable. Combined with Local roads and trails of regional significance, **Strategy B.5 Develop a Strategic Regional Corridors Network,** would result in a cost-effective, comprehensive AT network that meets the ATMP vision. The **recommended Tier 2 Network Alternative is a hybrid of Strategy B.3 and Strategy B.5: Provide AT Facilities on ALL Regional Roads with Regional Significant Routes on Strategic Local Corridors.**

3.4 Summary of the Preferred Strategies

The preferred solution to fulfill the Vision of the ATMP involves a combination of the Tier 1 Alternative Strategies, and a hybrid of the Tier 2 Alternative Networks:

- Combination of Strategy B.3 and B.5: Provide AT Facilities on ALL Regional Roads with Regional Significant Routes on Strategic Local Corridors
- Strategy C: Develop Active Transportation Education, and Outreach Initiatives
- Strategy D: Update Active Transportation Policies, Practices and Guidelines

The ATMP involves a multi-disciplined strategy to facilitate and promote active transportation in the Region. The preferred strategy requires investment in infrastructure and programs as well as supportive policies and practices.

4. The Active Transportation Network

An active transportation network is a fundamental part of achieving the Vision of the ATMP. It was developed to be an integrated, sustainable, accessible, affordable and efficient multi-modal transportation network, strengthening linkages between communities and municipalities. The existing and planned cycling and walking facilities will provide a safe, comfortable and convenient network for people to walk and bicycle for trips to work, school, for shopping, running errands, visiting family or friends.

This Section describes the development of the Region's active transportation network. It includes: background information about existing facilities for cycling and walking; other relevant plans; identification of corridors; and selection of the type of facility for each corridor.

4.1 The Existing Cycling and Walking Network

The existing active transportation facilities (up to and including 2014) on Regional roads are shown on **Map 1** and **Map 2**. In the Region, there are 133 lane-km (bike lanes and paved shoulder) of on-road bikeways on Regional roads as well as 132 km of sidewalks and 80 km of multi-use trails adjacent to Regional roads. Exhibit 4-1 shows the breakdown of the existing network by type of active transportation facility.

Exhibit 4-1: Existing Cycling and Walking Facilities on Regional Roads

Type of Active Transportation Facility	Existing
On-road Facilities on Regional Roads (lane-km)[a]	**133 km**
Bike lanes	24 km
Wide curb lanes	15 km[c]
Paved shoulders[b]	109 km
Off-road Facilities along Regional Roads (length on each side of the road)	**212 km**
Sidewalks	132 km
Multi-use trails	80 km

Notes:
a. Lane-km is the length of bikeway on each side of the road, which is twice as much as centreline length
b. Includes 40 km of partially paved shoulders (≥1m)
c. Existing wide curb lanes will be replaced by proposed bike lanes

4.2 Developing the Preferred Network

As presented in Section 3.3.2, the preferred alternative to develop a Regional Cycling and Walking Network to support the Vision of the ATMP consists of:

- **Active transportation facilities along all Regional roads.** Regional roads in Urban Areas need cycling and walking facilities to serve residents, neighbourhoods and destinations located on both sides of the roads. Regional roads in rural areas need paved shoulders that connect residents and destinations over longer distances; these facilities can also be used by pedestrians.

- **Routes of Regional Significance along local municipal corridors.** These consist of existing and planned active transportation facilities along local municipal roads or corridors (parks, rivers, hydro corridors, etc.) that help make connections between communities for longer distance cycling trips and to regional destinations for shorter walking trips. These are necessary to create a connected network to key destinations that are not served by Regional roads.

Identifying the type of active transportation facility along all Regional roads and the routes of Regional Significance considered the following information, described in detail in subsequent sections:

- **Halton Region's Roads Capital Projects (2015 to 2031)**—An efficient way to implement cycling and walking facilities is to construct them as part of an overall road construction project. Halton's Roads Capital Program identifies all Regional roads that will be reconstructed, widened and new roads to the year 2031. These are opportunities to implement the active transportation network. Road widening and new roads are planned through the Municipal Class Environmental Assessment (Class EA) process. Those Regional roads that have approved Class EAs have recommendations for walking and cycling facilities and these are included in the proposed active transportation network.

- **Halton Region's Road Resurfacing**—Resurfacing of rural roads provides an opportunity to widen and pave shoulders and contribute to the proposed active transportation network.

- **Local municipal active transportation master plans**—These plans identify existing and planned on-road and off-road active transportation facilities along Regional roads, in addition to on-road and off-road trails and facilities along local roads.

- **Regional Right-of-Way (ROW) categories**—Regional roads are classified into categories that define their function and design elements as presented in the Regional Right-of-way Guidelines (July 2011) that were developed as part of the Transportation Master Plan (2031).

- **Factors to define Routes of Regional Significance**—Various factors related to land use along with feedback from the public, stakeholders and the Local municipalities regarding important routes and destinations.

- **Type of facility for Regional roads**—In addition to the above information, the type of active transportation facility (sidewalk, multi-use trail in the boulevard, bike lane, buffered bike lane, or cycle track) along Regional roads was confirmed based on various characteristics of the road corridor.

4.3 Local Municipal Active Transportation Networks

The four Local Municipalities within Halton Region each have their own approved master plans to guide the development of walking and / or cycling networks. These are listed in Exhibit 4-2 and identify existing and planned active transportation facilities on local roads, Regional roads and other corridors under their jurisdictions (such as off-road trails). The network maps from these master plans are provided in Appendix D.

Exhibit 4-2: Relevant Plans from Local Municipalities

Local Municipality	Relevant Plans
City of Burlington	Cycling Master Plan (2009), Community Trails Strategy (on-going)
Town of Oakville	Active Transportation Master Plan Study (2009) (2015 update planned)
Town of Milton	Trails and Cycling Master Plan Update (2014)
Town of Halton Hills	Cycling Master Plan Study (2010)

These maps of planned local active transportation facilities identify proposed walkways and bikeways along Regional roads, and were reviewed for consideration as part the Regional network. The Municipal Act assigns responsibility for sidewalks along all roads (including Regional roads) to the Local Municipalities (unless otherwise agreed).[3] Thus Local Municipal active transportation plans identify planned sidewalks and boulevard multi-use trails along Regional roads. They also identify routes along local streets and off-road corridors that may be Regionally Significant, such as the Bruce Trail and the Waterfront Trail.

[3] Municipal Act, *Upper-tier sidewalks*, Section 55. (1) An upper-tier municipality is not responsible for the construction and maintenance of sidewalks on its highways and the lower-tier municipality in which the highways are located is responsible for the construction and maintenance of the sidewalks and has jurisdiction over that part of the highway, unless the municipalities agree otherwise. 2001, c. 25, s. 55 (1).

4.4 Halton's Regional Right-of-Way Guidelines

Halton's *Regional Right-of-Way Guidelines* (July 2011), approved as part of the *Halton Region Transportation Master Plan,* provides a set of roadway elements for each category of Regional road. The Guidelines are to be consulted at the beginning of any planning or design process that involves Regional roads.

The guideline defines three right-of-way categories of Regional roads:

- **Rural / Natural Heritage System:** respect the rural character of the area.
- **Corridors:** intensification areas along major roads or higher-order transit corridors, mixed-use development and employment. They will vary in use along their length and and their design needs to reflect the change in surroundings.
- **Node:** compact, transit-oriented, pedestrian-friendly, mixed-use / residential centres. They are generally located at intersections of higher-order transit corridors within identified intensifications area, and extend approximately 200 to 400 m from an intersection.

Each of the above categories of Regional rights-of-way are further subdivided according to the right-of-way width, number of travel lanes, and absence or presence of priority travel lanes for high-occupancy vehicles or transit, as shown in Exhibit 4-3. The design elements identified for each classification are summarized in The *Regional Right-of-Way Guidelines* and should be referred to for explanatory notes and details.

Exhibit 4-3: Regional Right-of-way Categories and Design Elements

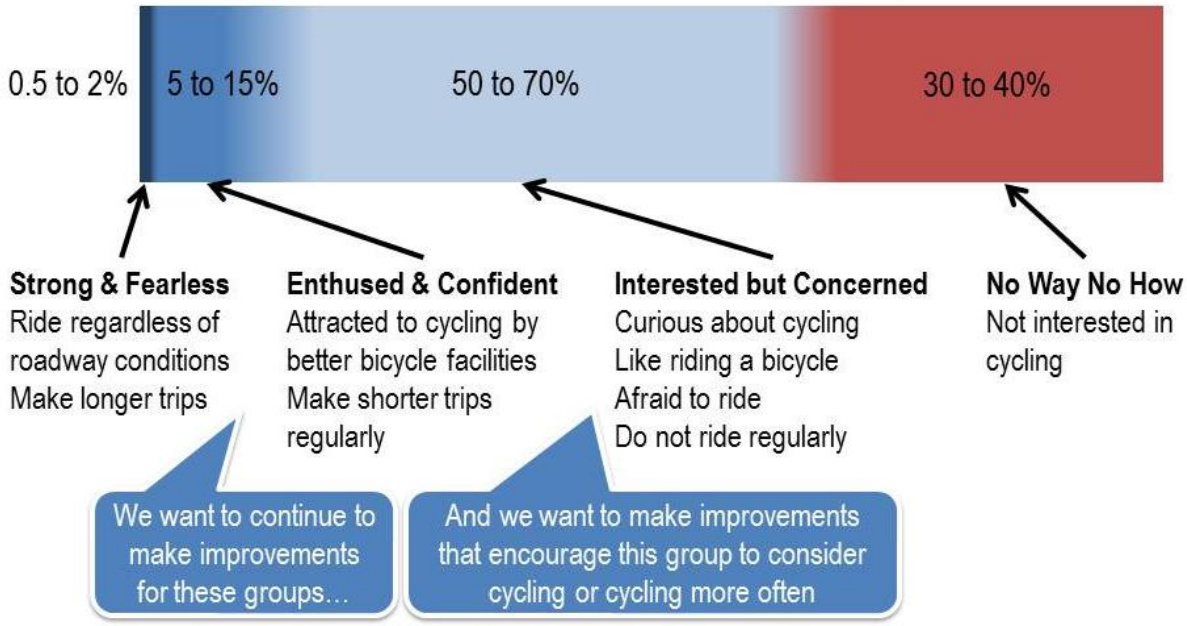
	Code	ROW Width (m)	Travel Lanes	Priority Lanes (HOV / Transit)	Trees in Blvd.	Pedestrian Scale Lighting	Building setback	Pedestrian Facility	Bikeway
Rural	R(1)	35	2	-	-	-	-	Paved shoulder	Paved shoulder
	R(2)	42	4						
Corridor	C(1)	42	4	-	Yes	Key areas	Variable	Sidewalk / Multi-use trail	Variable
	C(2)	35							
	C(3)	42							
	C(4)	47		2					
	C(5)	50							
Node	N(1)	50	4	2	Yes	Yes	Minimized	Sidewalk	Variable
	N(2)	50							

4.5 Bikeway Selection Guide by Regional Road Category

Numerous surveys have found that the number one reason people do not cycle as a mode of transportation is because of their fear of sharing the roadway with automobiles. This has been documented and reported in transportation literature across the United States, Canada and Europe. Addressing concerns about personal safety, interaction with motorized vehicular traffic and comfort

is the key to creating a culture where cycling is recognized as both a mode of transportation and a recreational activity. Generally, cyclists can be divided into four categories based on their comfort level while riding on a roadway with traffic as outlined below and illustrated in Exhibit 4-4.

Exhibit 4-4: Types of Transportation Cyclists by Proportion of Population[4]



Some communities are using these cyclist types to describe the potential for people to choose cycling as a mode of transportation or recreation. It is important to note that the lines between these categories are blurry. People across this spectrum may use a bicycle for recreation; but the goal here is to describe groups of people as they relate to transportation trips:

- **The Strong and the Fearless—**People who will ride regardless of the roadway conditions.

- **The Enthused and Confident—**People who are attracted to cycling with the additional cycling infrastructure. They may be comfortable sharing the roadway with motorists, but they prefer streets with designated space for cyclists. They appreciate bicycle lanes and bicycle boulevards (local traffic-calmed streets).

- **The Interested but Concerned—**People who are curious about cycling. They would like to cycle more, for a variety of reasons, but they are afraid to ride. They are afraid of sharing the road with speeding cars. Very few of these people may ride regularly to the local park or coffee shop, but most will not venture out onto arterials to the major commercial and employment destinations. They would ride more if they felt safer on the roadway if there were more quiet streets with few cars and paths without cars at all.

- **No Way No How—**People who are not interested in cycling at all, for reasons of topography, inability, or simply a lack of interest.

[4] Roger Geller, "Four Types of Cyclists", Portland Office of Transportation http://www.portlandoregon.gov/transportation/44597?a=237507 (January 2013)

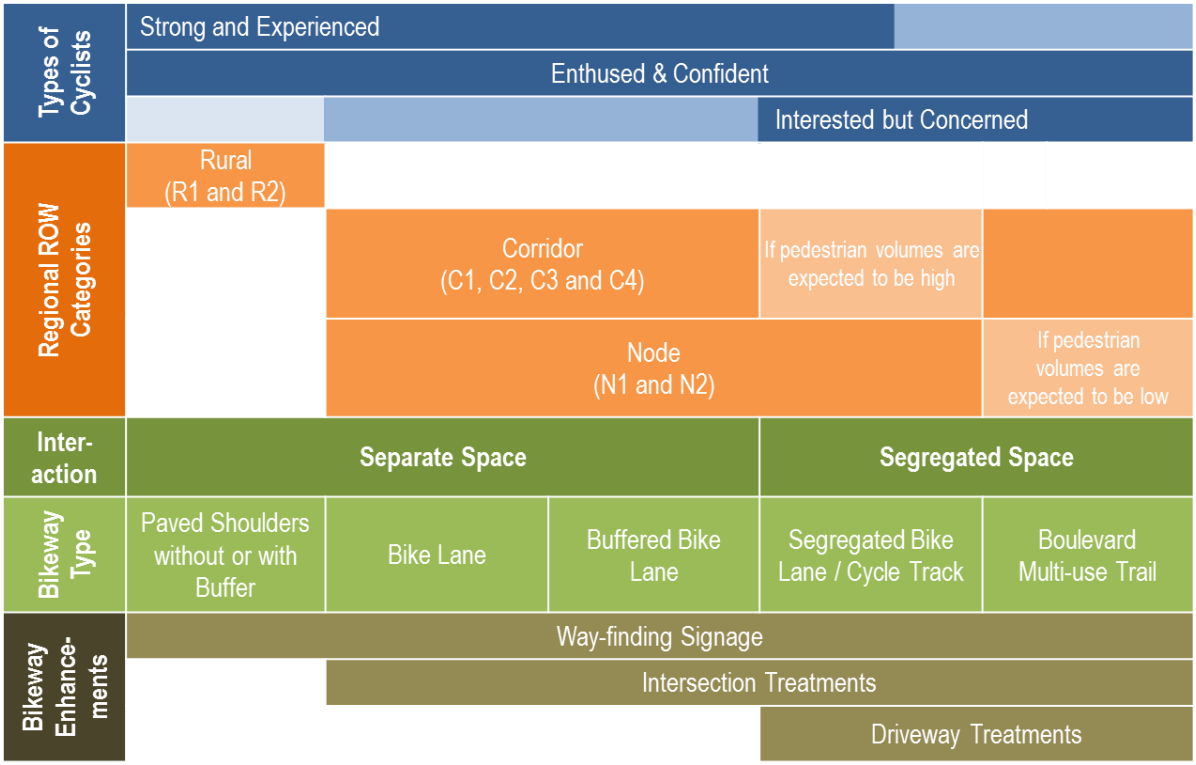
The separation between these four broad groups is not generally as clear-cut as previously described. There is likely quite a bit of blurring between the “enthused,” the “interested,” and those not at all interested. However, it is a reasonable way to understand a municipality’s existing and potential cyclists. In general, we want to continue to make improvements to attract “strong” and “enthused” cyclists. This will support modest growth in cycling as a mode of transportation. And we need to make improvements that attract the “interested but concerned” to see a more substantial shift to cycling as a mode of transportation. As a person rides more often, one can shift from an “interested but concerned” cyclist to a “strong” and “enthused” rider. Similarly, as cycling becomes a visible transportation choice, the perception among the “no way no how” may change.

For cycling facilities, the *Regional Right-of-Way Guidelines* considers the provision of paved shoulders for rural rights-of-way, and wide curb lanes, bicycle lanes or multi-use trails for Corridor rights-of-way, and wide curb lanes or bicycle lanes for Node rights-of-way.

In order for Halton Region to reach its vision and targets for active transportation, a variety of different types of bikeways and enhancements suitable for different users (experienced, confident and casual / interested cyclists) and fitting the local context are necessary. The types of bikeways for different corridors are foremost influenced by the speed and volume of vehicles affecting the safety and comfort of cyclists. Therefore, the speed and volume of traffic on Regional roads makes it more desirable to provide separate or segregated space for cyclists, i.e. paved shoulders, bike lanes, buffered bike lanes, and boulevard multi-use trails. **Expanding on the *Regional Right-of-Way Guidelines*, the types of bikeways and enhancements recommended for the various right-of-way classifications are illustrated in Exhibit 4-5.**

Note that it is important to provide boulevard multi-use trails on both sides of the street where possible to serve cyclists interested but concerned with riding with traffic. If they are only provided on one side of a roadway due to roadway constraints, then some cyclists who do not feel comfortable cycling in the on-road bikeway may ride on the sidewalk to reach destinations on the opposite side of the road from the trail.

Exhibit 4-5: Bikeway Selection Guide for Regional Rights-of-way

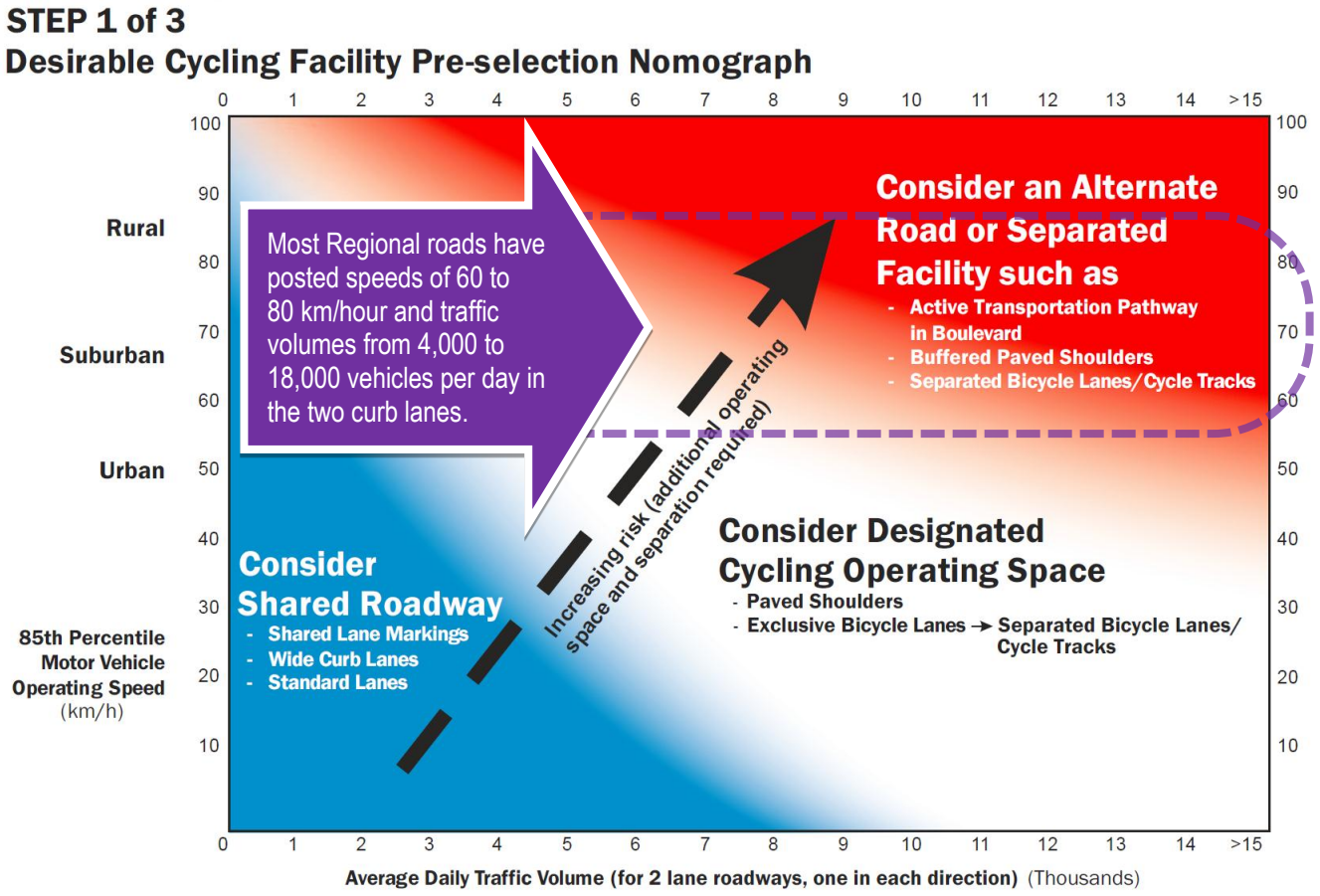


Although there is no "formula" for matching bikeways with roadways, selection criteria have been developed in many design guidelines including the *Ontario Traffic Manual Book 18: Cycling Facilities* (OTM Book 18). The types of bikeways shown in Exhibit 4-5 align with the first step of OTM Book 18's Bicycle Facility Type Selection 3-step Process. The first step looks at the operating speed of the roadway, and daily volume of traffic on a two-lane roadway to determine if the roadway can be shared, or if separate or segregated facilities for cyclists are recommended. It can be used for multi-lane roadways by considering the volume of traffic travelling in the two lanes immediately adjacent the bikeway. Note that the graph should not be used in isolation of the second and third steps that consider the local corridor context in greater detail.

The majority of Regional roads have posted speeds of 60 km/h (urban) to 80 km/h (rural) and traffic volumes on the two outside lanes in excess of 4,000 vehicles per day typical on rural roads and up to or greater than 18,000 vehicles on multi-lane urban arterials. As shown in Exhibit 4-6, separated or segregated cycling facilities are generally desirable on these types of roadways. In identifying facility type, one must also consider the local context (step 2 and 3 of the OTM Book 18 selection process). Step 2 guides practitioners to take a more detailed look at site specific characteristics in order to determine the appropriateness of the pre-selected facility type. Thirteen criteria are listed in the manual, including operating speed, volumes, street function, vehicle mix, collision history and available space, etc. Step 3 involves documenting the rationale for the final selection. More information is available in Chapter 3.2 of the OTM Book 18.

Exhibit 4-6: Desirable Bicycle Facility Pre-selection Nomograph from *Ontario Traffic Manual Book 18*: *Cycling Facilities* (December 2013)

Provides guidance on the initial selection of cycling facilities based on speed and volume conditions (Step 1 of a 3 step process).



Footnotes:

- This nomograph is the first of a three step bicycle facility selection process, and should not be used by itself as the justification for facility selection (see Steps 2 and 3). The nomograph simply helps practitioners pre-select a desirable cycling facility type, however the context of the situation governs the final decision.
- The nomograph has been adapted for the North American context and is based on international examples and research for two lane roadways. It is, however, still applicable for multi-lane roadways. For these situations, designers should consider the operating speed, total combined traffic volume and traffic mix of the vehicles traveling in the lanes immediately adjacent to the cycling facilities.
- Consider a Separated Facility or an Alternate Road for roadways with an AADT greater than 15,000 vehicles and an operating speed of greater than 50 km/h.
- For rural and suburban locations this nomograph assumes good sightlines are provided for all road users. In urban areas, there are typically more frequent conflict points at driveways, midblock crossings and intersections (especially on multi-lane roads), as well as on road segments with on-street parking. This needs to be considered when assessing risk exposure in urban environments since it will influence the selection of a suitable facility type.

4.6 Pedestrian Facility Selection Guide by Regional Road Category

The types of accessible pedestrian facilities and enhancements suitable for different routes or corridors are influenced by their activity levels and the speed and volume of other users of the corridor. Expected activity levels will be foremost influenced by the type and form of land use that the corridor serves. Higher density development and a mix of land uses will result in shorter distances between destinations that can be accessed by walking. However, the decision to walk, or not, will also be influenced by the perceptions of safety, convenience and comfort. In rural areas, a focus on pedestrian safety is recommended; in suburban and urban areas, where walking trips are more viable, a greater effort to increase convenience and improve comfort is recommended.

For pedestrian facilities, the *Regional Right-of-way Guidelines* considers the provision of sidewalks or multi-use trails for the Corridor category and sidewalks in the Node category.

In order for Halton Region to reach its vision and targets for active transportation, pedestrians must be accommodated by accessible facilities to move along and across Regional roads, including features that enhance their safety, convenience and comfort reflecting the local context. **Building upon the *Regional Right-of-Way Guidelines*, the types of pedestrian facilities and enhancements recommended for the various right-of-way categories are illustrated in Exhibit 4-7.**

Exhibit 4-7: Pedestrian Facility Selection Guide for Regional Rights-of-way

<table>
<tr><td>Accessibility</td><td colspan="2">Where Sidewalks and Multi-use Trails are provided</td><td colspan="3">Accessible Pedestrian Facility and Street Crossings</td></tr>
<tr><td rowspan="3">Regional ROW Categories</td><td colspan="2">Rural (R1 and R2)</td><td>Corridor (C1, C2 and C3)</td><td></td><td></td></tr>
<tr><td colspan="2"></td><td></td><td>Corridor (C4 and C5)</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td>Node (N1 and N2)</td></tr>
<tr><td>Activity Level</td><td colspan="2">Low</td><td colspan="2">Moderate to High</td><td>High</td></tr>
<tr><td>Facility Type</td><td colspan="2">Paved Shoulders both sides
Sidewalk or Boulevard Multi-use Trail one side</td><td colspan="2">Sidewalk or Boulevard
Multi-use Trail both sides</td><td>Sidewalk both sides</td></tr>
<tr><td>Minimum Enhancements</td><td colspan="2">Safety</td><td>Safety & Convenience</td><td>Safety, Convenience & Comfort</td><td>Safety, Convenience & Comfort</td></tr>
</table>

4.7 Factors to Define Routes of Regional Significance

The Regional Cycling and Walking Network identifies cycling and walking facilities along all Regional roads. In order to complete the active transportation network, Routes of Regional Significance were also identified. These make connections to important areas of the region that Regional roads do not serve. For example, Regional roads in Burlington and Oakville do not connect southerly to their downtowns and to Lake Ontario, including the Waterfront Trail – important destinations for cycling and walking trips. The major transit stations (existing and proposed) are not accessed directly from Regional roads; walking trips to these stations must use Local streets and trails.

Factors considered when identifying Routes of Regional Significance to be part of the Regional Cycling and Walking Network include (examples shown in Exhibit 4-9 to Exhibit 4-16):

- **Existing and planned urban / built-up boundaries and rural settlement areas**—The boundaries illustrate the extent of existing and future development that can generate cycling and walking trips. A combination of Regional roads, Local streets and trails make connections within and between these areas. An example are Tremaine Road,

Steeles Avenue and Derry Road which are Regional roads near the periphery of the urban area in Milton; Main Street and Ontario Street are Local roads identified as Routes of Regional Significance because they provide connections through Milton's urban area. Rural settlement areas such as Mount Nemo, Moffat, and Ballinafad are examples where walking routes along Local streets were Routes of Regional Significance (see examples in Exhibit 4-9).

- **Land use**—The type, mix and density of land uses influences the level of active transportation. Higher densities and mixed use typically results in shorter trips that are possible by bicycle or on foot. Regional roads serve many of these areas. Local roads, such as Plains Road and Fairview Street in Burlington, provide the connections in other areas (see examples in Exhibit 4-10).

- **Existing and planned local cycling and walking networks**—The intention of the Routes of Regional Significance is to add further support to the development of cycling and walking routes along Local streets and trails that have been identified in Local Active Transportation Master Plans. Significant routes at the Regional level such as the Lake Ontario Waterfront Trail (for cycling and walking), the proposed Greenbelt Trail (for cycling) and the Bruce Trail (for walking), are identified as part of the Regional active transportation network. Longer Local trails include two along hydro corridor trails in Burlington, and the east-west proposed trail in Oakville between Bronte Road and Winston Churchill Boulevard (see examples in Exhibit 4-11).

- **Existing and planned higher-order transit stations**—Cycling and walking integrate well with transit, serving the "first and last mile" of transit trips. The Regional and Local road and trail network around major transit stations were examined to determine cycling and walking routes to serve these trips. This aligns with Halton Region's Transportation Master Plan's target to grow the transit mode share from 5% in 2006 to 20% by 2031 (see examples in Exhibit 4-12).

- **Potential demand areas** (i.e. areas with the potential for many short-trips)—These are areas with latent demand for walking and cycling where a significant increase in active transportation could be realized if facilities were provided. For cycling, it considers the mix of land uses, density of all trips (regardless of mode of travel) 5 km or less, and population and employment density. For walking, trips that are 1 km or less are considered. Examples include the residential and employment areas in Georgetown that are in close proximity to each other for walking and cycling trips, and the commercial and residential areas around Bronte Road in Oakville (see examples in Exhibit 4-13).

- **Major destination centres**—These include destinations such as downtowns, commercial centres, Conservation areas, employment centres, etc. (see examples in Exhibit 4-14).

- **Natural features**—These can be both attractive destinations and / or barriers to cycling and walking trips. The active transportation network identifies corridors that provide access to and/or through these features, such as the Niagara Escarpment, 16 Mile Creek, Lake Ontario, etc. (see examples in Exhibit 4-15).

- **Public and stakeholder input**—Members of the public and other stakeholders provided valuable insight into the development of the active transportation network. They identified key regional destinations, uncomfortable corridors or barriers that need to be improved, and existing and preferred routes throughout the region. See Section 2 for more information about the consultation process (see examples in Exhibit 4-16).

Routes of Regional Significance are part of both the proposed Regional Cycling and proposed Regional Walking Network (presented in the following sections). Note that all Routes that are Regionally Significant are shown in light purple (legend shown in Exhibit 4-8)

Exhibit 4-8: Legend of Routes of Regional Significance (examples below)

LEGEND
Routes not on Regional Roads

- Existing Routes that are Regionally Significant
- Planned Routes that are Regionally Significant
- Proposed Routes that are Regionally Significant

Exhibit 4-9: Examples of Routes of Regional Significance in a Rural Settlement Area (Walk Network) and Built-Up Area (Cycling Network)

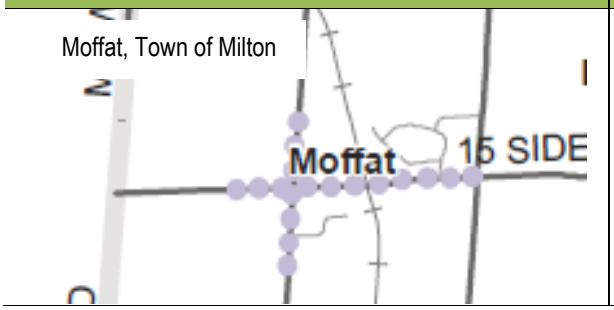
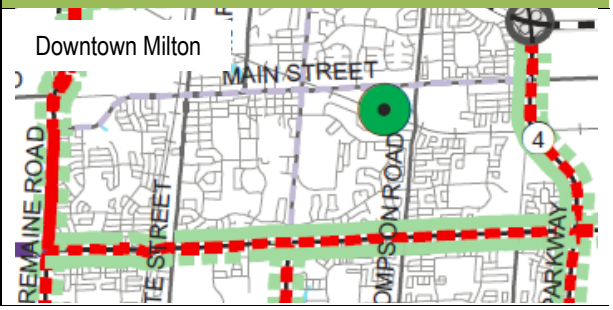
Proposed Regional Walking Network	Proposed Regional Cycling Network
	

Exhibit 4-10: Examples of Routes of Regional Significance based on Land Use

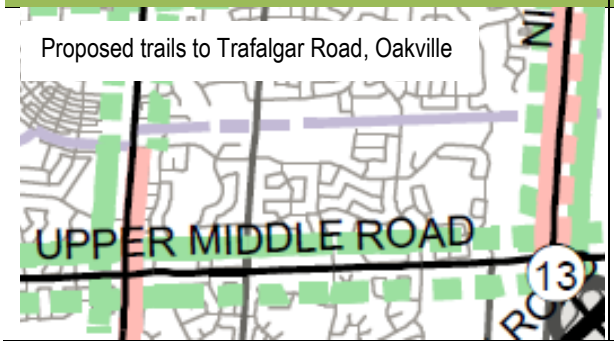
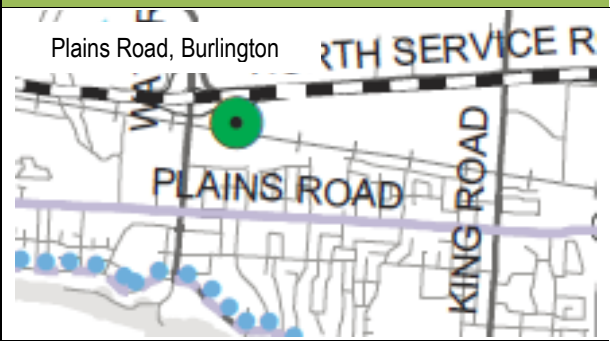
Proposed Regional Walking Network	Proposed Regional Cycling Network
	

Exhibit 4-11: Examples of Routes of Regional Significance based on Local Cycling and Walking Networks (Existing and Planned)

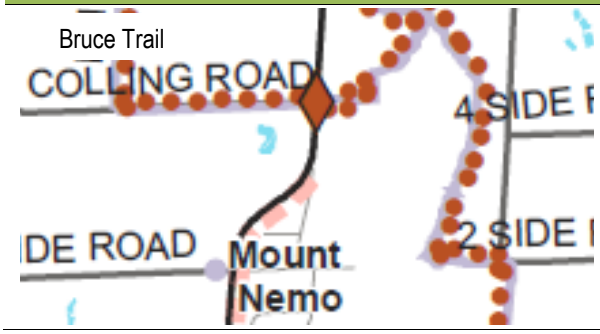
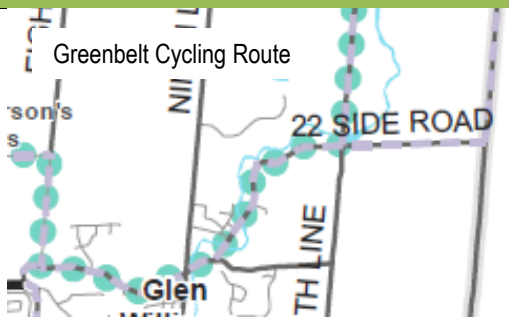
Proposed Regional Walking Network	Proposed Regional Cycling Network
	

Exhibit 4-12: Examples of Routes of Regional Significance to Higher Order Transit (Existing and Planned)

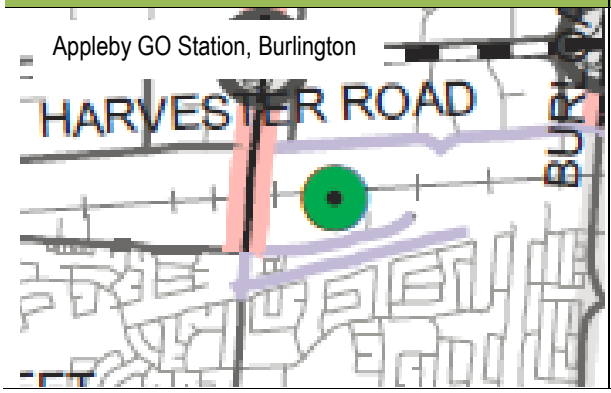
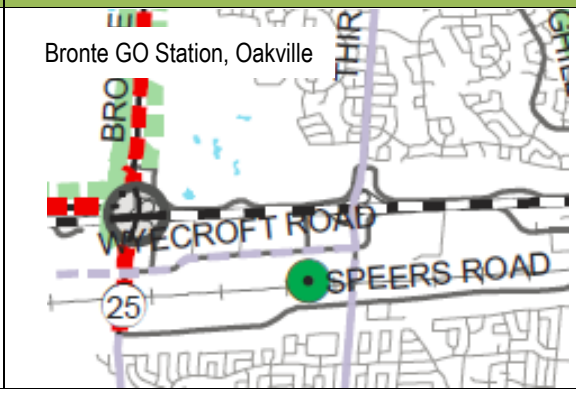
Proposed Regional Walking Network	Proposed Regional Cycling Network
	

Exhibit 4-13: Examples of Routes of Regional Significance through Potential Demand Areas

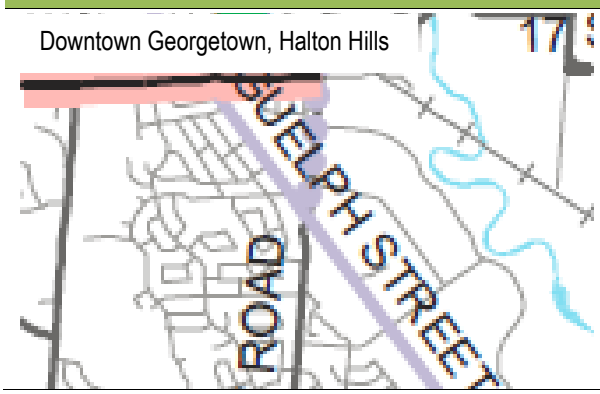
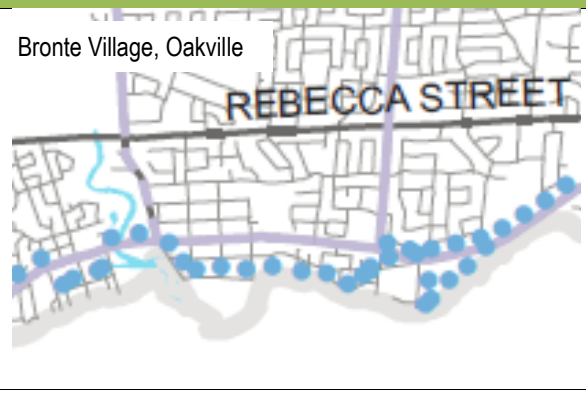
Proposed Regional Walking Network	Proposed Regional Cycling Network
	

Exhibit 4-14: Examples of Routes of Regional Significance to Major Destinations Centres

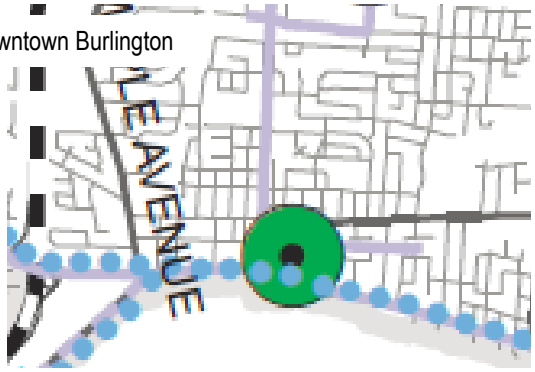
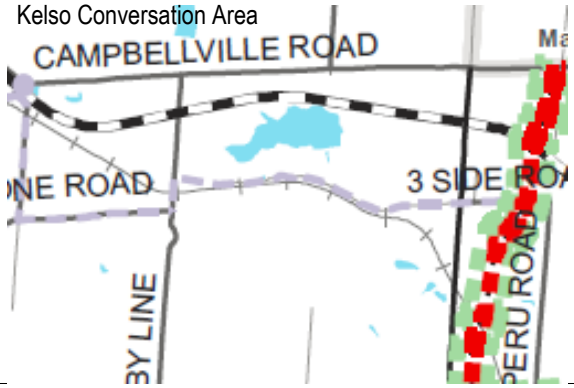
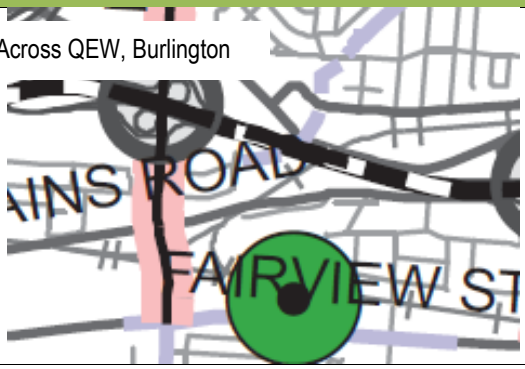
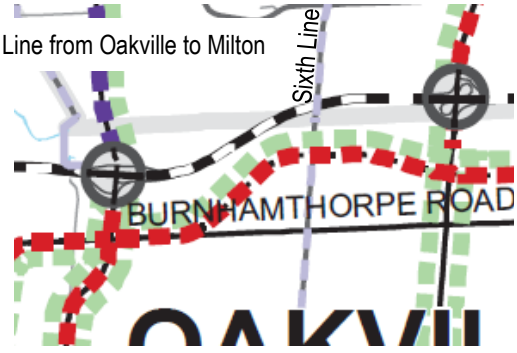
Proposed Regional Walking Network	Proposed Regional Cycling Network
Downtown Burlington 	Kelso Conversation Area 

Exhibit 4-15: Examples of Routes of Regional Significance along or to Natural Features

Proposed Regional Walking Network	Proposed Regional Cycling Network
Niagara Escarpment 	Lake Ontario 

Exhibit 4-16: Examples of Routes of Regional Significance based on Stakeholder and Public Input

Proposed Regional Walking Network	Proposed Regional Cycling Network
Across QEW, Burlington 	Sixth Line from Oakville to Milton 

4.8 Types of Cycling Facilities for Regional Roads

The types of active transportation facilities (i.e. sidewalk, multi-use trail, bike lane, etc.) that can be considered for a corridor was determined based on several design considerations:

- Type of users and level of use anticipated
- Function within the active transportation network, that is connections between communities or a corridor within a community
- Regional road right-of-way category and function
- Type of active transportation facilities included in approved Regional road projects
- Intersection / driveway frequency that affect the safety of the facilities

The various types of active transportation facilities are illustrated in Exhibit 4-17.

Exhibit 4-17: Types of Active Transportation Facilities

Types of Cycling Facilities

Bike Lane

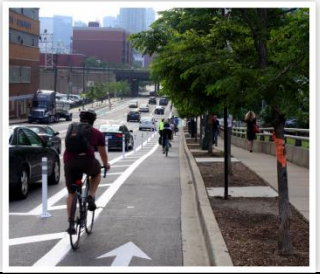
Separate space on the road exclusively for cyclists marked with a painted line, bicycle and diamond symbols and signs.

Buffered Bike Lane

Separate space on the road exclusively for cyclists marked with a painted line and buffer, bicycle and diamond symbols and signs.

Cycle Track

Separate space on the road exclusively for cyclists segregated from traffic by delineators, bollards, curb, planters or medians. Unlike boulevard multi-use trails, cycle tracks operate under the same rules of the road as bike lanes and travel lanes.



Types of Shared Facilities for Cyclists and Pedestrians

Paved Shoulder

Located on rural road for cyclists, pedestrians, slow-moving vehicles, and emergency stopping.

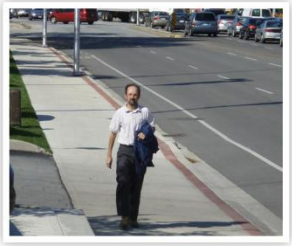
Boulevard Multi-use Trails

Located in the boulevard along a road and shared by cyclists, pedestrians and others.

Types of Pedestrian Facilities

Sidewalks

Located in the boulevard along a road for pedestrians including those with mobility aids, in-line skaters, skateboarders, etc.



4.9 The Regional Cycling Network

The proposed Regional Cycling Network is shown on **Map 3**. It is comprised of 603 lane-km of on-road bikeways and 344 km of multi-use trails along Regional roads. The breakdown by type of cycling facility is shown in Exhibit 4-18.

Exhibit 4-18: Regional Cycling Network by Type of Facility

Type of Cycling Facility	Existing	Proposed	Total
On-road Facilities on Regional Roads (length on each side of the road)	**133 km**	**470 km**	**603 km**
Bike lanes	24 km	253 km	277 km
Wide curb lanes	15 km	-	0 km[c]
Buffered bike lanes	-	20 km	20 km
Paved shoulders	109 km[a]	197 km	306 km
Off-road Facilities along Regional Roads (length on each side of the road)	**80 km**	**264 km**	**344 km**
Multi-use trails	80 km	264 km[b]	344 km

Notes:
a. Includes 40 km of existing partially paved shoulders (1m wide more)
b. Does not include existing multi-use trails that will be replaced when Regional roads are widened
c. Existing wide curb lanes will be replaced proposed bike lanes

Overall, the Region is aiming to provide both on-road and off-road cycling facilities on all Regional roads in urban areas, and paved shoulders on all Regional roads in rural areas. For some Regional Roads, the following active transportation infrastructure has been determined though the approved Municipal Class EA process and are outlined below:

- The William Halton Parkway will provide bike lanes and a multi-use trail on one side of the road (and a sidewalk on the other side).
- Dundas Street in Oakville is being implemented with multi-use trails on both sides of the road.
- Trafalgar Road, north of Glenashton Drive in Oakville is being implemented with multi-use trails on both sides. South of Glenashton Drive, a multi-use trail will be provided on the west side and sidewalks on the east side to Leighland Avenue.
- Routes that connect through Midtown Oakville are being planned through the Midtown Oakville Class EA Process (completed in July 2014), by the Town of Oakville.
- Neyagawa Boulevard south of Dundas Street in Oakville has existing multi-use trails on both sides of the road.
- Region of Peel undertakes the planning and design of Winston Churchill Boulevard on the Halton / Peel boundary, with shared funding from Halton. The Region of Peel is planning paved shoulders and a multi-use trail on one side of Winston Churchill Boulevard.

Along some Regional roads with frequent driveways and intersections on-road bikeways are preferred to boulevard multi-use trails due to the potential conflict between turning motorists and cyclists travelling in the boulevard. Sections of Brant Street, Guelph Line and Appleby Line in Burlington are recommended to have bike lanes with a multi-use trail on only one side of the road.

Where Regional roads traverse rural areas straddled by urban boundaries such as Tremaine Road, Bronte Road, James Snow Parkway, and Trafalgar Road between Milton and Oakville, bike lanes or paved shoulders are recommended to serve longer cycling trips between the communities. A multi-use trail on one side of the road, shared with fewer pedestrians, is also recommended to accommodate cyclists who are not as comfortable riding on the road through the rural areas.

Buffered bike lanes are recommended on Dundas Street from Northampton Boulevard to Appleby Line, where higher anticipated levels of both cycling and pedestrian activity warrant separate space for pedestrians (from cyclists) and a segregated bikeway for a wide range of cyclists.

Improvements at interchanges of Regional roads and the QEW, Hwy. 401, Hwy. 403 and Hwy. 407 are recommended and will be determined in consultation with the Ministry of Transportation Ontario (MTO). There are a wide range of improvements to consider: provide curb cuts so cyclists can access shared sidewalks where on-road facilities do not exist through the interchange, re-stripe travel lanes to provide bike lanes for cyclists, mark and sign on-road conflict areas across ramps, construct jug-handle ramp crossings, provide a controlled pedestrian crossing, and construct new active on-road and / or off-road transportation facilities when interchanges are being reconstructed. Treatments at freeway interchanges (Highways 401, 403, 407 and QEW), for active transportation will be determined in consultation with the Ministry of Transportation Ontario (MTO) through the Class Environmental Assessment (EA) Process.

The proposed Regional Cycling Network includes a number of Routes of Regional Significance, including the Greenbelt Cycling Routes, the Lake Ontario Waterfront Trail, Local street connections from Regional roads to Lake Ontario, major transit stations and elsewhere, and off-road trails in relatively long corridors in Burlington and Oakville.

4.10 The Regional Walking Network

The proposed Regional Walking Network is shown on **Map 4.** It is comprised of 227 km of sidewalks and 344 km of boulevard multi-use trails along Regional roads. The breakdown by type of pedestrian facility is shown in Exhibit 4-13. Note that while paved shoulders may be used by pedestrians on rural roads; these on-road facilities are only shown on **Map 3** of the Regional Cycling Network.

Exhibit 4-19: Regional Walking Network by Type of Facility

Facility Type	Existing	Proposed	Total
On-road Facilities on Regional Roads (length on each side of the road)	**109 km**	**197 km**	**306 km**
Paved shoulders	109 km[a]	197 km	306 km
Off-road Facilities along Regional Roads (length on each side of the road)	**168 km**	**366 km**	**534 km**
Sidewalks	132 km	95 km[b]	227 km
Multi-use trails	80 km	264 km[c]	344 km

Notes:
a. Includes 40 km of existing partially paved shoulders (1m wide or more)
b. Does not include existing sidewalks that will be replaced when Regional roads are widened
c. Does not include existing multi-use trails that will be replaced with Regional roads are widened

Pedestrian facilities are generally proposed on both sides of all Regional roads in urban areas and rural settlement areas to provide access to destinations on either side. Paved shoulders on all Regional roads in rural areas will generally accommodate walking[5] where pedestrian demand is lower. Exceptions include Regional roads that traverse rural areas straddled by urban boundaries such as Tremaine Road, Bronte Road, James Snow Parkway, and Trafalgar Road between Milton and Oakville. Along these sections a multi-use trail on one side of the road is recommended to accommodate the lower volume of pedestrians making these longer trips through the rural areas. Lighting along roadways should be considered in reference to the Region's illumination policy. Several routes were identified to be Regionally Significant. These routes include the Bruce Trail, the Lake Ontario Waterfront Trail and routes proposed in the Local municipal plans centred on walking trips to major transit stations, regional destinations, etc. (as described in Section 4.7).

[5] Highway Traffic Act, *Duties of pedestrian when walking along highway,* Section 179. (1). Where sidewalks are not provided on a highway, a pedestrian walking along the highway shall walk on the left side thereof facing oncoming traffic and, when walking along the roadway, shall walk as close to the left edge thereof as possible. R.S.O. 1990, c. H.8, s. 179 (1); (2) Subsection (1) does not apply to a pedestrian walking a bicycle in circumstances where crossing to the left side of the highway would be unsafe. R.S.O. 1990, c. H.8, s. 179 (2).

5. The Implementation Strategy

The Implementation Strategy sets the framework to build, fund and phase the proposed Regional Active Transportation Network to the year 2031.

5.1 Cost of the AT Network

Cost estimates are primarily based on benchmark costs that provide the per kilometre cost for each type of cycling and walking facility. To produce benchmark costs, a list of items is developed representing the major items involved in constructing the facilities, i.e. earth excavation, granular and asphalt pavement, concrete, signs, pavement markings, etc. The quantity of each item is calculated based on typical cross sections over the length of a kilometre. The quantities are multiplied by standard unit prices. The resulting product is a list of benchmark costs used to calculate the cost of each cycling and walking facility. The benchmark costs including an allowance for construction contingencies (smaller items and unforeseen site conditions) and engineering. The estimated unit costs are provided in Appendix F.

Constructing a cycling or walking facility as part of a larger road project lowers their cost. Items such as site preparation (excavation and restoration), utility relocations, traffic control, drainage, etc. are already included in the overall cost of the road project and do not need to be accounted for in the active transportation component.

As projects proceed through the planning and design process, the construction costs are further refined, reducing the contingency and allowing for budgeting for the annual construction program.

5.2 Approach

The most cost-effective and efficient method to build cycling and walking facilities is to construct them as part of roadway resurfacing and construction projects. The Implementation Strategy has been developed to align with Halton Region's Roads Capital Program and Roads Resurfacing Program. A large majority of the Regional roads within the urban boundaries will be reconstructed as part of the Roads Capital Program by the year 2031. Regional roads are also resurfaced to maintain safe and comfortable road conditions. This integration allows for cost savings associated with planning, design and traffic management of the projects, along with lower material and labour costs associated with larger contracts.

Stand-alone active transportation projects will be required where there is no opportunity to build the proposed AT facilities as part of roadway capital or resurfacing projects within the 2031 timeframe.

The proposed Regional Cycling and Walking Networks require the construction of 494 lane-km of new on-road cycling facilities (bike lanes, buffered bike lanes, and paved shoulders)**, 239 km of new off-road facilities** (sidewalks and boulevard multi-use trails) **and the replacement of 155 km of off-road facilities** (existing sidewalks and boulevard multi-use trails that will be relocated). The Implementation Strategy has been prepared with careful consideration of the

upcoming capital road projects and other road work planned to date. It is comprised of projects in three groups:

- As part of existing projects in the Roads Capital Program: there are 352 lane-km of on-road cycling facilities and 216 km of new off-road facilities to build, and 137 km of off-road facilities to replace
- As part of on-going projects in the Roads Resurfacing Program: there are 124 lane-km of on-road facilities and 13 km of off-road facilities to build
- As stand-alone Active Transportation Projects: 18 lane-km of on-road facilities and 10 km of new off-road facilities to build, and 18 km of off-road facilities to replace

The breakdown by implementation strategy and the type of active transportation facility is summarized in Exhibit 5-1. The majority (77%) of new active transportation facilities will be built through the Roads Capital Program. As roads are widened, the Region will replace 137 km of off-road facilities. As rural roads are resurfaced, paved shoulders will be widened and surfaced; sidewalks will be built in settlement areas and multi-use trails through transition areas between urban and rural lands. Only a small portion of new active transportation facilities must be constructed as stand-alone active transportation projects. These links provide key connections in the network and are important projects to add to the Region's overall Capital Program.

Exhibit 5-1: Proposed Network by Implementation Strategy

Type of Active Transportation Facility by Implementation Strategy	Proposed Length (lane-km)	Percent of Total Length of AT Network
Road Capital Program	**705[a]**	**80%**
Build new on-road cycling facility	352	
Build new off-road cycling and / or walking facility	216	
Replace off-road facility (widening) [a]	137	
Road Resurfacing	**137**	**15%**
Build new on-road cycling facility (widening)	124	
Build new off-road cycling and / or walking facility	13	
Active Transportation Projects	**46[a]**	**5%**
Build new on-road cycling facility	18	
Build new off-road cycling and / or walking facility	10	
Replace off-road facility	18	
Total New Active Transportation Facilities	**733[a]**	**100%**

Notes:
a. Total length does not include 155 km of existing off-road facilities being replaced with road widening projects

All projects by municipality and implementation strategy (i.e. Roads Capital Program, Roads Resurfacing Program, or separate Active Transportation Project) are listed in Appendix F. It includes details about the length and cost by type of active transportation facility.

5.3 Construction Cost Estimates

The approximate cost to construct the proposed Cycling and Walking Network is $113 M (2013 Dollars) with the breakdown by implementation strategy as follows and illustrated in Exhibit 5-2:

- $86 M as part of the Roads Capital Program (76% of total AT network costs)
- $16 M as part of the Roads Resurfacing Program (14% of total AT network costs)
- $11 M for separate Active Transportation Projects (10% of total AT network costs)

Exhibit 5-2: Estimated Cost of Construction by Implementation Strategy

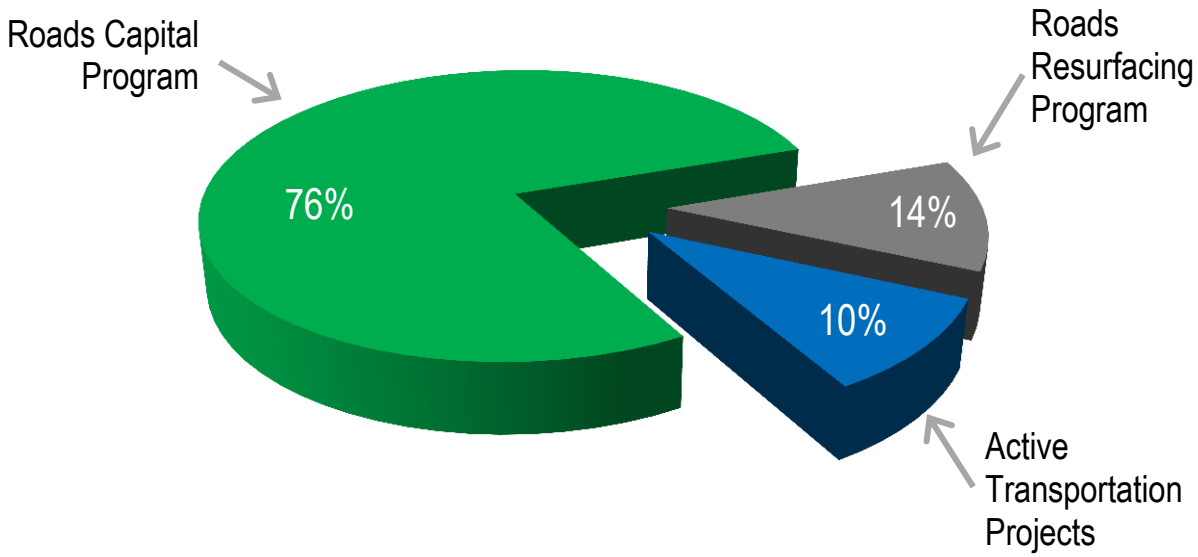


Exhibit 5-3 shows a further breakdown of estimated construction costs by type of active transportation facility. These costs do not include planning, property (if required), utility relocations (an allowance has been included for relocating some hydro poles as part of sidewalk construction in standalone active transportation projects), maintenance and operation. There are a few road projects where active transportation facilities were already planned and part of that project's capital cost and the cost has been adjusted to account for these projects.

Exhibit 5-3: Construction Cost Estimates by Implementation Strategy (2013 Dollars)

Type of Active Transportation Facility by Implementation Strategy	Approximate Construction Cost[a] ($ million)	Percent of Total Cost
Road Capital Program	**$86**	**76%**
Build new on-road cycling facility	$39.6	
Build new off-road cycling and / or walking facility	$27.7	
Replace off-road cycling and / or walking facility (widening)	$18.6	
Road Resurfacing	**$16**	**14%**
Build new on-road cycling facility (widening)	$12.3	
Build new off-road cycling and / or walking facility	$3.9	
Active Transportation Projects	**$11**	**10%**
Build new on-road cycling facility	$5.3	
Build new off-road cycling and / or walking facility	$5.2	
Total Cost to build AT Network	**$113**	**100%**

Notes:

a. Approximate costs are based on benchmark costs of construction for major contract items, plus 15% contingency and 15% engineering. It does not include planning, property (if required), utility relocations (an allowance has been included for relocating some hydro poles as part of sidewalk construction in standalone active transportation capital projects), maintenance and taxes.

5.4 Funding

Consistent with the Municipal Act, funding for active transportation facilities on Regional roads is designated as follows:

- Halton Region is responsible for the construction of bikeways located on-road (e.g. bike lanes, buffered bike lanes, and paved shoulders)
- The Local Municipality is responsible for the construction of new sidewalks and multi-use trails off-road in the boulevard. This is based on the responsibilities as set out in the Municipal Act[6].
- Halton Region is responsible for the replacement of existing sidewalks and multi-use trails off-road in the boulevard that must be relocated when a Regional road is widened

5.3.1 Other Sources of Funding

In addition to municipal funding, there are opportunities from other agencies to fund active transportation infrastructure and outreach. These often change, thus municipalities need to be attentive to new opportunities and be prepared to submit applications. For example, the current Ontario government is introducing a $10 million fund over three years cost-shared (up to 50% provincial contribution) to help municipalities build cycling infrastructure. This program – the Ontario Municipal Cycling Infrastructure Program – is expected to be launched by the end of 2014.

[6] Municipal Act, *Upper-tier sidewalks*, Section 55. (1) An upper-tier municipality is not responsible for the construction and maintenance of sidewalks on its highways and the lower-tier municipality in which the highways are located is responsible for the construction and maintenance of the sidewalks and has jurisdiction over that part of the highway, unless the municipalities agree otherwise. 2001, c. 25, s. 55 (1).

Metrolinx is investigating a number of investment strategies to jump-start transit and active transportation improvements in the Greater Toronto and Hamilton Area (GTHA).

Two sources of funding that will be consistently available for the foreseeable future include the following:

- The federal Gas Tax Fund has been legislated as a permanent source of federal infrastructure funding for municipalities. Eligible projects include the construction of active transportation infrastructure.

- The Federation of Canadian Municipalities' Green Municipal Fund, an endowment from the Government of Canada, provides grants to develop plans and conduct feasibility studies and field tests, and provides below-market loads usually in combination with grants to implement projects associated with environmental initiatives. These initiatives, for example, include improvements to active transportation infrastructure around transit nodes.

6. Supportive Recommendations

The Halton Region Transportation Master Plan (2031) – The Road to Change recommends pursuing a coordinated approach to active transportation. Education, by-law and tourism strategies are important supportive recommendations to help fulfill the Vision of the ATMP.

The Halton Region Transportation Master Plan (2031) – The Road to Change recommends pursuing a coordinated approach to active transportation. Education, enforcement and tourism strategies are important supportive recommendations to help fulfill the Vision of the ATMP. The initiatives outlined below will guide Halton Region's Public Works efforts. As outcomes are evaluated, initiatives can be modified to better respond to the region's needs and the Vision of the ATMP. Other departments at Halton Region are pursuing initiatives that complement or expand on those of Public Works.

6.1 Education and Promotion Strategies

Education and promotion of active transportation are essential components of an active transportation plan and are important to complement active transportation infrastructure. These initiatives are more efficient when:

- They target specific audiences such as school children, youth, older adults, workers, local communities, etc.
- They are coordinated to maximize their impact—one or a few well-coordinated organizations, supported by local champions can do more than dozens of isolated initiatives.
- They are linked with active transportation infrastructure improvements, such as a new sidewalk or bikeway project.

Initiatives that can be undertaken by Halton Region's Public Works to provide education and promotion around cycling and walking are presented in Exhibit 6-1. These strategies are centred that Public Works take a lead role. Other opportunities to pursue education and promotion strategies are available, i.e. through Halton's Health Department, Halton Regional Police Service, Halton School Boards, Metrolinx, etc. The establishment of an Active Transportation Working Group with staff of the Local Municipalities will help identify and co-ordinate these opportunities.

Exhibit 6-1: Recommendations for Halton Region's Public Works to Support Active Transportation Education and Outreach

Initiative	Deliverables / Outcomes
Community	
Establish an Active Transportation Working Group (ATWG) with staff of the Local Municipalities to facilitate coordination of active transportation initiatives	• Coordination of active transportation initiatives and infrastructure • Biannual meeting • Identification of common interest issues
Continue to update the Halton Region active transportation web portal www.halton.ca/activetransportation	• On-going updates to the webpage within the Halton Region website to reflect ATMP recommendations • Coordination with local municipalities and Regional departments for information, resource links and on-line tools
Promote cycling and pedestrian safety as part of Drive SAFE (Safety Awareness For Everyone) Campaign to communities, organizations and schools	• Drive SAFE campaign related to active transportation • Fact sheets, including safety, resources, etc. • Bicycle handlebar hang-tag with active transportation content, e.g. safety tips, resources, etc. • Reporting process for hazards that affect active transportation users
Within the Public Works Transportation Progress Report, provide an active transportation overview	• A summary of active transportation facilities and program updates in the Annual Report
Apply for Share the Road's Bicycle Friendly Community designation/ Canada's Walk Friendly Ontario designation	• Bicycle Friendly Community designation • Walk Friendly Ontario designation
Develop an active transportation map every 2 to 3 years	• Information about cycling routes via paper maps and web posting of electronic map
Develop in-house or support a third party active transportation trip planning tool	• Review of target audience and preferred technology to develop the tool. The type of web-based tool pursued will depend on the users of the tool, i.e. local residents or visitors to the region • Various examples and technologies are reviewed in Appendix E
Schools	
Continue support to school boards and local municipalities in the promotion of active school travel	• Continue to work with school administrators to improve active transportation along Regional roads • Inform school administrators when improvements or new active transportation infrastructure on Regional roads have been implemented

Initiative	Deliverables / Outcomes
Workplace	
Continue to promote Active Transportation through Smart Commute Halton incorporating active transportation into the year-round travel choices and programs	• Outreach events promoting sustainable workplace commuting, such as Bike to Work Day, Clean Air Commute, etc.
Facilitate learning opportunities for workplaces to learn more about active transportation	• Cycling safety workshop • Walking clinic
Develop Smart Commute employer guidelines that could include assist with creating a bicycle-friendly site	• Brochure on bicycle parking • Opportunities to provide a bicycle kit (pump, basic repair kit)

6.2 Legislation and By-laws

The Ontario Highway Traffic Act (HTA) defines rules of the road, and identifies the rights and responsibilities of drivers of vehicles, cyclists (bicycles are defined as vehicles so they have the same rights and responsibilities as drivers), and pedestrians when they cross or walk within the roadway. Recent reports, including Ontario's Office of the Chief Coroner's *Cycling Death Review*[7] *and Pedestrian Death Review*[8] and the Ontario Ministry of Transportation's (MTO) *Ontario's Cycling Strategy*[9]*,* recommend a comprehensive review and revisions to the HTA to ensure it is consistent and understandable with respect to cycling and walking, and easier to promote and enforce. A report to the Regional Public Works Commissioners of Ontario[10] also recognizes the need to provide better recognition of pedestrians in the HTA. To support the ATMP vision, it is important for Halton Region to encourage and participate in the consultation for the review and update of the HTA. Examples of proposed legislative and supporting regulatory amendments that are being pursued[11] include:

- Requiring drivers to yield the whole roadway to pedestrians at school crossings and pedestrian crossovers
- Allowing for new pedestrian crossing devices on low-speed and low-volume roads as requested by municipalities
- Allowing cyclists to use the paved shoulders on unrestricted provincial highways to promote safer opportunities to cycle
- Supporting cycling in urban areas by allowing municipalities to create contra-flow bicycle lanes to provide more direct routes and connectivity for cyclists
- Increasing the fine range and raising demerit points for convictions of dooring of cyclists
- Requiring all drivers to maintain a distance of one metre when passing cyclists

[7] *Cycling Death Review: A Review of All Accidental Cycling Deaths in Ontario from January 1st, 2006 to December 31st, 2010*, Office of the Chief Coroner for Ontario, Toronto, June 2012
[8] Pedestrian Death Review. Office of the Chief Coroner for Ontario, Toronto, September 2012
[9] *#CycleON Ontario's Cycling Strategy*, Ministry of Transportation, Ontario, Toronto, 2013
[10] CIMA+, *Amendments to the Ontario Highway Traffic Act to Support and Promote Active Transportation*, Regional Public Works Commissioners of Ontario, April 2011.
[11] These proposed amendments were introduced on a bill in March 2014 but died on the Order Paper when an election was called.

- Increasing the fine range for not using required bicycle lights and other reflectors/reflective material; and permit the use of flashing red lights as a safety feature on bicycles

A municipality may pass a by-law for a highway under its jurisdiction to allow them to enforce elements of the HTA or apply additional regulations. The by-law must be consistent with the HTA (not contradictory). As Halton Region implements active transportation facilities on Regional roads, by-laws will allow them to regulate and enforce the use, and manage risk. For example:

- The HTA allows designating a lane on a highway that has been divided into clearly marked lanes for use by specific classes or types of vehicles. It also requires the installation of official signs indicating the designation. However, the Reserved Bicycle Lane sign that would designate the lane for use by cyclists is not yet in HTA Regulation 615 (Signs). Halton Region requires a bicycle lane by-law so they may designate lanes for use by cyclists only and enforce this designation with the use of the Reserved Bicycle Lane sign.

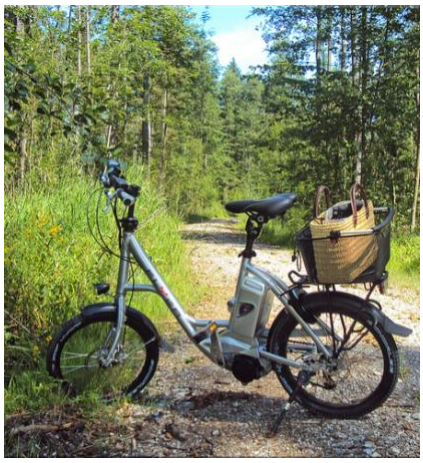
- The HTA neither explicitly prevents nor enables a municipality to designate paved shoulders for bicycle use on roads under its own jurisdiction. Halton Region may enact a by-law allowing cyclists to use paved shoulders, with exceptions as needed (emergency stopping, maintenance vehicles, pedestrians, etc.).

- The HTA prohibits cyclists from riding within or along a crosswalk and defines who has the right-of-way at crosswalks between motorists and pedestrians, but not with respect to cyclists. This has implications on the design and operation of boulevard multi-use trails and sidewalks. “Crossrides” for cyclists may be implemented; Halton Region may consider a by-law clarifying their use and defining right-of-way until such time the HTA is updated to cover this type of facility.

MTO evaluates new vehicles whether they can—or cannot—legally operate on public roads in Ontario and the safety requirements that must be met. Power-assisted bicycle or e-bikes meeting the MTO definition (e.g. maximum weight of 120 kg, 500 W motor or less that cannot exceed 32 km/h, etc.) are permitted where bicycles are allowed to travel. Municipalities may pass by-laws specific to bicycles, e-bikes and segways that prohibit them from municipal roads, sidewalks, paths or trails, and bike lanes under their jurisdiction. The current controversy surrounds lighter, motor-assisted bicycles with pedals often referred to as “pedelecs” that travel at average speeds of around 20 km/h, and heavier e-bikes that resemble scooters and Vespas or “e-scooters” that travel at higher average speeds of around 30 km/h, illustrated in Exhibit 6-2. On shared cycling and walking facilities, such as multi-use trails, the speed differential between pedestrians at typically less than 3 km/h and e-scooters is tenfold. Halton Region and the Local Municipalities should work together to better define active transportation users and vehicles permitted, or prohibited, on off-road active transportation facilities to promote their safe, shared use. A consistent by-law across the municipalities will be easier to communicate to the public and enforce.

Exhibit 6-2: Types of E-Bikes

Electric motor-assisted bicycles with pedals	Electric motor-assisted bicycles that resemble scooters
▪ Often referred to as “pedelecs” ▪ Average speed ~ 20 km/h	▪ Often referred to as “e-scooters” ▪ Average speed ~ 30 km/h ▪ Typically heavier than “pedelecs”



6.3 Active Transportation Tourism

The Ministry of Tourism, Culture and Sport established 13 tourism regions each with a Regional Tourism Organization, an independent, industry-led and not-for-profit organization. Halton Region is part of the Heart of Ontario Tourism Region (Hamilton Halton Brant), and is well-positioned less than an hour's train ride from Toronto and Hamilton to cater to the tourist seeking an active vacation, or looking for a destination accessible by public transit and / or active transportation. Walking is highlighted along the Bruce Trail and Lake Ontario Waterfront Trail, and a number of cycling routes and destinations for recreational, touring, fitness and mountain biking are highlighted. A new cycling route, the Greenbelt Cycling Route is also being planned and will be launched with an inaugural cycling tour in 2015. GO Transit bus and train service provides access to Halton Region to those travelling without a car or with a bicycle. Halton Region's Economic Development is currently developing tourism initiatives for cycling. Halton Region Public Works maintains and publishes the active transportation map, with latest version released in 2014.

Halton Region's Public Works can support on-going and expansion of active transportation tourism by:

- Continue to provide support (promotion, route information, etc.) to cycling event organizers, competitive and non-competitive, as needed
- Develop a regional way-finding and destination signage strategy for cycling and walking routes

- Continue involvement with Ontario By Bike (formerly Welcome Cyclists), Waterfront Regeneration Trust, etc. to promote local businesses and services. Include information on active transportation webpages, maps, tourist literature, etc.

7. ATMP into Action

Halton Region's Public Works will be responsible for taking the Active Transportation Master Plan and putting it into action.

7.1 Roles and Responsibilities

The Active Transportation Master Plan has been prepared to guide the delivery of active transportation services within Public Works at Halton Region and will be responsible for the following:

- Plan for the implementation of the Regional Active Transportation Networks:
    - Fund, design, implement and maintain the on-road bikeways (paved shoulders, bike lanes, and buffered bike lanes) on Regional roads as presented in the recommended Regional Active Transportation Networks.
    - Work with the Local Municipalities to co-ordinate the implementation of the sidewalks and boulevard multi-use trails on Regional roads as presented in the recommended Regional Active Transportation Networks. Right-of-way requirements will incorporate the space / design for facilities and will be implemented as part of the Roads Capital Program; Local Municipalities are responsible for funding and maintaining the facilities as per the Municipal Act.
    - Determine active transportation treatments at highway interchanges in consultation with the Ministry of Transportation Ontario (MTO).
    - Encourage the Local Municipalities to implement the Routes of Regional Significance and their own active transportation networks on Local roads and corridors
- Implement supportive recommendations as outlined in Section 6
- Review, assess and update (as required) the best practices for the design of active transportation facilities as presented in the Active Transportation Design Toolbox (Appendix G) from time to time as required
- Review every five years the need to update the Active Transportation Master Plan
- Initiate an Active Transportation Rationalization review process in consultation with the Local municipalities to investigate the alternative jurisdictional and funding arrangement for off-road Active Transportation facilities within the Regional Right-of-Way.

Other departments at Halton Region are pursuing initiatives that complement or expand on those of Public Works.

7.2 The Development Application Process

Transportation and land use interact with each other. Land use will have a fundamental impact on travel demand. Site organization, layout, infrastructure and amenities will influence different modes of travel. These design elements can enhance the safety, convenience and attractiveness of cycling and walking trips.

In Halton, all development applications are submitted and approved through the Local Municipality. Halton Region is a commenting agency. Applications are received by the Region's Planning Department and distributed to the various internal departments for review and comment. Comments are compiled and returned to the Local Municipalities for consideration. Some comments will be guiding in nature while others will be conditions required to be met before development can proceed.

The Active Transportation Master Plan and AT Network will be used as a reference in the development application review process. Local Municipalities will review and approve the development applications and the need for or impact on active transportation facilities along Local streets or off-road trails, and sidewalks and boulevard multi-use trails along Regional roads. Halton Region will comment on the impact of the development on adjacent or nearby Regional roads and associated Regional road improvements, including any on-road active transportation facilities. If the Regional road adjacent to a proposed development will be widened, the Region will ensure that property is dedicated to meet the right-of-way requirements, including accommodating both the on-road bikeways, sidewalk and / or boulevard multi-use trail. The ATMP will provide guidance on where on-road versus off-road facilities on Regional roads are being planned that will assist in the development review process.

Halton Region's Public Works is undertaking the development of Transportation Demand Management (TDM) Guidelines for non-residential development. Requirements and recommendations are to be based on specific development characteristics such as availability of transit, presence of bicycle facilities, land use mix, density, walkability, etc.

7.3 Maintenance of the Active Transportation Network

Ontario's *Municipal Act* legislates that municipalities are responsible for keeping roads and bridges under their jurisdiction in a reasonable state of repair. In the case of two-tier municipalities, the *Municipal Act* states that the Local Municipality is responsible for the maintenance of sidewalks on Regional roads, unless the municipalities agree otherwise. Currently, maintenance of roadways and sidewalks on Regional roads in Halton Region compiles with the Municipal Act, i.e., an alternate agreement is not in place.

The minimum standards of maintenance and repair are set out by the Ministry of Transportation in *Regulation 239/02*[12]. The regulation covers:

- Monitoring of conditions including frequency of patrolling to check for conditions, weather monitoring and snow accumulation
- Addressing winter road conditions including snow accumulation and ice formation on roadways
- Potholes, shoulder drop-offs, cracks, and debris
- Lighting, signs and traffic control signals

[12] Minimum Maintenance Standards for Municipal Highways, O Reg 239/02, <http://canlii.ca/t/51z4z> retrieved on 2014-03-03

- Bridge deck spalls
- Roadway and sidewalk surface discontinuities

The minimum standards of maintenance and repair in *Regulation 239/02* are based on hazardous conditions for motorists. It should be recognized that pedestrians and cyclists have lower tolerances to some of the conditions and deficiencies, e.g. pothole depth and width. Future study of minimum standards for active transportation is needed at both the Provincial and local level.

Halton Region has developed their own maintenance service levels that meet or exceed the minimums set out in the above regulation. These are discussed below with respect to the needs of active transportation users.

7.3.1 Winter Maintenance

Halton Region contracts all winter maintenance for Regional roads to the four Local municipalities. All on-road bikeways, i.e., bike lanes and paved shoulders are included in the road maintenance contract. Local Municipalities are each responsible for maintaining sidewalks, boulevard multi-use trails, curb ramps and transit stops / shelters along Regional roads and their own Municipal Roads.

The major activities related to winter maintenance are:

- Snow plowing, and snow removal and disposal
- Salt and sand storage, and salt or blended sand spreading

For cyclists, cleared roads, combined with good clothing and cautious riding, minimize the main barriers to winter riding. Cycling can become a convenient and routine mode of transportation all year round.

Halton Region's level of service for winter maintenance on Regional roads typically exceeds the minimum maintenance standards set by Regulation 239. The contracts with the Local Municipalities, some of which in turn contract out to private firms to undertake the work, requires them to meet the Region's service levels for roads and follow the Region's Salt Management Plan. The Region's level of service standards addresses maintaining the roadway curb to curb in urban areas; and the full width of the pavement surface in rural areas. Thus, there are no special treatments for on-road bikeways; they receive the same high level of service as set out for the adjacent travel lane.

The Regional Active Transportation Network recommends buffered bike lanes on select Regional road corridors. The planning and design of these future facilities will consider how the buffer or separator from the general traffic lane will be designed and installed or removed to allow winter maintenance of the on-road bikeway to continue at the current level of service.

7.3.2 Surface Conditions

As with winter maintenance, Halton Region is responsible for maintaining the surface conditions on Regional roads including on-road bikeways, while the Local Municipalities maintain sidewalks, and boulevard multi-use trails along Regional roads. Activities include:

- Repairs to potholes, shoulder drop-offs and pavement cracks
- Removal or sweeping of debris

Street sweeping provides a form of dust control, reduces the frequency of catch basin cleanouts / clogs, and maintains a clean, debris-free roadway. In southern Ontario, street sweeping typically occurs after freezing temperatures have passed and snow has melted away, which provides a sweeping season of about 6 to 8 months. Usually there is an initial spring clean-up followed by routine sweeping at regular intervals, and a fall leaf sweeping effort. The amount of sand and debris on paved shoulders can be affected by the number and frequency of unpaved driveways with spillage occurring onto the paved shoulder.

Accumulated sand and debris can make surfaces slippery and dangerous for cyclists. There is an increased risk of tire punctures; cyclists may swerve in traffic to avoid debris. On-road bikeways are recommended to be swept a minimum of three times a year starting as soon as the snow melt is complete in March / April. Monitoring and responding to reporting along bikeways can help Halton Region develop a routine schedule to manage risk.

Cyclists are generally more susceptible to pavement defects than motorists. Rough surface, cracks and potholes can slow cyclists, cause them to lose control and fall, damage wheel rims and result in injury to the cyclist. A smooth surface with good skid resistance is required to make cycling comfortable. Generally, corrective measures are required to address:

- Bumps, depressions and cracking that would be unavoidable in the proposed bikeway that are 2 cm above or below the surface if perpendicular to the direction of travel, or 1 cm above or below the surface if parallel to the direction of travel

- Longitudinal cracking more than 1.5 cm wide and located 0.2 m or more within the bikeway (cyclists can generally avoid cracks on the outer edges of the bikeway). Routed crack sealing parallel to the direction of travel should be avoided; repaving should be used as an alternate (see pavement cuts and restorations below)

- Utility or catch basin covers within the bikeway that are 2 cm above or below the road surface if perpendicular to the direction of travel, and 1 cm if parallel to the direction of travel

- Type and orientation of catch basin grates to ensure that they are bicycle-friendly and will not catch a bicycle wheel

- Pavement cuts and restorations required for maintenance of underground infrastructure should meet the above tolerances. Pavement cuts and joints within a bikeway or near the edge of the road should generally be perpendicular to the direction of travel and located 0.2 m or less within the bikeway or edge of road.

Cyclists can participate in monitoring the surface condition of on-road bikeways on Regional roads and bring attention to surface conditions that are hazardous and require repair through the Region's Reporting process. Reasonable response times for roadway repairs are set out in Regulation 239/02 *Minimum Maintenance Standards for Municipal Highways.*

7.3.3 Reporting of Hazards

The 311 telephone number is available to anyone calling from within Halton for all non-emergency calls for direct access to Halton government services. It is free, multilingual assistance for access to services offered by Halton Region, Local Municipalities, Police Services (non-emergency calls) and Halton catholic and public school boards. The condition of municipal infrastructure can be reported by calling 311 or through 311 Halton online web service.

The ability for pedestrians and cyclist to report hazards within the 311 Halton service shows an equitable commitment to addressing day-to-day conditions for active transportation alongside other conventional modes of travel.

7.4 Pilot Projects

Pilot projects allow testing of new design ideas or practices to see how they work within the local context. They can trial new types of facilities that have not yet been implemented in Halton Region to see how they work before widespread implementation, introduce new practices to address operational concerns, or showcase new technology. Four potential pilot projects have been developed to showcase and test new ideas in Halton Region, one in each Local Municipality and are described below. Additional details or concept plans are provided in Appendix H.

7.4.1 Two-stage Left-turn Bike Box, Burlington

A two-stage, left-turn bike box is a designated area where cyclists may queue to facilitate a two-stage left-turn at a signalized intersection. Examples are provided in Exhibit 7-1. If a cyclist on a major street wants to turn left, they travel through on the major street on the green phase and wait in this area that is located in front of the cross street approach until the signal turns green for the cross street traffic. Then the cyclist proceeds on the cross street green phase, completing the “left-turn” from the major street to the cross street. This mimics a pedestrian crossing of an intersection in “two stages”.

The main benefits of a two-stage, left-turn bike box are as follows:

- Reduces the complexity and improves the ability of cyclists to safely and comfortably make left turns
- Provides a defined / designated queuing space for cyclists making a two-stage left-turn so other road users know where to expect them, and prevents conflicts arising from cyclists queuing in a crosswalk or bike lane. They can position themselves correctly in front of the cross traffic.
- Assist cyclists in making left-turns at large intersections where turning is difficult due to large volumes of traffic
- Encourage two-stage left-turns where a conventional left turn would be hazardous

The disadvantages include cyclists must wait for two phases of the traffic signal rather than one to make the left turn, and cyclists may feel they are waiting in an illogical or uncomfortable location in advance of cross street traffic. The design of the waiting area requires finding a location where the bike box is out of the way of the major street traffic, including motorists in travel lanes, cyclists in a bike lane and pedestrians in the crosswalk.

Exhibit 7-1: Examples of Two-stage Left-turn Bike Boxes

Sherbourne Street at Shuter Street, Toronto	Laurier Avenue at Bank Street, Ottawa
	

A concept plan was prepared to implement a two-stage left-turn bike box in Burlington at the intersection of Upper Middle Road and Appleby Line. Both roadways have bike lanes so it is a good location to test the performance of this pilot project.

7.4.2 Bicycle Detection, Halton Hills

Some traffic phases at a signalized intersection, such as the green phase for side street traffic, are triggered only when motor vehicles are present. The detection of the motor vehicle can be by various methods including loop detectors, microwave, infrared, acoustic, video, etc.

Loop detectors are commonly used in Halton Region. They detect the presence of metal (any metal that can conduct electricity such as steel, aluminum, etc.). These loops can typically detect bicycles if the cyclist knows where to position their bicycle and the sensitivity of the loop is adjusted. This is achieved as follows:

- Use a bicycle wheel or crankset to test the sensitive location in the loop, typically over the loop slot for a conventional quadruple loop, and adjust the sensitivity of the loop, if required.

- Mark bicycle sensitive location with a bicycle loop detector pavement marking and a sign indicating “bikes wait on symbol to trigger green” (see Exhibit 7-2).

Exhibit 7-2: Example of Bicycle Detection at a Signalized Intersection (Hamilton)

Bicycle Loop Detector Pavement Marking	Bicycle Signal Loop Detection Stencil Sign
	

A concept plan was prepared to implement bicycle detection in Halton Hills at the intersections of Trafalgar Road at 5 Side Road (implemented in the Summer 2014), and the north and south offset legs of Sixth Line at Steeles Avenue.

7.4.3 Bicycle and Pedestrian Counters, Milton

Monitoring cycling and walking activity can provide Halton Region with information on the level of use of various types of facilities in different locations, and the variation in use by time of day, day of the week and seasonally. This can inform planning for active transportation, monitoring the investment, and can even encourage others to try active transportation if they realize others are doing it. Counting technologies allow for permanent counting stations to be installed with or without public or web-based displays of the data, and portable counting devices that can be moved around as needed to see the volume of use at numerous locations. Different devices count cyclists or pedestrians or the total of both, or two devices can be used together to distinguish between cyclists and pedestrians. Automatic counters may also be combined with a public display. Examples of various counters are provided in Exhibit 7-3.

Halton Region will review and consider purchasing portable counters to use in various locations throughout the region to determine the level of cycling and walking. These can be used to determine the level of use before and after a facility is implemented and to determine the number of participants in various events involving cycling and walking. This pilot project also includes testing a cyclist public display counter. A planning process is required to determine an effective site.

Exhibit 7-3: Examples of Cyclist Public Display Counters

Trail User Counter Public Display, Canmore	Cyclist Counter Public Display, Ottawa
	

7.4.4 Accessible Multi-use Trail Crossing, Oakville

Ontario's *Highway Traffic Act* (HTA) requires cyclists to dismount and walk through crosswalks. When using a multi-use trail located along a road, dismounting would be required at every intersection. This is very impractical given the energy required to dismount and mount a bicycle. A new pavement marking called a "crossride" is being introduced in Ontario to allow cyclists riding on boulevard multi-use trails to cross intersections without dismounting.

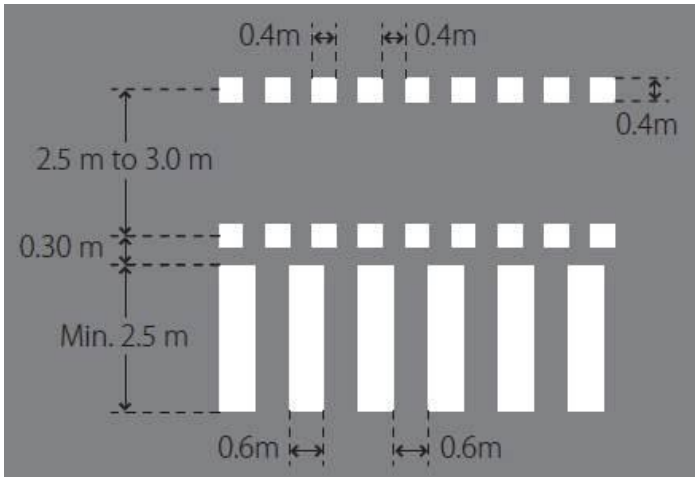
The *Accessibility for Ontarians with Disabilities Act* (AODA) regulations define the standards for accessible recreational trails and curb ramps at intersections.

The pilot project combines the new crossride and associated signage with accessible street crossing standards resulting in a new concept for multi-use trail crossings at signalized intersections. The new concept is intended to improve the awareness of trail users and road users of the potential conflicts when crossing the intersection. It considers balancing the following design elements:

- Crossride placement within the intersection so that it is direct, in line with the path of travel, offset from the edge of pavement, perpendicular to traffic and spaced at corners to allow the development of two separate curb ramps at each corner
- Curb ramp location, orientation and grade to accommodate cyclists and pedestrians including those with mobility devices or vision impairments
- Walking hazard indicator location on the curb ramp

- Pavement markings for the combined crossride (see Exhibit 7-4)
- Signage for trail users and motorists warning them of the crossing (see Exhibit 7-4)
- The need for bicycle signal heads to control cyclists using the cross-ride

Exhibit 7-4: Signs and Pavement Markings for a Multi-use Trail Crossing at a Signalized Intersection

Separate Pedestrian and Crossride Pavement Markings	Warning Signs
	

The accessible, multi-use trail crossing treatment pilot project is being considered for the intersection of Dundas Street at Third Line, Oakville. This would be the first known location in Ontario where all of these elements have been considered together.

7.4.5 Performance Monitoring

A monitoring plan is recommended to determine the performance of the pilot projects. It is intended to:

- Provide a framework to decide the outcome of the pilot project, i.e. influence on cycling and / or walking in terms of safety, comfort and convenience, effect on all road uses, construction, operational and maintenance issues, etc.
- Identify refinements or modifications to the designs during the pilot
- Consider lessons learned for future projects including performance of the overall project, modifications to the design, materials, etc. and additional testing that may be recommended

The monitoring plan may incorporate on-going, routine Public Works activities around data collection such as user counts and collision reports, and pilot project specific data collection such as conflict analysis, material or equipment testing, etc. It will also require feedback from various staff and stakeholders, such as feedback and surveys of opinions and preferences of cyclists, pedestrians and other road users. The plan should be prepared and put in place prior to

implementation so both “before” and “after” data can be evaluated. An assessment would summarize the performance and issues as a framework on which staff could make a decision regarding recommended design criteria and additional locations for the application.

Appendices

A. Active Transportation Advisory Committee (ATAC) and Technical Agency Committee (TAC) Meeting Minutes

B. Public Notices, PICs, Workshop Materials and Posters

C. First Nations and Public Comments Received

D. Local Municipal Active Transportation Networks

E. Trip Planning Technologies

F. Active Transportation Facility Benchmark Costs and Project Listing

G. Active Transportation Design Toolbox

H. Existing and Proposed Regional Cycling & Walking Network Maps