

**CITY OF HAMILTON**

**PUBLIC WORKS DEPARTMENT**  
**Transportation Division**

<b>TO:</b> Mayor and Members General Issues Committee	<b>WARD(S) AFFECTED:</b> CITY WIDE
<b>COMMITTEE DATE:</b> November 6, 2013	
<b>SUBJECT/REPORT NO:</b> Pedestrian Mobility Plan (PW13078) - (City Wide) (Outstanding Business List Item)	
<b>SUBMITTED BY:</b> Gerry Davis, CMA General Manager Public Works Department	<b>PREPARED BY:</b> Steve Molloy (905) 546-2424, Extension 2975 Al Kirkpatrick (905) 546-2424, Extension 4173 Don Hull (905) 546-2424, Extension 1860
<b>SIGNATURE:</b>	

**RECOMMENDATION**

- (a) That the City of Hamilton Pedestrian Mobility Plan (PMP), attached as Appendix A to Report PW13078, be approved;
- (b) That the General Manager of Public Works be authorized and directed to file the Pedestrian Mobility Plan with the Municipal Clerk for a minimum thirty (30) day public review period;
- (c) That the General Manager of Planning and Economic Development be authorized to incorporate the Pedestrian Mobility Plan's principles and guidelines into the City's Comprehensive Development Standard regarding the planning and implementation of pedestrian facilities in future developments and subdivisions;
- (d) That staff be directed to incorporate the Pedestrian Mobility Plan into the 2014 Development Charges By-Law Study Update;
- (e) That the Pedestrian Mobility Plan and the pedestrian "toolbox" be implemented using a process termed "Routine Accommodation", whereby when streets are reconstructed for infrastructure repair, replacement, upgrades and/or civic street-scape improvements, pedestrian improvements will be incorporated as part of the overall project, understanding that the implementation of a PMP for the City will potentially add approximately 2% to 7% to the costs of each road rehabilitation or expansion project;

- (f) That staff be directed to report back to General Issues Committee on opportunities to consolidate existing committees that have similar mandates and terms of reference to create a Mobility Committee for 2015;
- (g) That the Pedestrian Mobility Plan be identified as completed and removed from the General Issues Committee Outstanding Business List.

## **EXECUTIVE SUMMARY**

The creation of a Pedestrian Mobility Plan (PMP) was a recommendation arising out of the 2007 Council approved City-Wide Transportation Master Plan, the 2008 International Charter for Walking (endorsed by City Council), the Recreational Trails Master Plan, plus numerous other City initiatives that identify pedestrian mobility as an essential part of City-building. The Pedestrian Mobility Plan is being undertaken consistent with Phase 1 and 2 of the Municipal Environmental Assessment (EA) process.

The City of Hamilton is one of only a few municipalities in Ontario to undertake a pedestrian-specific plan and the first to address the pedestrian environment at this level of detail for a master plan. This demonstrates the City's commitment in accommodating pedestrian mobility issues and active transportation on the whole within the City.

Council's endorsement of the Pedestrian Mobility Plan authorizes and directs a shift from traditional road design by starting with the requirements for pedestrians and cyclists first at the right of way (ROW) and working to the centre line.

This Pedestrian Mobility Plan focuses on rebalancing pedestrian and vehicular mobility on Hamilton's streets by providing for pedestrians needs, while accommodating vehicular traffic within the streetscape. In the past, transportation geometric design has started at the centre line and moved outwards to the periphery property lines ensuring adequate space for vehicular traffic. The remaining space left over at the edges is used to accommodate pedestrian and cycling needs.

The Pedestrian Mobility Plan will be implemented using a process termed "Routine Accommodation". When streets are reconstructed for infrastructure repair, replacement, or upgrades, and civic streetscape improvements, pedestrian improvements will be implemented as part of the overall project. Over time, this program of "routine accommodation" will recreate a pedestrian environment that is safer and more interesting thereby enabling many more functional pedestrian trips for shopping, work, play and civic life. Endorsement of a Pedestrian Mobility Plan for Hamilton is expected to add approximately 2 to 7% to the costs of each road rehabilitation or expansion project.

### **Routine Accommodation**

In the Pedestrian Mobility Plan, routine means "a series of actions regularly followed", while accommodation means "the process of adapting or adjusting to making pedestrian mobility safer and more interesting" (this is consistent with Complete Streets approach). Routine accommodation occurs when City operational, infrastructure, planning,



legislative and communication decisions also improve pedestrian infrastructure when streets, services and roads are maintained and renewed throughout the City.

Decisions are appropriate, objective, traceable and defensible.

The key improvements incorporated within this Plan that will make this possible include:

- A pedestrian checklist intended to provide City staff with background information essential to the application of the design toolbox solutions.
- A context sensitive series of areas in the City that address streetscape differences throughout the City to highlight unique design opportunities while being respectful of the Official Plan including mapping and designations.
- A series of design toolbox solutions, policies and programs intended to improve pedestrian safety and increased pedestrian mobility.
- A decision process that brings together all the various City Departments and public stakeholders necessary to make decisions on pedestrian mobility improvements.

As time passes, the consistent application of toolbox solutions and new City standards will enhance pedestrian mobility throughout the City. These techniques eliminate the need for a specific list of capital projects.

**The Pedestrian Mobility Plan strives to achieve the following Vision:**

- Increased inclusive mobility.
- Well designed and managed spaces and places for people.
- Improved integration of networks.
- Supportive land use and spatial planning.
- Reduced road danger.
- Less crime and fear of crime.
- More supportive site planning and engineering standards.
- A culture of walking.

**The Pedestrian Mobility Plan goals are:**

- Creating healthy, efficient and sustainable communities where people choose to walk.
- To increase the number of people walking in the City.
- To provide a pedestrian environment that ensures personal safety and an attractive and interesting walking environment.
- To increase public health, active transportation and pedestrian links.
- To improve pedestrian movement by focusing on access to community institutions, recreational and leisure opportunities and employment and retail services.
- Create a walkable City to attract new residents.

**The Pedestrian Mobility Plan objectives are:**

- Increase the number of daily walking trips in the near and long term.
- Encourage walking as a mode of transportation between home, work and other destinations.

- Increase awareness of non-motorized networks, safety requirements, and apply appropriate standards, to support increased pedestrian activity.
- Enhance coordination of multi-modal trips with pedestrian movement to support both pedestrian, cycling and transit facilities.
- Improve the pedestrian environment with supportive infrastructure, streetscape design, and new development.
- Develop an implementation framework and responsibility prescribing how the Pedestrian Mobility Plan will be implemented.
- Support and integrate the pedestrian realm with Tourism and Economic Development.
- Develop a framework that is consistent with existing City and Provincial policies.

The Pedestrian Mobility Plan identifies the need to further improve pedestrian safety and the number of walking trips in order to achieve the City-Wide Transportation Master Plan targets. In addition, the study evaluated existing pedestrian policies, procedures and programs in order to develop a sustainable implementation strategy that will identify priorities for improvements and performance indicators. In addition, the intended outcomes of the Pedestrian Mobility Plan are to improve the quality of the pedestrian environment and therefore improving the level-of-service provided from the pedestrian perspective.

**The key highlights of the plan are as follows:**

- Neighbourhood-level pedestrian planning should characterize the health related attributes of its residents in order to accommodate age friendly land use and transportation approaches. Once this has been established, physical design measures should be selected and employed.
- Complete approach to designing the street to accommodate all users, including the pedestrian in order to meet all travel requirements.
- Design solutions that are appropriate for individual site characteristics (Context-Sensitive) will encourage the provision of amenities within the right of way that make public transit, pedestrian movement and cycling effective alternative transportation modes including better access to destinations, and appropriate clear zone widths.
- Land use patterns that are connected with pedestrian facilities and oriented to streets by maximizing existing planning policies.
- Enhancing and/or developing supportive policy that addresses matters such as urban braille, transit, transportation demand management, traffic calming, pedestrian crossings, walking to school programs, education, enforcement and age-friendly design.

Staff recommends establishing a Mobility Advisory Committee (MAC) to act as an advisory committee of City Council to assist in creating a more walkable, bikeable and transit-friendly City. The opportunity to incorporate this change would be in January 2015. Staff will investigate the efficiency of consolidating existing committees and will report back to Council.

The Pedestrian Mobility Plan is provided as '**Appendix A**' to this report.

**Alternatives for Consideration - See Page 14**

**FINANCIAL / STAFFING / LEGAL IMPLICATIONS**

**Financial:** The approval of the plan does not have immediate financial implications, other than those applicable through sidewalk improvements. There are no stand-alone infrastructure projects identified in the plan. The plan provides direction on the various pedestrian alternatives maximizing the use of the road right-of-way (ROW) space during the Secondary Planning and the detail design processes, as well as other City projects/initiatives associated with the implementation of pedestrian infrastructure and operations. This has been referred to as the “Routine Accommodation” approach to implementation, which embodies the complete street approach to ROW space design within the context of the current national and provincial design guidelines.

Much of the existing capital budget is expended on infrastructure rehabilitation, repairing and/or replacing aging roads, sidewalks and to upgrade traffic signal hardware and systems to improve pedestrian mobility. During all road construction and rehabilitation projects, the pedestrian environment is incorporated into the overall design scheme and is allocated a portion of the overall project budget. In addition, a portion of funding is typically available annually for the rehabilitation of sidewalks, usually for safety and spot improvements only. Where opportunities exist, sidewalk rehabilitation projects for full City blocks are undertaken to optimize capital expenditures. Similarly, the annual sidewalk extensions program aimed at addressing network gaps.

The need for investment associated with improving pedestrian infrastructure in coordination with the above programs is expected to increase. According to the regulation: *Accessibility for Ontarians with Disabilities Act (AODA), 2005 (Integrated Accessibility Standards)*, Design of Public Space in the Built Environment Standard, the minimum clear width (with no obstructions) of exterior walkways must have a minimum of one and a half (1.5) metres. In other words, a clear zone may or may not be the entire width of a sidewalk. For example, a sidewalk width of one point eight metres (1.8m) or greater may only have a clear zone width of one and a half metres (1.5m) due to obstructions to accommodate street signs, poles, and other similar infrastructure where necessary.

A minimum clear width range between one and a half (1.5) and three and a half (3.5) metres has been identified in the Pedestrian Mobility Plan to be consistent with walkability principles and to accommodate a wide range of users with varying levels of ability. Wider clear zone widths (those above the one and a half (1.5) metre AODA minimum) have also been identified for high usage corridors such as downtown, near transit/mobility hubs, within BIA areas and complementary land uses identified in ‘**Appendix B**’.

The unit costs identified in Table 1 below to accommodate wider clear widths will increase when compared with other road construction cost considerations. The current cost to construct a new roadway with a one and a half (1.5) metre sidewalk on one-side of the road (including all service utilities) is approximately (\$5,500) per metre. With the proposed increase in clear width the overall impact on individual capital budget projects

will be within approximately a 2 to 7% range increase of the overall project cost. This amount is small relative to the overall benefits an improved pedestrian environment provides.

**Table 1**  
**Cost Implications of Proposed Minimum Clear-Zone Widths**

Clear Zone Width	Cost One-side Per m	Relative Cost of Total Project (%)	Cost Two-sides Per m	Relative Cost of Total Project (%)
Minimum 1.5 m (existing)	\$85	1.5%	\$170	3.0%
Minimum 2.0 m	\$114	2.0%	\$228	4.0%
Minimum 3.5 m	\$198	3.5%	\$396	6.8%

The Development Charges By-Law is due for renewal in 2014, which will permit a reassessment of the calculations relative to road and sidewalk service levels, whereby the capacity for additional pedestrian infrastructure can be justified through the demonstrated growth through intensification. This report can be incorporated into that process to recover costs in new developments.

The provision of sidewalks on both sides of local roadways (including new business parks) has also been identified within the Pedestrian Mobility Plan. This provision should be incorporated into the Comprehensive Development Standard. Currently, only Arterial and Collector Roads require sidewalks on both sides of the road in new developments. This change would increase the walkability and marketability of new developments, achieve the Official Plan and Transportation Master Plan visions, and thus reduce future costs associated with sidewalk extensions program, which is currently in a deficit in excess of fourteen (14) million.

Maintenance practices are periodically reviewed to identify operational efficiencies through Council motions and resident requests. (For example, winter maintenance practices for which are currently being undertaken by Public Works. Any increase in the level-of-service of maintenance for sidewalks and other pedestrian infrastructure is a normal part of the annual capital and operating budget deliberations).

Any pedestrian-specific projects (i.e. projects that are not part of routine accommodation) would require formal stand-alone capital budget submissions. These will have to compete with other capital budget priorities. Capital budget submissions will reflect these current budget impacts wherever they can be quantified. Currently, there is an existing capital account of \$50,000 available to assist in pedestrian education and monitoring initiatives.

**Staffing:** There are no immediate staff impacts at this time. If a future position is deemed necessary, funding for this position would come in the form of an Enhancement request and will be part of a future Budget submission.

**Legal:** There are no legal implications of the plan or associated implementation plan.

The plan was developed with the intent to conform with the AODA Design of Public Space in the Built Environment Standard legislation.

## **HISTORICAL BACKGROUND**

Several City initiatives led to the creation of a Pedestrian Mobility Plan, these include:

- The 2005 New Land Use Plan for Downtown Hamilton: Putting People First
- Establishing a Pedestrian Mobility Plan was a recommendation from the 2007 council approved City-Wide Transportation Master Plan
- The 2008 International Charter for Walking (endorsed by City Council)
- The Recreational Trails Master Plan plus numerous other City initiatives that identify pedestrian mobility as an essential part of City-making
- In 2009, City staff lead by Public Health along with representatives from the community participated in the Canada Walks Master Class as a follow-up to the endorsement of the International Charter for Walking. This included a series of detailed workshops and discussions with the intention of creating and promoting walking and pedestrian oriented communities.

The culmination of the above directives and initiatives fed into the development of a scope of work to create a Pedestrian Mobility Plan in November 2010. The Plan has been undertaken consistent with Phase 1 and 2 of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (October 2000, as amended in 2007 and 2011).

Although not a Council approved document, the consultant (O'Connor Mokryrcke in association with McKibbon Wakefield Inc., CIMA+, Toole Design Group, and DMD & Associates Ltd.) has been recognized for their contribution to planning excellence. For their efforts in developing the plan with the City, they have won Planning Excellence Awards from both the American Planning Association (Upstate New York Chapter) and the Ontario Professional Planning Institute (OPPI) for the Pedestrian Mobility Plan: Step Forward. This recognition by these professional accreditation organizations further demonstrates the innovation and approach put into the Plan's development.

A Pedestrian Mobility Plan report has been prepared documenting the study process followed to determine the recommended strategy.

## **POLICY IMPLICATIONS/LEGISLATED REQUIREMENTS**

One of the challenges of developing this plan was how to address the numerous policies relating to pedestrian issues.

The Pedestrian Mobility Plan was undertaken in compliance with Provincial Legislation and Policy as well as Municipal Policy, initiatives that embody the spirit of the Pedestrian Mobility Plan. The list below provides a summary of many of the policy documents reviewed in the creation of the Plan and does not represent the entire list of policies.

**Provincial Legislation, Plans & Policy:**

Planning Act

- The Pedestrian Mobility Plan and recommended toolbox solutions are consistent with the purpose and intent of this legislation by facilitating a sustainable and efficient transportation system, contributing to creating a healthy community, and by protecting public health and safety.

Highway Traffic Act

- The toolbox solutions developed within the Pedestrian Mobility Plan are consistent with the traffic regulations outlined in this legislation, without compromising pedestrian mobility direction provided in land use and health legislation.

Health Promotion & Protection Act

- The Pedestrian Mobility Plan and the toolbox solutions can assist with chronic disease and injury prevention and may be interpreted as a pro-active healthcare strategy.

Accessibility for Ontarians with Disabilities Act (AODA)

- The AODA Design of Public Space in the Built Environment Standard provides direction on improving the built environment provided for pedestrians with mobility needs. The Pedestrian Mobility Plan has been developed by closely monitoring this legislation to coordinate the City's Plan with its implementation.\*  
*Applicable only to new construction and planned redevelopment*

Environmental Bill of Rights

- Energy conservation planning relating to transportation through increased pedestrian networks and connectivity is a common theme identified throughout the Pedestrian Mobility Plan.

Provincial Policy Statement

- The Pedestrian Mobility Plan and solutions toolbox addresses the relationship building healthy strong communities and long-term prosperity with planning for public streets, accessibility, and cost-effective modes of transportation.

Places to Grow

- The Pedestrian Mobility Plan provides a means to facilitate walking and mobility as a viable alternative transportation mode, which is essential in creating complete communities that consists of integrated transportation networks and is supportive of intensification.

The Big Move (Metrolinx Regional Transportation Plan)

- Active transportation, as defined in the Big Move highlights the importance of pedestrian and mobility planning as being essential to providing connections to mobility hubs. These are all important parts of the Pedestrian Mobility Plan.

#### Action Plan for Healthy Eating & Living

- Active and safe routes to school, school travel planning and building partners for change is an on-going effort currently being undertaken by the City. The Pedestrian Mobility Plan further embeds policy into future pedestrian planning activities in the City.

#### Climate Adaptation Strategy & Plan

- The Pedestrian Mobility Plan provides clear direction on the importance of pedestrian activity as a sustainable mode of transportation, which can help to reduce greenhouse gas emissions in the City.

#### Office of the Chief Coroner for Ontario Pedestrian Death Review

- The recommendations presented in the Chief Coroner's report are consistent with the ideals presented in the Pedestrian Mobility Plan and other concurrent corporate initiatives.

### **Municipal Plans, Policies, Guidelines & Directives**

#### Strategic Plan

- Outlines the vision and priorities of the City. The Pedestrian Mobility Plan provides contributions on achieving the City's vision.

#### Official Plan

- Guides future physical development within City, the Pedestrian Mobility Plan provides a context sensitive approach that integrates the future direction of the Official Plan including the development of complete streets.

#### Secondary Plans

- Steers a more detailed view of future development, land-use and implementation policies to a specific area of the City, which is then adopted by amendment into the Official Plan. The Pedestrian Mobility Plan provides useful tools to integrate into the planning process of Secondary Plans.

#### Hamilton Transportation Master Plan

- Shepherds the development of policies and strategies for the City-wide transportation network over the next 30 years. It also provides input to the capital budgeting process. The Pedestrian Mobility Plan aligns itself to be integrated within projects already identified in the City-wide Transportation Master Plan therefore not creating additional stand-alone projects.

#### Recreational Trails Master Plan

- Provides the framework for the development of an off-road trail network servicing both pedestrian and cycling activity. The Pedestrian Mobility Plan identifies the importance of this network, especially in rural areas of the City.

#### Cycling Master Plan

- The Pedestrian Mobility Plan highlights the importance of providing bicycle infrastructure to reduce cyclist/pedestrian conflicts on sidewalks, as well as

providing pedestrians with an increased sense of safety by providing additional buffer space from vehicular traffic.

#### Neighbourhood Transportation Management Plans

- Similar to Secondary Plans, these types of plans provide more detail on the neighbourhood level relating to transportation improvements and policies. The Pedestrian Mobility Plan provides an approach to planning for pedestrian, while balancing other modes of travel.

#### Stand-alone Policies & Programs

- Several policies are created relating to specific City issues. One example is the City's Sidewalk Policy – this plan provides direction into the update of this existing policy to enhance walkability and improving citizen access to pedestrian infrastructure.

#### By-Laws

- This form of delegated-legislation regulates certain areas within the City (e.g. Site Plan Control, Development Charge By-Law). The Pedestrian Mobility Plan identifies the need to integrate such by-laws as part of implementation of the plan.

#### Design Guidelines and Standards

- Numerous design guidelines and standards have been developed by the City for specific corridors and development strategies such as transit-oriented development. The Pedestrian Mobility Plan supplements existing guidelines with additional design treatments to provide flexibility in developing design solutions.

#### International Charter for Walking

- The Charter endorsed by Council provides the key principles in walkability and has been utilized as the backbone in developing the Pedestrian Mobility Plan and creating more complete communities and streets.

### **RELEVANT CONSULTATION**

A Technical Advisory Committee (TAC) consisting of staff members from Planning and Economic Development and Public Works was formed as an internal consultation team. TAC meetings were held so that members could provide their input based upon their review of the content and recommendations of the Pedestrian Mobility Plan in accordance with their department/section interests. The consultant team and TAC held a “walkshop” with a broader departmental audience with over forty (40) city staff attending to gain a better understanding of potential opportunities and constraints associated with the Plan's direction and implementation.

In addition, a Pedestrian Advisory Group (PAG) to provide the Project Team with guidance and review at key stages of the Plan development was established and was comprised with individuals from the following City Departments and Citizen Groups:



- City Manager's Office
- Public Works
- Public Health
- Planning & Economic Development
- Emergency Services
- Community Services
- Corporate Services
- Hamilton Police
- Senior's Advisory Committee
- Hamilton District & Catholic School Boards
- Beasley Neighbourhood Association
- Durand Neighbourhood Association
- Strathcona Community Council
- North End Neighbours
- Hamilton Cycling Committee
- Transportation for Livable Communities Hamilton
- Bruce Trail Conservatory
- Environment Hamilton
- Green Venture
- Columbia College
- Redeemer University College
- Mohawk College
- McMaster University
- Hamilton Business Improvement Associations

The role of the PAG was to provide the Project Team with insight on relevant community issues and possible solutions. The objectives of the PAG were to:

- Advise on matters related to pedestrian mobility
- Provide guidance and review key aspects of the project
- Attend and participate in public and PAG meetings
- Encourage citizens to participate in the study

The public consultation for the Plan was both extensive and innovative, using various methods of outreach to receive input and garner support for the Plan. This included the following:

- Plan Website - Information relating to the development of the Pedestrian Mobility Plan was created and information posted including study updates, surveys, newsletters and public meeting notices.
- Community Walks Map - An innovative interactive survey used primarily in the United States was used for the first time in Ontario and was a huge success with over sixteen hundred (1600) views and six hundred (600) comments, which is more than twice the US average.
- Pedestrian Survey - four hundred and seventy eight (478) surveys (four hundred and fifty nine (459) completed online and nineteen (19) in paper copy)
- Public Information Centres - Two (2) rounds of public meeting were held for a total of six (6) meetings (four (4) meetings in March, 2011 and two (2) in September, 2011) with one hundred and sixty (160) total attendees. Notices were advertised in the Hamilton Spectator (At Your Service section) and the community newspapers consistent with City practices on similar plans.
- Farmers' Markets - Prior to the second round of public meetings City staff attended six (6) Farmer's Markets at various locations across the City to provide additional

outreach regarding the study, where over one hundred and forty (140) people were engaged.

- Open Streets/Transportation & Healthy Living Fair - Similar to the City Farmers' Markets approach, City staff attended events to provide information to the public. This was also successful with over one hundred and fifty (150) people being engaged during the two (2) events
- Social Networking - Use of Smart Commute Hamilton's Twitter and Facebook pages were used to assist in raising the profile of the study.

Common comments received from the extensive public consultation process include:

- Highest concentration of comments were located downtown and BIA areas
- General feeling that Hamilton was a good place to walk
- Areas for improvement identified by the public include:
  - Uncomfortable street crossings/intersections
  - Driver behaviour (e.g. speeding, failure to yield to pedestrians)
  - High traffic volumes
  - Lack of street trees
  - Major arterial roads/intersections are in need of most improvements

Prior to the finalization of the Pedestrian Mobility Plan, the City's Project Manager conducted a series of presentations with various internal and external stakeholders to review the recommendations of the study in order to gain their understanding of the direction of the Plan. These stakeholders included:

- Hamilton Business Improvement Association (January 2012)
- Hamilton Halton Home Builder's Association (March 2012)
- Seniors Advisory Committee (April 2012)

In February 2013 (subsequent to the development of the Pedestrian Mobility Plan), Council unanimously endorsed "Rapid Ready: Expanding Mobility Choices in Hamilton". The Rapid Ready Report identifies three key ingredients; Improving Transit, Supporting Community Development, and Multi-Modal Integration. The Pedestrian Mobility Plan is aligned with the Rapid Ready Report, which identifies core actions on providing safe and convenient walking and cycling environments including endorsing this report.

## **ANALYSIS / RATIONALE FOR RECOMMENDATION**

### **Implementation Approach:**

The term "Routine Accommodation" has been coined as an efficient and effective means to approach implementation on a macro-scale. Given the micro nature of pedestrian accommodation, the creation of pedestrian-specific projects would not be cost-effective for the City. Rather, by embedding pedestrian mobility into daily processes, plans, designs and projects; incrementally as a matter of routine is consistent with the Complete Streets approach to designing Right-of-Way (ROW) space. This approach has also been implied in the AODA Design of Public Space in the Built Environment Standard and the accommodation of a minimum one and a half (1.5)

metre clear path for walkways (i.e. sidewalks, access routes and recreational trails). The standards for public spaces will only apply to new construction and planned redevelopment.

The Pedestrian Mobility Plan provides staff with a “toolbox” of approximately forty (40) different design applications for consideration as detailed in ‘**Appendix C**’. A systematic approach has been developed to assist staff in identifying the appropriate alternative for an individual site and related conditions (context-sensitive). Many of the design applications are practices currently used in the City, which are also consistent with the Complete Streets approach to street design. As a living document and as new pedestrian innovations are developed, these will be integrated and considered as part of the “toolbox”. All design guidelines, standards, policies, and projects should be amended to apply both the Plan principles and the “toolbox” into the decision-making process.

This approach insists upon using sound defensible planning and engineering principles and professional judgement. The toolbox is not intended to deliver one (1) solution but rather a vetted range of viable options to provide more flexibility in improving the pedestrian environment.

The approach and “toolbox” is recommended to be embedded into the upcoming update of the Engineering Guidelines for Development to help facilitate routine accommodation of pedestrian infrastructure into the built environment.

### **Plan Coordination:**

The Pedestrian Mobility Plan provides the opportunity to create a culture of walking in the City by normalizing pedestrian mobility tasks within routine daily activities. It is recognized that there are many coordinated efforts required to achieve a culture of walking within the built environment. Dedication of City staff required for implementation is not dissimilar to the structure and dedication required for other services provided by the City. Refer to Appendix ‘A’ and Figure 1 (*Page 26*) in the Pedestrian Mobility Plan to review the coordinated efforts undertaken by the City as part of the decision making process for pedestrian planning.

### **Existing and Planned Actions:**

#### Comprehensive Development Standards

- Hamilton Council has directed staff to develop an update of the existing engineering standards for developments to incorporate the findings and recommendations of the Pedestrian Mobility Plan as well as updates to recent engineering best practices. This update will guide the development of complete communities and complete streets.

#### Site Plan Control Guidelines (various Urban Design Guideline Amendments)

- An update of the existing site plan control guidelines and updates to relevant urban design guidelines through “housekeeping” amendments to incorporate the findings and recommendations of the Pedestrian Mobility Plan as well as updates to recent urban design best practices.

#### Development Charges By-Law Update

- An update of the existing Development Charges By-Law to incorporate AODA requirements and recommended sidewalk clear widths identified in the Pedestrian Mobility Plan.

#### City-wide Way Finding Strategy

- Develop a pedestrian-scaled way finding strategy using web-based and conventional methods. Focus on Downtown and BIA areas plus key decision points along recreational trail and bicycle networks. The system is recommended to be integrated within the City's transit system infrastructure. Phase 1 of this strategy is proposed to be undertaken in 2013 with a capital budget submission by Planning and Economic Development dealing specifically with Downtown and Lower City destinations.

#### Coordinated Street-Furniture Strategy

- Hamilton Council has directed staff to develop site selection criteria for a co-ordinated street furniture program. Operations and Waste Management (O&WM) are currently working with a stakeholder group to investigate the possibility of funding this initiative by revenue sharing. The intent is to develop a cohesive style, appropriate for the City of Hamilton that incorporates flexibility for neighbourhood expression. The anticipated competition date for this project is 2014.

#### **Plan Monitoring/Evaluation:**

Currently, the Transportation Master Plan (TMP) incorporates performance measures for numerous transportation indicators including pedestrian activity from available sources. The City-Wide Transportation Master Plan identified a target of fifteen percent (15%) trips made by walking and bicycle. This will continue to be monitored as part of that existing program to track changes in the City-Wide travel mode splits.

In addition to these existing indicators, the City is also currently engaged in an Active Transportation Benchmarking Program (i.e. pedestrian and cycling) to monitor activity along existing trail corridors, on-road bicycle routes and sidewalks (where applicable). This program has been effective in providing data input into the various City decision-making processes such as maintenance, trail development, and other transportation monitoring projects (e.g. North End Traffic Management Plan).

#### **ALTERNATIVES FOR CONSIDERATION**

Three (3) alternative solutions associated are identified below:

##### **Alternative 1 - Do not accept the Pedestrian Mobility Plan**

The City could choose not to accept the Pedestrian Mobility Plan as presented. This alternative is not recommended since it will not provide direction on pedestrian planning and design across the City of Hamilton. It is therefore beneficial to support the Pedestrian Mobility Plan as presented.

### **Alternative 2 - Accept portions of the Pedestrian Mobility Plan**

The City could choose to support portions of the Pedestrian Master Plan. This alternative is not recommended since it will not adequately address the entirety of pedestrian planning and design across the City of Hamilton.

### **Alternative 3 - Accept the Pedestrian Mobility Plan with additional amendments**

The City could choose to accept the Pedestrian Mobility Plan with additional amendments. This alternative is not recommended because it may require additional analysis and associated budget to determine any impacts posed by the amendments. Future changes may occur during a five (5) year review of the Plan, which is consistent with the Environmental Assessment process and may be a more suitable course of action.

## **ALIGNMENT TO THE 2012 - 2015 STRATEGIC PLAN**

### **Strategic Priority #1**

A Prosperous & Healthy Community

*WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.*

#### **Strategic Objective**

- 1.2 Continue to prioritize capital infrastructure projects to support managed growth and optimize community benefit.
- 1.4 Improve the City's transportation system to support multi-modal mobility and encourage inter-regional connections.
- 1.5 Support the development and implementation of neighbourhood and City wide strategies that will improve the health and well-being of residents.
- 1.6 Enhance Overall Sustainability (financial, economic, social and environmental).

### **Strategic Priority #2**

Valued & Sustainable Services

*WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.*

#### **Strategic Objective**

- 2.2 Improve the City's approach to engaging and informing citizens and stakeholders.

### **Strategic Priority #3**

Leadership & Governance

*WE work together to ensure we are a government that is respectful towards each other and that the community has confidence and trust in.*

#### **Strategic Objective**

- 3.1 Engage in a range of inter-governmental relations (IGR) work that will advance partnerships and projects that benefit the City of Hamilton.

**APPENDICES / SCHEDULES**

Appendix "A"	Pedestrian Mobility Plan
Appendix "B"	Proposed Minimum Clear Zone Widths
Appendix "C"	Pedestrian Solutions "Toolbox"



Appendix A  
Report PW13078



# **STEP FORWARD**

## **HAMILTON PEDESTRIAN MOBILITY PLAN**

DECEMBER 2012

Prepared by:

**G. O'CONNOR** CONSULTANTS INC.



Hamilton

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	9
E.1. Vision/Goals .....	9
E.2. Public Consultation .....	10
E.3. Environmental Assessment (E.A.) .....	11
E.4. Routine Accommodation .....	12
E.5. Pedestrian Mobility Advisory Committee (P.M.A.C.).....	13
E.6. Implementation.....	14
E.7. Other Thoughts.....	15
1. INTRODUCTION AND BACKGROUND .....	16
1.1. Purpose of this Plan .....	16
1.2. Project Vision.....	16
1.3. Goals and Objectives .....	17
1.4. Benefits of Walking.....	17
1.4.1. Public Health and Sustainable Communities.....	17
1.4.2. Literature Review / Public Health Best Practice.....	19
1.4.3. Healthy, Complete, Sustainable.....	23
1.5. Plan Organization .....	25
1.6. Study Team.....	27





1.7. Acknowledgements ..... 27

2. LEGISLATIVE CONSIDERATIONS ..... 28

2.1. Introduction..... 28

2.2. Provincial Legislation ..... 30

2.3. City Plans/Documents..... 31

2.4. Legislative Implementation..... 37

3. PLANNING CONSIDERATIONS ..... 38

3.1. Introduction..... 38

3.2. Provincial Plans and Policies ..... 39

3.3. Municipal Plans and Policies ..... 44

3.4. Public Art ..... 46

3.5. Planning, Going Forward..... 47

4. OPERATIONAL CONSIDERATIONS ..... 48

4.1. Introduction..... 48

4.2. Operational Policies..... 48

4.3. Other Traffic Related Policies..... 53

4.4. Operations Going Forward..... 56

5. COMMUNICATIONS CONSIDERATIONS..... 57

5.1. Introduction..... 57

5.2. Preparing the Plan ..... 57



5.2.1. Public Consultation Plan..... 57

5.2.2. Pedestrian Advisory Group..... 58

5.2.3. Project Website..... 58

5.2.3.1. Interactive On-Line Mapping ..... 59

5.2.3.2. On-Line Public Survey ..... 62

5.2.3.3. Farmer’s Market Summary ..... 66

5.2.3.4. Open Streets..... 67

5.2.3.5. Transportation and Healthy Living Fair ..... 69

5.2.3.6. City Staff and Councillor Updates..... 71

5.3. Implementing the Plan ..... 72

5.3.1. Mission Statement ..... 72

5.3.2. Pedestrian Mobility Advisory Committee (P.M.A.C.) ..... 72

5.3.3. Pedestrian Coordinator ..... 73

5.3.4. Wayfinding..... 73

6. INFRASTRUCTURE CONSIDERATIONS ..... 76

6.1. Introduction..... 76

6.2. Routine Accommodation and Budget Considerations ..... 76

7. ENVIRONMENTAL ASSESSMENT ACT COMPLIANCE ..... 78

7.1. Class Environmental Assessment ..... 78

7.2. Problem and Opportunities Statement ..... 78



**7.3. Existing Conditions ..... 80**

**7.3.1. Review of Best Practices and Lessons Learned ..... 83**

**7.3.2. Collision Analysis..... 85**

**7.3.3. Mobility Analysis..... 88**

**7.3.4. Urban Transect and Pedestrian Context Areas ..... 90**

**7.3.5. Public Information Centres..... 98**

**7.3.6. Public Review Period..... 108**

**7.4. Alternative Solutions ..... 108**

**7.4.1. Evaluation of Alternative Strategies ..... 109**

**7.4.2. Identification of Preferred Alternative Strategies ..... 111**

**8. STEP FORWARD..... 116**

**8.1. Introduction: Paradigm Shift, A New Pedestrian Approach..... 116**

**8.1.1. Integrating Principles ..... 116**

**8.2. Description of Toolbox Solutions, Policies & Programs ..... 120**

**8.2.1. Routine Accommodation..... 120**

**8.2.2. Site Inventory..... 120**

**8.2.3. Review ..... 121**

**8.2.4. Evaluation ..... 122**

**8.2.5. Implementation ..... 124**

**8.3. Recommended Policies..... 127**



**8.4. Recommended Programs..... 127**

**8.5. Recommended Guidelines ..... 130**

**8.5.1. Engineering Standards & Urban Design Guidelines Update ..... 130**

**8.5.2. Preferred Sidewalk Widths – Context Areas ..... 130**

**8.5.3. Pedestrian Lighting..... 137**

**8.5.4. Physical Improvements (trees, pedestrian amenities, benches, waste receptacles, signs) ..... 139**

**8.5.5. Monitoring Plan /Evaluation ..... 140**

**8.6. Next Steps ..... 141**

**8.7. Future Studies..... 142**

**8.8. Conclusions, Recommendations and Directives ..... 143**

**References ..... 145**

**APPENDICES..... 151**

*Please note that appendices are only included in the complete version of this Report which had limited distribution due to the considerable size of the document. Complete versions can be viewed at the City of Hamilton, Strategic Planning and Rapid Transit, Environmental and Sustainable Infrastructure, Public Works Department.*

- Appendix 1: Collision Analysis
- Appendix 2: Study Contact List
- Appendix 3: PAG Terms of Reference
- Appendix 4: PAG Minutes of Meetings, Agendas, Quick Facts
- Appendix 5: Steering/Technical Committee Minutes of Meetings, Agendas
- Appendix 6: Staff/Councillor Workshops Minutes of Meetings, Agendas, Quick Facts
- Appendix 7: Newspaper Notices
- Appendix 8: Newspaper Articles
- Appendix 9: Public Information Centres #1 Presentation Boards
- Appendix 10: Community Walk Survey Results & Comments
- Appendix 11: Public Information Centres #2 Presentation Boards
- Appendix 12: City of Hamilton Newsletter #1 and #2
- Appendix 13: Farmer’s Markets Presentation Boards
- Appendix 14: Farmer’s Markets Feedback
- Appendix 15: Summary of Public Comments
- Appendix 16: International Charter for Walking
- Appendix 17: Routine Accommodation and Toolbox Solutions, as of Fall 2011
- Appendix 18: Summary of Best Practices, as of Fall 2011
- Appendix 19: City of Hamilton Urban Forestry Street Trees Policies
- Appendix 20: City of Hamilton Urban Braille System
- Appendix 21: Literature Reviews
- Appendix 22: Planning Considerations
- Appendix 23: Environmental Class Assessment

**LIST OF FIGURES**

Figure 1: City Implementation Considerations ..... 26

Figure 2: Screen shot of the Interactive Map ..... 59

Figure 3: Input for the Problem and Opportunities Statement ..... 79

Figure 4: Destinations and Generators ..... 81

Figure 5: Existing Pedestrian Network ..... 82

Figure 6: Locations of Vehicular Collisions With Pedestrians ..... 87



Figure 7: Development Patterns - Context Areas ..... 96

Figure 8: Existing Area Maps - Existing Conditions ..... 97

Figure 9: Evaluation of Alternative Strategies ..... 112

Figure 10: Evaluation of Toolbox Solutions - A ..... 113

Figure 11: Evaluation of Toolbox Solutions - B ..... 114

Figure 12: Evaluation of Toolbox Solutions - C ..... 115

Figure 13: Policy & Evidence Based Practice, Policy & Design..... 117

Figure 14: Routine Accommodation ..... 126

Figure 15: Examples of Sidewalk Lighting ..... 138

**LIST OF TABLES**

Table 1: Provincial Legislation..... 30

Table 2: City Plans/Documents ..... 31

Table 3: Provincial Plans and Policies ..... 39

Table 4: Municipal Plans and Policies ..... 44

Table 5: Cultural Policy Report and Public Art Master Plan..... 46

Table 6: Policy Review Matrix..... 50

Table 7: Other Traffic Related Policies..... 53

Table 8: Interactive Map Category and Number of Markers..... 60

Table 9: Lessons Learned based on Best Practices related to Pedestrian Activities ..... 83

Table 10: Attendance at Public Information Centre No. 1 ..... 99

Table 11: Summary of Public Comments (Public Information Centre No. 1) ..... 100

Table 12: Attendance at Public Information Centre No. 2 ..... 102





Table 13: Summary of Public Comments (Public Information Centre No. 2) ..... 102

Table 14: Public Selection of Toolbox Solution Themes ..... 106

Table 15: Vehicle Types, Multi-Use Recreation Trails and Sidewalks ..... 129

Table 16: Context Area Sensitive – Recommended Sidewalk Clear-Zone Widths<sup>1</sup> ..... 135

Table 17: Recommended Sidewalk Width Cost Implications ..... 136

Table 18: Future Studies ..... 142

**LIST OF MAPS**

Map 1: Community Walk Survey Results ..... 61





## EXECUTIVE SUMMARY

### E.1. Vision/Goals

The City of Hamilton’s commitment to improved pedestrian mobility arises from two sources: Provincial legislation and commitments the City has made to the International Charter for Walking. **Step Forward: The Hamilton Pedestrian Mobility Plan** addresses how the City plans to achieve these legislative and aspirational commitments to healthy, sustainable and complete communities where people choose to walk. The Plan establishes a City-wide, pedestrian framework for the future.

This Pedestrian Mobility Plan employs an evidence based approach to creating safe and interesting pedestrian environments throughout the City by applying public health science and transportation research to the City’s built environments. The Pedestrian Mobility Plan also embeds within City decision making a process called “Routine Accommodation”. Infrastructure development and renewal will address improved pedestrian environments by using appropriate toolbox solutions, together with education, encouragement and enforcement programs. This will be accomplished by focusing decision

making through a series of legislative, planning, operational, communications and infrastructure considerations.

This Pedestrian Mobility Plan strives to achieve the following vision:

- *Increased inclusive mobility;*
- *Well designed and managed spaces and places for people;*
- *Improved integration of networks;*
- *Supportive land use and spatial planning;*
- *Reduced road danger;*
- *Less crime and fear of crime;*
- *More supportive site planning and engineering standards; and*
- *A culture of walking.*

By employing an evidence based approach, these principles become standards that will be monitored following implementation to measure effectiveness of the Plan and its solutions.

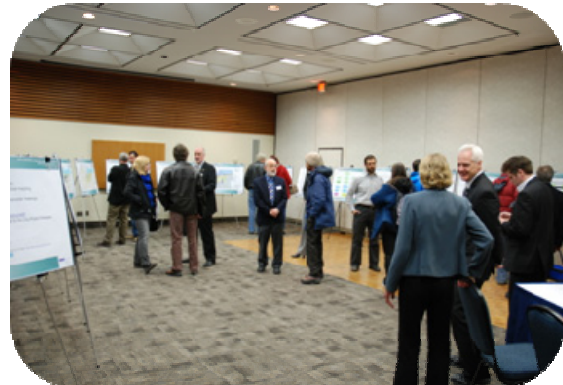






The Pedestrian Mobility Plan goals are to:

- Create healthy, efficient and sustainable communities where people choose to walk.
- Increase the number of people walking in the City.
- Provide a pedestrian environment that improves personal safety and is an attractive and interesting walking environment.
- Increase public health, active transportation and pedestrian links or connections.
- Improve pedestrian movement by focusing on access to community institutions, recreational and leisure opportunities and employment and retail services.
- Create a walkable City to attract new residents and businesses.



## **E.2. Public Consultation**

A key principle for successful Environmental Assessment planning is “consultation with affected parties early in and throughout the process” (Municipal Class Environmental Assessment, 2007). In keeping with this principle, a detailed consultation plan was developed for the preparation and implementation of this Pedestrian Mobility Plan. This consultation plan identifies potentially interested and affected stakeholders and describes methods for meaningful consultation with stakeholders, the public and relevant regulatory agencies during the preparation and implementation of the Pedestrian Mobility Plan.

In addition to meeting the legislative requirements of the Environmental Assessment Act, this Pedestrian Mobility Plan harnesses the communities’ desire to walk by employing their input to better understand opportunities and constraints. City staff were fully engaged in the development of this Plan from all perspectives including legislative,



planning, operational, communications, and infrastructure.

Numerous public consultation opportunities were provided through:

- The project website (interactive on-line mapping, CommunityWalk website and an on-line electronic public survey);
- Social media using Project twitter and facebook sites;
- A Pedestrian Advisory Committee comprised of Institutional, community and business improvement associations;
- Community booths at pedestrian destinations such as farmers markets, open streets events and a transportation and healthy living fair;
- City staff and council workshops; and a departmental staff steering committee.

Significant public consultation occurred throughout the entire process. Two Public Information Centres were held, P.I.C. #1 at 4 locations and P.I.C. #2 at 2 locations. The interactive “Community Walk Map” had approximately two times the national/USA average/capita (1,643 Community Walk Map views). 478 on-line and paper surveys were submitted. Interactive display boards at six (6) farmer’s market locations were completed and Open Streets Hamilton and the Transportation and Healthy Living Fair

were attended. Four (4) meetings were held with the City’s staff team and two (2) workshops were held with City Staff and Councillors.



***This Pedestrian Mobility Plan has significant staff and public support.***

In summary, the Pedestrian Mobility Plan exceeds the minimum requirements of the Municipal Class Environmental Assessment for public consultation by applying a variety of consultation methods.

### **E.3. Environmental Assessment (E.A.)**

The Pedestrian Mobility Plan follows Phases 1 and 2 of the Municipal Engineers Association Municipal Class Environmental Assessment (October 2000, as amended in 2007). The Municipal Class Environmental Assessment is a planning and design process, approved under the Ontario Environmental Assessment Act, for routine municipal infrastructure and transportation projects. Projects that are subject to the Municipal Class Environmental Assessment have a predictable range of environmental



impacts that can be mitigated. Consideration is given to the potential effects of each project on the natural, social, cultural and economic environments. Projects that are planned in accordance with the Municipal Class Environmental Assessment are approved under the Environmental Assessment Act.

Section A.2.7 and Appendix 4 of the Municipal Class Environmental Assessment document (2007) explains how the planning process can be applied to the Pedestrian Mobility Plan. Appendix 4 of the Municipal Environmental Assessment document recognizes three possible approaches. This Pedestrian Mobility Plan follows Approach #1, which completes Phases 1 and 2 of the Class Environmental Assessment process. The Pedestrian Mobility Plan serves as background for future infrastructure projects which may be subject to larger assessments.



#### **E.4. Routine Accommodation**

In the Pedestrian Mobility Plan, **routine** means “a series of actions regularly followed”, while **accommodation** means “the process of adapting or adjusting to making pedestrian mobility safer and more interesting” (this is consistent with Complete Streets approach). **Routine accommodation** occurs when City operational, infrastructure, planning, legislative and communication decisions also improve pedestrian infrastructure when streets, services and roads are maintained and renewed throughout the City. *“Routine Accommodation” is a process where changes to improve pedestrian streetscapes utilizing a range of solutions are regularly employed on each and every project as a matter of course.* This decision making process is designed to implement changes during reconstruction, ongoing maintenance, streetscape enhancements or other capital projects. Decisions are appropriate, objective, traceable and defensible.

The key improvements incorporated within this Plan that will make this possible include:

- *A pedestrian checklist intended to provide City staff background information essential to the application of the design toolbox solutions;*
- *A context sensitive series of areas in the City that address streetscape*



*differences throughout the City to highlight unique design opportunities while being respectful of the Official Plan including mapping and designations;*

- *A series of design toolbox solutions, policies and programs intended to improve pedestrian safety and increased pedestrian mobility; and*
- *A decision process that brings together all the various City Departments and public stakeholders necessary to make decisions on pedestrian mobility improvements.*

Most pedestrian infrastructure is built when other projects are implemented on City streets. As time passes, the consistent application of toolbox solutions and new City standards will enhance pedestrian mobility throughout the City. These techniques eliminate the need for a specific list of capital projects.

Previously, pedestrian mobility focused on uniform sidewalk and crosswalk standards to be applied across the City on whatever space remained, after vehicular traffic requirements were satisfied. This Pedestrian Mobility Plan will help rebalance vehicular and pedestrian traffic requirements by placing more emphasis on pedestrian needs on an ongoing basis.

Over a 20 year time span, the Pedestrian Mobility Plan will improve Hamilton's pedestrian environment and walking will become a more viable mode of transportation meeting increasing functional mobility requirements.

### **E.5. Pedestrian Mobility Advisory Committee (P.M.A.C.)**

This Plan recommends a Pedestrian Mobility Advisory Committee (P.M.A.C.) be established to assist Hamilton City staff with decision making on pedestrian issues, where additional advice is needed. Two advisory committee models were considered: an advisory committee such as the existing cycling committee; and an advisory committee such as the Clean Air Hamilton Coordinating Committee. The decision to recommend an advisory committee similar to the latter, is based on the Pedestrian Mobility Plan being about more than simply walking. Implementation of this Pedestrian Mobility Plan will also:





- *improve public health and well being among Hamilton's residents;*
- *address Provincial and City targets and policies for energy conservation, public transit usage, green house gas emission reductions, and improved air quality;*
- *address the economic aspirations of the larger community especially where higher education, the professions, business improvement areas and emerging technologies are concerned; and*
- *address community needs in the Neighbourhood Development Strategy.*

## **E.6. Implementation**

This Pedestrian Mobility Plan will be implemented through **Routine Accommodation** together with all street maintenance, renewal and capital development projects. A future permanent staff Pedestrian Coordinator, Public Works, Transportation, Energy and Facilities Division, Mobility Programs & Special Projects (Pedestrian Coordinator) appointment is recommended who will be responsible for implementation of the

Pedestrian Mobility Plan. This person ideally will be employed in the Infrastructure/Asset Management team, to ensure optimal efficiency of resources between multiple departments.

Among the most important first implementation steps are the following:

1. Train Department staff to apply Routine Accommodation as part of a start-up session to be held at the conclusion of this study, Winter 2013.
2. Appoint a Pedestrian Coordinator (full time appointment) and make the administrative changes necessary to commence implementation of Step Forward.
3. Create a Pedestrian Mobility Advisory Committee (P.M.A.C.) and utilize the committee as a resource to provide advice on the implementation program and specific streetscape improvements.
4. Amend the Engineering Standards, Urban Design Standards and Site Plan Control requirements to include the toolbox solutions, as necessary.





5. Continue the pedestrian monitoring system that was commenced in 2011 and gather additional pedestrian use data, especially on streets where infrastructure and street improvements are planned for the next five (5) years.

### **E.7. Other Thoughts**

Overall, the objective is to create interesting places for people to walk and increase the amount that people walk.

- Generally, the City is doing a good job on many aspects of pedestrian mobility. Step Forward will assist Staff and Council to improve the situation systematically and cost effectively over a sustained period of time.
- Public support for this work is very strong. Ongoing public outreach through the City project website, social media and the Pedestrian Mobility Advisory Committee will ensure ongoing support and success of the program.





# 1. INTRODUCTION AND BACKGROUND

The City of Hamilton prepared the Step Forward: Pedestrian Mobility Plan. The Plan establishes a 20-year framework to improve functional pedestrian mobility in the City of Hamilton. This Pedestrian Mobility Plan fulfills commitments made through the International Charter for Walking – signed April 1, 2008 and the City of Hamilton New Official and Transportation Master Plans.

## 1.1. Purpose of this Plan

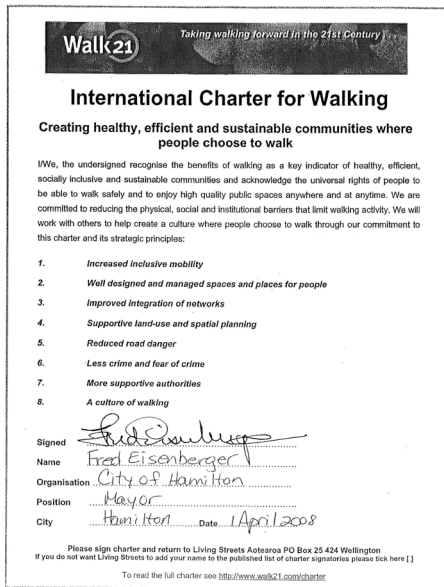
The Pedestrian Mobility Plan contains working tools and a decision making process for City Council and staff use. Application of these tools and process are designed to improve pedestrian environments. It also helps achieve the pedestrian goals and objectives of the City’s Transportation Master and Official Plans.

*In the Pedestrian Mobility Plan, mobility refers to several transportation modes that use pedestrian facilities including walking, running, strollers, scooters, wheelchairs, and walkers. The term is inclusive to all.*

## 1.2. Project Vision

The Vision of the City of Hamilton is:

- *To be the best place in Canada to raise a child, promote innovation, engage citizens and provide diverse economic opportunities.*





### 1.3. Goals and Objectives

The Pedestrian Mobility Plan goals are to:

- Create healthy, efficient and sustainable communities where people choose to walk.
- Increase the number of people walking in the City.
- Provide a pedestrian environment that improves personal safety and is an attractive and interesting walking environment.
- Increase public health, active transportation and pedestrian links or connections.
- Improve pedestrian movement by focusing on access to community institutions, recreational and leisure opportunities and employment and retail services.
- Create a walkable City to attract new residents and businesses.

The Pedestrian Mobility Plan objectives are:

- *Increase the number of daily functional walking trips in the near and long term.*
- *Encourage walking as a mode of transportation between home, work and other destinations.*
- *Increase awareness of non-motorized networks, safety requirements, and apply appropriate standards, to support increased pedestrian activity.*
- *Enhance coordination of multi-modal trips with pedestrian*

*movement to support both pedestrian, cycling and transit facilities.*

- *Improve the pedestrian environment with supportive infrastructure, streetscape design, and new development.*
- *Develop an implementation framework and responsibilities prescribing how the Pedestrian Mobility Plan will be implemented.*
- *Support & integrate the pedestrian realm with tourism and economic development.*
- *Develop a framework that is consistent with existing City and Provincial policies.*

### 1.4. Benefits of Walking

There are numerous benefits associated with walking. The following sections address these benefits.

#### 1.4.1. Public Health and Sustainable Communities

In the online publication of The Lancet, two of Hamilton's McMaster University researchers, Sonia S. Arnan and Salim Yusuf introduce three articles addressing the relationship between global changes in body-mass index (B.M.I.) and increased risks of cardiovascular disease. They observe these *“results suggests that overweight affects one in three adults and obesity affects one in nine adults in the*







world.”<sup>1</sup> “Worldwide, age standardized prevalence of obesity was 9.8% in men and 13.8% in women in 2008, which was nearly twice the 1980 prevalences of 4.8% for men and 7.9% for women.”<sup>2</sup>

“In the long term, the most effective means of stemming the tsunami of cardiovascular disease globally is through population level risk factor control. Whereby the population average of a given risk factor is reduced. In high income countries, the reductions in key cardiovascular disease risk factors at the population level are attributable to changes in the food supply (i.e., reduction in animal products and sodium consumption) and through increased physical activity.

“Developing solutions will require novel and as yet unavailable data to shed light on the complex interactions between agricultural and food policies (which affect the costs and promotion of different types

of foods), industrialization (the nature of jobs), transportation, urban design and community architecture (which affects the expenditure of energy during utilitarian activity), economic changes, and social and cultural values, all of which ultimately affect cardiovascular disease (and several related chronic diseases). Health related research cannot be separated from research into policies related to agriculture... urban design.”<sup>3</sup>

This Pedestrian Mobility Plan addresses these community design issues and associated public health risks in order to create an active, healthy, and sustainable City.

The integration of physical activity into daily lives is one of the 10 most important health challenges we face.<sup>4</sup> “The Canadian Health Measures Survey released by Statistics Canada in January 2010, found that among youth aged 15 to 19, the percentage whose waist circumference put them at an increased or high risk of health problems has more than tripled since 1981. Also, the proportion of teen boys between the ages 15 and 19, classified as overweight or obese, increased from 14 % to 25% during the same time period.”<sup>5</sup>

---

<sup>1</sup> Arnaud, Sonia S., and Salim Yusuf. In [www.thelancet.com](http://www.thelancet.com), published online February 4 2011, pg. 1.

<sup>2</sup> Finucane, Mariel M., Gretchen A. Stevens, Melanie J. Cowan, Goodarz Danaei, John K. Lin, Christopher J. Paciorek, Gitanjali M. Singh, Hialy R. Gutierrez, Yuan Lu, Adil N. Bahalim, Farshed Farzadfar, Leanne M. Riley, Majid Ezzari; in behalf of the Global Burden of Metabolic Risk factors of Chronic Diseases Collaborating Group (Body-Mass Index), National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country years and 9.1 million participants” in [www.thelancet.com](http://www.thelancet.com) published online February 4 2011, pg. 9.

---

<sup>3</sup> Ibid, Arnaud, February 4 2011, pg 3.

<sup>4</sup> Jackson, Richard J., Chris Kochtitzky, Creating a Healthy Environment, Sprawl Watch Clearinghouse Monograph Series, Centres for Disease Control and Prevention.

<sup>5</sup> Canadian Health Measures Survey 2007-2009, <http://www.statcan.gc.ca/daily-quotidien/100113/dq100113a-eng.htm>





*“Routine physical activity has been engineered out of our daily lives... The result, 70% of Americans do not achieve the goal of 30 minutes of moderately intense activity on five or more days per week as recommended by the Centre for Disease Control (Atlanta).”<sup>6</sup>*

*“The links between physical activity and health outcomes are well established. At the time of the (US) Surgeon General’s Report on Physical Activity and Health in 1998, hundreds of research studies were amassed providing evidence of these links. Physical inactivity contributes to increased risk of many chronic diseases and conditions including obesity, hypertension, non-insulin dependent diabetes, colon cancer, osteoarthritis, osteoporosis and coronary disease.... One consequence of physical inactivity – obesity – has reached epidemic proportions across age, race/ethnic, and socioeconomic groups.”<sup>7</sup>*

*“Brisk walking, bicycling, and even gardening qualify as moderate physical activities. Current recommendations are for a half hour of moderate physical activity on at least five days per week....*

*Moderate physical activity is as beneficial as vigorous exercise in preventing cardiovascular disease, assuming that equivalent levels of energy are expended... Multiple episodes during the day, as short as eight or ten minutes, offer the same benefit. This has implications for built environment design; places designed so that people walk on multiple occasions during the day may go a long way toward helping them reach recommended levels of physical activity.”<sup>8</sup>*

The chronic diseases of the 21<sup>st</sup> century include: cardiovascular disease, diabetes, obesity, some forms of cancer, asthma and depression, all of which respond well to physical activity. This Pedestrian Mobility Plan helps retrofit Hamilton’s neighbourhoods to increase walking opportunities. The built environmental factors that affect personal weight and associated health risks include the lack of sidewalks and appropriately designed sidewalks and walking trails and the lack of the promotion of modes of transportation such as public transit, walking and cycling.<sup>9</sup>

### **1.4.2. Literature Review / Public Health Best Practice**

Recent research into the relationship between chronic diseases and the built

---

<sup>6</sup> Richard Killingsworth, MPH; JoAnne Earp, PhD; Ralph Moore, Dipl Arch, MCP: “Supporting Health through Design: Challenges and Opportunities, in the American Journal of Health Promotion, Volume 18, No. 1, September/October 2003, page 2.

<sup>7</sup> Reid Ewing, Tom Schmid, Richard Killingsworth, Amy Szlot, Stephen Raudensbush, Relationship between Urban Sprawl and Physical Activity, Obesity and Morbidity, in the American Journal of Health Promotion, Volume 18, Number 1, September/October 2003.

---

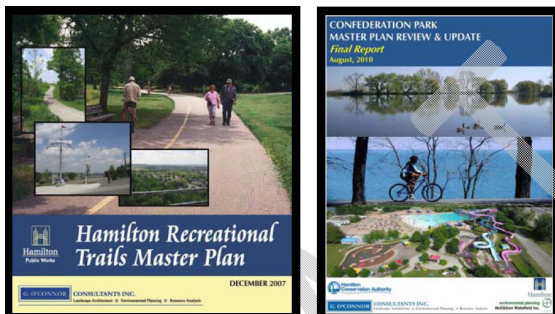
<sup>8</sup> Ibid, Frumkin, 2004, page 93.

<sup>9</sup> Ministry of Health and Long-term Care. 2004 Chief Medical Officer of Health Report: Healthy Weights, Healthy Lives. Province of Ontario.



environment and transportation infrastructure has produced a rich literature on pedestrian activity specifically and physical activity more generally. Using “pubmed”, a health science search engine, we undertook a literature review using the following key words: “(built environment or built form) and (public policy) and (physical activity)”.

Approximately 50 articles were retrieved and reviewed. These were summarized and findings were noted for use in this Pedestrian Mobility Plan. We have also drawn on previous reviews we conducted of the scientific literature used to help draft other City plans, programs and reports.



This is a rapidly emerging field of investigation with many related important issues. Provincial and municipal governments are re-aligning policy to address energy conservation, climate change adaptation and chronic disease prevention. Public interest and community groups are expressing concern about environmental sustainability, especially where air quality, energy conservation and climate change are concerned.

Pedestrian standards are being reviewed to address these issues. We maintained an open public planning process in order to capture as much of this discussion as possible. We also compared our findings with those of other Provincial, Municipal and public health jurisdictions such as the British Columbia Urban Public Health Network Authorities, Peel Region Public Health, Toronto Public Health and the Direction de santé publique de Montréal. With these inputs, we used our best judgment to envision what the emerging pedestrian environment will look like in Hamilton.

This literature provides a strong incentive to plan for active communities and general descriptors on what an active community looks like. The following summary of built/transportation environment factors that characterize active communities was developed from the literature:

- *Higher residential and employment densities;*
- *Residential proximity to institutional and retail services (e.g., floor area ratios and site coverage appear to be important site design measures, as well as the size and design of parking facilities);*
- *Street connectivity, block length and higher intersection densities;*
- *Either proximity to employment and/or proximity to public*



*transportation system stops (light rail and other higher order transit facilities create unique opportunities for stimulating pedestrian movement);*

- *Proximity to greenspace with good trail systems;*
- *Proximity to facilities that provide for physical activities (i.e., parks, playing fields, commercial fitness and athletic clubs);*
- *Socio-economic status including income;*
- *Aesthetics both from the perspective of the street and neighbourhood (e.g., sidewalk widths, building setbacks, lot coverage, street furniture, cafes and grocery sidewalk sales, and shading from trees); and*
- *Programs and incentives for active community participation such as school walking programs and anti-idling bylaw enforcement).*

These built/transportation environment variables apply differently and in different combinations depending on the context area within Hamilton's built environment and will be an important consideration later when toolbox solutions and context areas are applied in routine accommodation decision making.

Below are six summary measures from this literature that characterize Hamilton's pedestrian opportunities and constraints

and have been used to develop the Pedestrian Mobility Plan. Each measure is used to understand pedestrian needs and design toolbox solutions and programs and policies to improve mobility.

1. **Residential and employment densities:**

Generally, higher residential and employment densities foster more pedestrian activity.

2. **Street connectivity, intersection density and block length (i.e., pre and post WWII):**

The shortest distance between two points is a straight line. To the extent possible, pedestrians will gravitate towards a straight line. For example, witness pedestrian movement in large campus facilities where pedestrians cross lawns and sometimes gardens, to save steps/distance.

The street patterns that provide for the most efficient pedestrian movement are the square and rectangular street pattern grids found in the urban core and surrounding neighbourhoods. Generally, block lengths are short and intersection densities are highest providing for pedestrian travel distances that are as short as possible. The exception to this rule in the downtown is where urban renewal occurred and streets were removed to create larger building blocks i.e., MacNab Street north of King Street.

Rectangular street patterns also characterize neighbourhoods built





prior to World War II. Block lengths are somewhat longer, but pedestrian movement is still fairly efficient. There are exceptions to this rule. Westdale Village, designed and built in the 1920's, used an oval street design focused on a commercial corridor making it an efficient pedestrian environment. Generally, pre-World War II urban environments are more pedestrian oriented and residents often are measurably more physically active.

Suburban neighbourhoods, built following World War II, generally make pedestrian movement less efficient. Curvilinear street patterns make retrofitting these communities for improved pedestrian movement very difficult.

Rural settlements provide both opportunities and constraints for pedestrian movement. Rural hamlets were often rural service centres providing residential opportunities for retired farm families close to the communities where they lived. More recently, these settlements house commuters who drive.

3. ***Either proximity to employment or proximity to effective and/or higher order transit:***

Early Hamilton residential and industrial developments were located in close proximity so workers could walk to/from work and their residences. With the advent of the automobile, employees could live in

residential communities well removed from their place of employment.

Today, there is evidence that professional workers and their families and younger people generally place a higher premium on being able to walk to work and local shopping and services.

Where higher order public transit exists, pedestrian activity increases, and body weights decline.

4. ***Proximity to green space:***

Proximity to green space works in two ways. Where linear features such as the Niagara Escarpment or the Red Hill Creek Ravine exist, street connectivity is interrupted and these features become barriers to pedestrian movement. Walking on steep slopes and rugged terrain requires more physical ability than flatter terrain but creates more challenging and inviting pedestrian environments.

Alternatively, surveys conducted during the preparation of the Confederation Park Master Plan, indicated that many trail users visit by automobile and use the recreational trails on a regular basis to achieve public health physical activity objectives. Where trail systems exist and can be accessed by public transit, walking, cycling and automobiles, these contribute significantly to pedestrian activity. Where these trails are situated in urban communities, often these facilities (i.e., the Rail Trail)







are used for shopping, access to employment and educational facilities.

5. ***Proximity to public and private physical activity facilities and parks:***

Public recreational centres and commercial gymnasiums contribute substantially to physical activity, especially when accessed by walking. Local parks also contribute to pedestrian activity, especially where play ground facilities are available for young families.

6. ***Socio-economic and demographic status:***

Socio-economic status can operate in two ways. Where poverty exists, the ability to walk to various services and transit facilities is important. It is also important that access to fresh fruit and vegetables exists. These needs are important access considerations. Alternatively, professional and knowledge workers and younger people generally prefer to live in pedestrian friendly communities with access to the services and commercial opportunities of interest. Westdale Village, Locke Street and Ottawa Street are good examples of the commercial mixes that cater to these urban communities.

Professional and knowledge workers may be selecting downtown residential neighbourhoods built prior to 1949, to live and work in. There is also evidence that people who live in poverty may be migrating to residential neighbourhoods built after

1949 – these newer neighbourhoods are less walkable and less well served by public transit. The practical implications of this migration to the suburbs are ominous.

### 1.4.3. Healthy, Complete, Sustainable

Below is the Pedestrian Mobility Plan’s working understanding of how three words: *healthy*; *complete*; and *sustainable* are used in this Plan to achieve increased pedestrian mobility.

#### **The Word “Healthy”:**

What constitutes an active healthy built environment varies depending upon where one fits into the cycle of life and where one lives in the City of Hamilton. For children and youth, an active built environment focuses on schools, recreation and parks and the activities so crucial to growing up. Young parents will want access to employment and commercial facilities. An active aging population focuses on the demands of an aging population: access to health care, friends, recreation and appropriate housing and social institutions like libraries. Our challenge is creating an active pedestrian environment that meets the needs of all Hamilton residents irrespective of age or physical ability. Quality of life will also improve in part by increasing pedestrian mobility.

Safety, both perceived and real, especially with respect to public comments on the lack of buffers where buffers between





traffic and sidewalks don't exist, and the Plan's collision analysis, is an important related concern. Active transportation needs to be designed to achieve the highest possible safety standards and improve the public's perception of safety as pedestrian use of City streets increases.

The use of the word "healthy" encompasses the public's desire for active environments that reduce public health risk and the associated public costs associated with preventable chronic diseases and address safety concerns, now and in the future.

We have addressed this understanding of the word "healthy" in the Pedestrian Mobility Plan by employing context specific streetscapes and problem based decision and design analyses.

**The Word "Complete":**

The word "complete" is used in the recent Provincial Growth Plan. It is also used together with "communities" in the New City of Hamilton Official Plan. "Complete" in the Pedestrian Mobility Plan, means creating a more active pedestrian environment consistent with the policy expectations of the Provincial and City plans and policy and community aspirations.

Presently many of the geometric transportation design and planning manuals in the United States and Canada are being reviewed and rewritten to address "complete" streets legislation in the United States and similar state and

provincial initiatives. To the extent possible, this Pedestrian Mobility Plan employs an approach consistent with these reviews so as to anticipate and expedite this transition going forward.

**The Word "Sustainable":**

Climate change and energy use are growing public policy issues. The Green Energy Act provides for regulations requiring municipalities to prepare energy conservation and demand management plans. The City of Hamilton is engaged in many programs to conserve energy, reduce green house gases and improve air quality. Active transportation is a valuable means by which these programs are implemented and a "sustainable" community is achieved. This Pedestrian Mobility Plan provides an important foundation upon which Provincial and municipal sustainable policy on energy and environmental can be achieved through increased pedestrian movement.

Resilience is an important measurement of sustainable communities. "Demographics favour walkable places."<sup>10</sup> Evidence exists that cities are experiencing a structural shift associated with issues like aging populations and the ongoing mortgage crisis. Car dependant suburban environments are at a significant disadvantage to walkable urban downtowns and suburban town centres as this shift unfolds. The enhancement of

---

<sup>10</sup> Leinberger, Christopher B., "The Death of the Fringe Suburb" in The New York Times OP-ED, Saturday, November 26 2011.







pedestrian opportunities will help create more resilient communities.

### **1.5. Plan Organization**

Legislative and policy “silos” affect pedestrian decision making. For example, the Planning Act addresses municipal land use planning; the Highway Traffic Act addresses street design and management; the Environmental Assessment Act addresses environmental impacts and the Health Promotions and Protection Act addresses chronic disease risk from physical inactivity. These multiple considerations complicate City decision making on pedestrian mobility and make coordination between municipal departments both cumbersome and difficult.

In order to address coordination, City staff helped create **Figure 1 “City Implementation Considerations,”** to describe the various considerations that should apply pedestrian decision making. These include:

- Legislative considerations;
- Planning considerations;
- Operational considerations;
- Communications considerations; and
- Infrastructure management considerations.

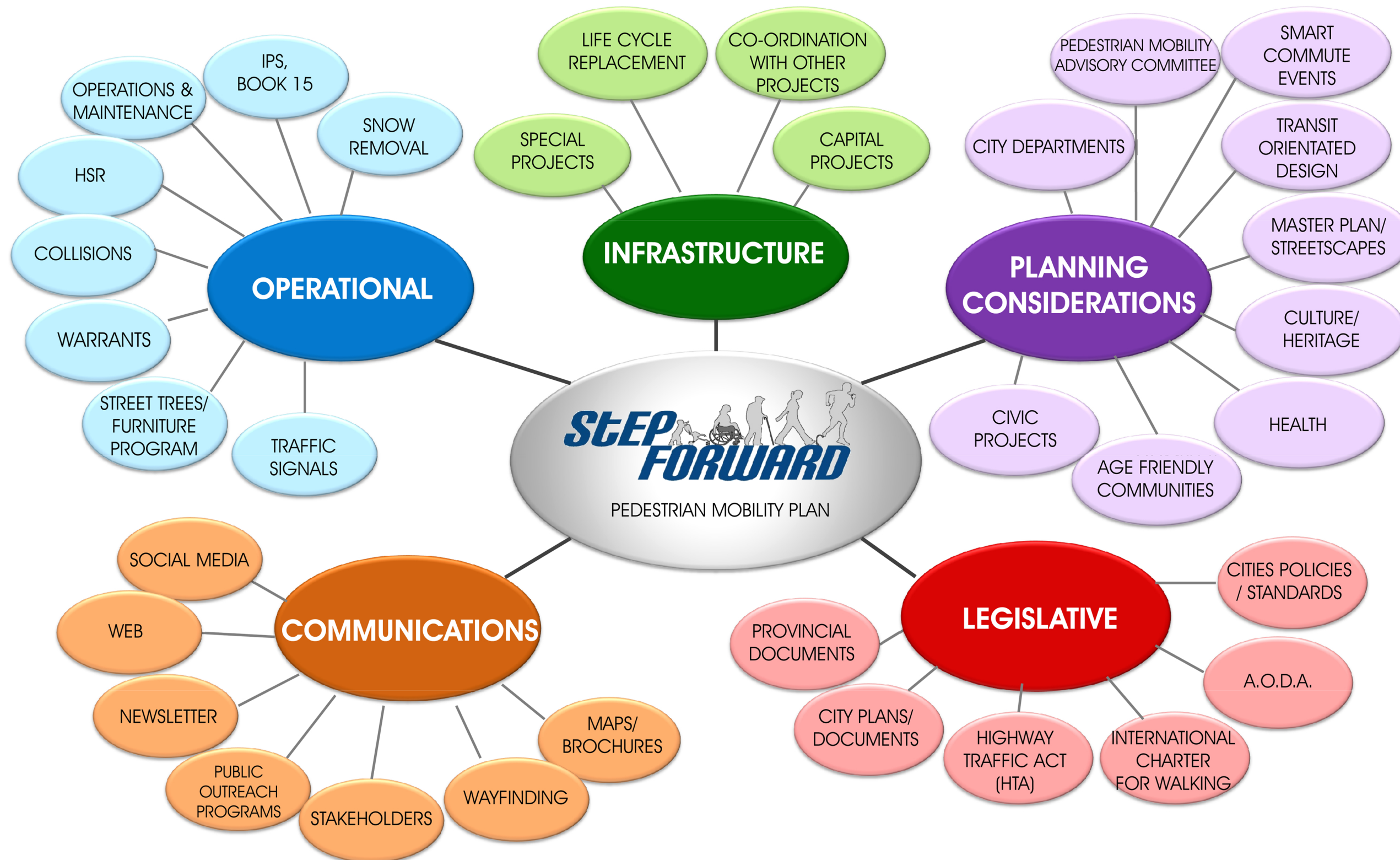
These themes best address how the City of Hamilton’s administration manage its various commitments among Departments to implement pedestrian infrastructure improvements.

Context area descriptions and pedestrian design solutions (toolbox solutions), policies and programs were then developed to address the goals and objectives of this Pedestrian Mobility Plan. These are used in the routine accommodation decision making to select appropriate designs, policies and programs for application in projects throughout the City. This has been conducted consistent with the Municipal Class Environmental Assessment requirements in the manner described in the following sections.





Hamilton



City Implementation Considerations

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 ■ Environmental Planning Fax. (905) 681-2944  
 ■ Resource Analysis e-mail: [ocoin@oconnor-consultants.com](mailto:ocoin@oconnor-consultants.com)  
 website: [www.oconnor-consultants.com](http://www.oconnor-consultants.com)

FIGURE 1



## 1.6. Study Team

**G. O'Connor Consultants Inc.** led the Consulting Team in the preparation of the Pedestrian Mobility Plan. They were responsible for overall project direction, management, design, text, mapping and public meetings. Glenn O'Connor co-lead the project and prepared and edited text. He was assisted by Marianne Mokrycke, Beth Coughlan and Andrew Danielson. **CIMA+** provided expertise on transportation planning, traffic engineering and road safety analysis, and environmental assessment. Brian Malone co-lead the project. He was assisted by Sonya Kapusin, Jaime Garcia, Pedram Izadpanah, and Alireza Hadayeghi. **McKibbon Wakefield Inc.** provided environmental planning expertise and primary report writing, Provincial/Municipal planning issues, and public health and pedestrian research. George McKibbon provided these services. **Toole Design Group** provided expertise on pedestrian planning and toolbox solutions. Peter Lagerwey, R. J. Eldridge and Michael Hintz provided these services. **DMD & Associates Ltd.** provided expertise on pedestrian lighting. Don McLean provided this service.

## 1.7. Acknowledgements

The study team gratefully wishes to acknowledge the valued input from the members of City of Hamilton Council, City staff, stakeholder and advisory groups, and the public who guided, challenged ideas and helped to shape this document. In particular, we wish to acknowledge:

- Steve Molloy, Project Manager, Transportation Master Plan Implementation, City of Hamilton
- Al Kirkpatrick, Manager, Transportation Planning, City of Hamilton
- Hart Solomon, Manager (now retired), Traffic Engineering, City of Hamilton
- Daryl Bender, Project Manager, Alternative Transportation, City of Hamilton

Many members of the public participated in surveys, community walk maps, sent in comments and attended public open houses. These were all carefully documented, reviewed and considered in the preparation of this document.

*Any errors or omission are solely the responsibility of the authors.*



## 2. LEGISLATIVE CONSIDERATIONS

### 2.1. Introduction

We live in challenging times with many apparent conflicting legislative and policy requirements. This and the following sections organize this legislative and policy framework for the purposes of preparing this Pedestrian Mobility Plan.

The Highway Traffic and Planning Acts provide the legislative frameworks whereby pedestrian planning takes place. The City Official Plan provides direction on land use and the infrastructure and public work necessary to accommodate these uses. With the exception of Federal and Provincial facilities, public works, need to be provided for, within an approved Official Plan. The Provincial Policy Statement 2005 sets out Provincial Policy municipal planning decisions have to be consistent with.

The Growth Plan for the Greater Golden Horseshoe prepared under the Places to Grow Act and the Greenbelt Plan, prepared under the Greenbelt Act, also provide policy direction that municipal official plans must conform to. The Niagara Escarpment and Parkway Belt West Plans also require municipal official plan conformity.

The Health Promotion and Protection Act directs Medical Officers of Health to address a variety of Provincial public health concerns including chronic disease protection. The Ontario Public Health Standards 2008 address the scope of research and intervention approaches the Medical Officer of Health is to take in achieving these standards including promoting programming aimed at increasing physical activity among Hamilton residents and commenting on built environment decisions.

The Highway Traffic Act provides the basic framework for the design and operations of streets and highways. Municipalities have limited discretion to vary from the legislation and operational and design policy when considering changes to street design and operation, where pedestrians are concerned. The Highway Traffic Act and its policy manuals are under review and there appears to be some openness to better provide for active transportation, especially pedestrian activity.

MetroInx prepared a regional transportation plan for the Greater Golden Horseshoe including Hamilton. While this plan has no statutory authority, it is used as a means by which Provincial





public transportation investments are made and needs to be addressed where pedestrian planning is concerned.

Municipal infrastructure requires Environmental Assessment Act approval. The Municipal Class Environmental Assessment enables municipalities to be in compliance with this Act. This has been followed in the development of this Pedestrian Mobility Plan.

Other applicable legislation includes the Green Energy, the Water Improvements, and Environmental Bill of Rights Acts. These establish a framework for the preparation of conservation plans that will include energy conservation, where municipal infrastructure is concerned. While the applicable provisions of this legislation are not fully developed administratively, at some time, the reduction of green house gases and energy conservation will emphasize pedestrian activity as a means of reducing transportation energy consumption and green house gas emissions.

The following two policies are of interest: Ontario's Action Plan for Healthy Eating and Active Living; and Climate Ready, Ontario's Adaptation Strategy and Action Plan.

Municipal pedestrian decisions are guided by the Official Plan that provides for municipal infrastructure and land use while the transportation Master Plan provides for the design and operation of the municipal transportation system. This

Pedestrian Mobility Plan complements and overlaps this policy framework.

The City of Hamilton signed the International Charter for Walking in 2008. Together with other stakeholders, several studies have been undertaken to assess and improve pedestrian mobility in City neighbourhoods.

In addition, the City of Hamilton has participated with various stakeholders and its citizens in various conversations that have created municipal policy and decisions. For example, Vision 2020, Clean Air Hamilton, and the Bay Area Restoration Council have become forums for municipal and stakeholder decision-making. These provide important opportunities whereby projects involving increased pedestrian mobility and safety are discussed and implemented.

These and other important matters will be addressed in this Pedestrian Mobility Plan. Provincial legislation is described in Section 2.2 while City plans and policies adopted by by-law are described in Section 2.3. In Section 2.4 the manner in which these are used in the Pedestrian Mobility Plan is described.





## 2.2. Provincial Legislation

Table 1: Provincial Legislation

Provincial Legislation	Highlighted Policy	Comments/Consideration
<p><b>The Planning Act</b></p>	<p>The purpose of the legislation is to: <i>promote sustainable economic development in a healthy natural environment within the policy and by the means provided in this Act</i>” (Section 1.1)</p> <p>The City is to have regard to the following matters of Provincial interest:</p> <ul style="list-style-type: none"> <li>• <i>The supply, efficient use and conservation of energy and water;</i></li> <li>• <i>The adequate provision and efficient use of... transportation systems;</i></li> <li>• <i>The orderly development of safe healthy communities;</i></li> <li>• <i>The accessibility of persons with disabilities to all facilities, services and matters with which this Act applies;</i></li> <li>• <i>The adequate provision and distribution of educational, health, social, cultural and recreational facilities;</i></li> <li>• <i>The protection of public health and safety; and</i></li> <li>• <i>The promotion of development that is designed to be sustainable, to support public transit and to be oriented to pedestrians.</i></li> </ul>	<p>The recommended toolbox solutions provide design improvements that will improve pedestrian safety. The routine accommodation decision-making process helps select the appropriate solution. Both address to varying degrees all of the purpose of the legislation and the various matters of Provincial interest by focusing attention on measures that will improve pedestrian safety and create more interesting streets.</p>
<p><b>The Environmental Assessment Act</b></p>	<p>“<i>The purpose of this Act is the betterment of the people of the whole or part of Ontario by providing for the protection, conservation, and wise management in Ontario of the Environment</i>”</p> <p>“<i>Undertakings are to be assessed using the provisions of the Act and are defined as including:</i></p> <ul style="list-style-type: none"> <li>• <i>An enterprise of activity by or on behalf of Her Majesty in right of Ontario, by a public body or public bodies or by a municipality or municipalities.</i>”</li> </ul>	<p>By employing the Municipal Class Environmental Assessment, 2007, in the development and analysis of the Pedestrian Mobility Plan, Schedule A and B projects may proceed to implementation.</p> <p>Where recommended toolbox solutions are employed in larger projects, approval will be obtained in the assessment of these larger projects.</p>
<p><b>The Green Energy Act, the Water Opportunities Act and the</b></p>	<p>Section 6 of the Green Energy Act makes provision for municipalities to prepare and implement energy conservation and demand management reports at some time in the future. The Water Opportunities Act makes provision for water conservation</p>	<p>Transportation energy conservation will occur with greater attention to vehicle and fuel technology, travel activity and vehicle and system operations. The last two elements rely upon increased functional pedestrian activity. Increased pedestrian usage will be an important component of municipal energy</p>

Provincial Legislation	Highlighted Policy	Comments/Consideration
<b>Environmental Bill of Rights</b>	plans to be prepared in conjunction with energy conservation plans. Section 58.1 (1) of the Environmental Bill of Rights requires the Environmental Commissioner to report to the Speaker of the Assembly annually on the progress to reduce transportation fuels among other energy sources.	conservation planning where transportation is concerned. The recommended toolbox solutions and routine accommodation decision-making process will provide transportation energy conservation.
<b>The Highway Traffic Act</b>	The Highway Traffic Act provides for the design, operation and maintenance of highways and roads in the Province of Ontario. The first section advises drivers to exercise care and attention. The second instructs pedestrians, at pedestrian crossings, to not leave the curb or place of safety and move into the path of an approaching vehicle if the vehicle is so close that the driver will not be able to yield the right of way.	The Highway Traffic Act, its regulations and design guidelines, operate as a complete function, operating largely in isolation from other transportation modes that share the road. This results in uncertainty where the onus for safe travel resides on the pedestrian on and off the sidewalk. This uncertainty conflicts with other Provincial legislation discussed in this table and Provincial policy on land use and public health where pedestrian mobility is concerned.
<b>The Accessibility for Ontarians with Disabilities Act (AODA)</b>	This Act provides for <i>“developing, implementing and enforcing accessibility standards in order to achieve accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment, buildings, structures and premises on or before January 1 2015.”</i>	Public health risks in the 20 <sup>th</sup> Century were associated with infectious diseases whereas in the 21 <sup>st</sup> Century, chronic disease risks are associated with physical inactivity and our built environments. Continued public health improvements will be driven by the creation of active built environments.
<b>The Health Promotion and Protection Act</b>	The purpose of this Act <i>“is to provide for the organization and delivery of public health programs and services, the prevention of the spread of disease and the promotion and protection of the health of the people of Ontario.”</i>	The Ontario Public Health Standards provide the following direction to Medical Officers of Health and Public Health Boards: Boards of Health <i>“shall conduct epidemiology analysis of surveillance data, including monitoring trends over time to address physical activity.”</i> <i>“The Board of Health shall work with municipalities to support healthy public policies and the creation or enhancement of supportive environments in recreational settings and the built environment regarding the following topics: <b>healthy eating; healthy weights; comprehensive tobacco control; physical activity; alcohol use; and exposure to ultraviolet radiation.</b>”</i>

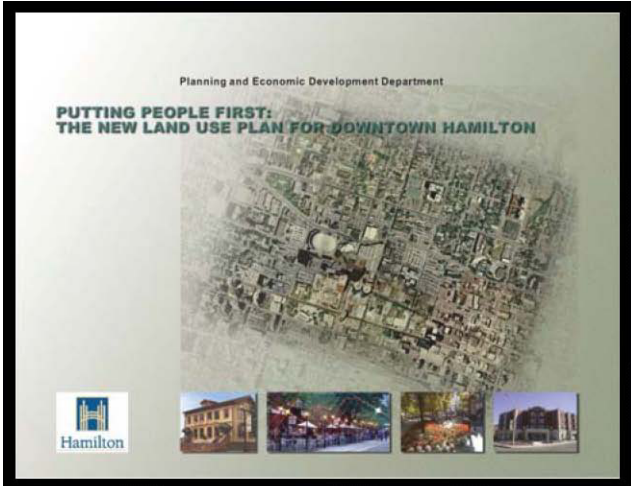
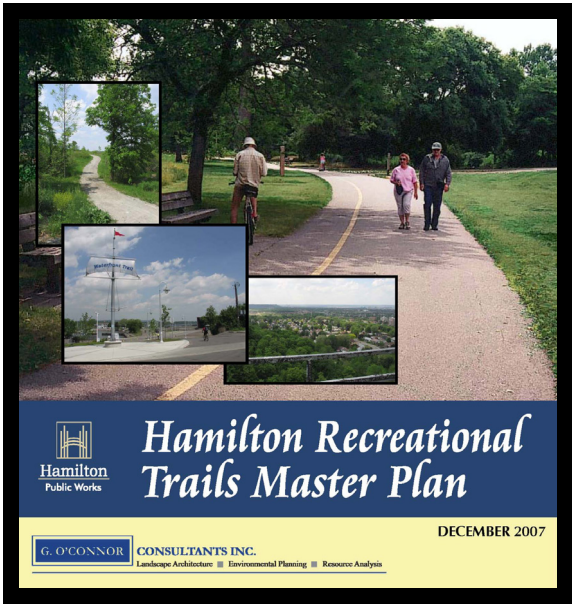
### 2.3. City Plans/Documents

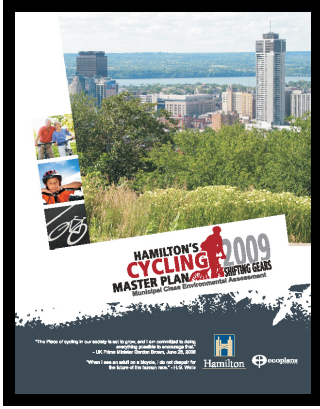

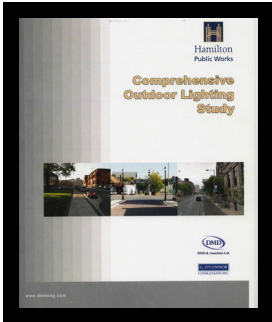
Table 2: City Plans/Documents

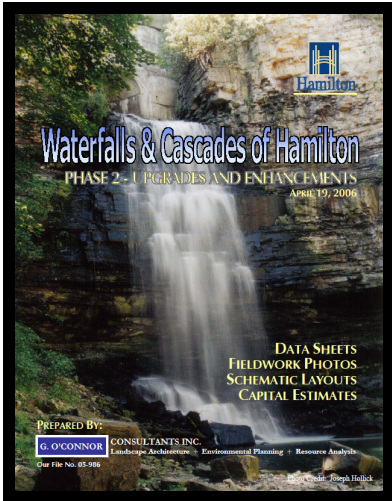
City Plans/Documents	Highlighted Policy	Comments/Consideration
<b>International Charter for Walking</b>	The Charter’s intent is to create healthy, efficient and sustainable communities where people choose to walk. Signatories to the Chapter are committed to:	On April 1 2008, the Mayor of Hamilton signed the International Charter for Walking.



City Plans/Documents	Highlighted Policy	Comments/Consideration
	<ul style="list-style-type: none"> <li>• Increased inclusive mobility;</li> <li>• Well designed and managed spaces and places for people;</li> <li>• Improved integration of networks;</li> <li>• Supportive land use and spatial planning; reduced road danger; less crime and fear of crime;</li> <li>• More supportive authorities; and a culture of walking.</li> </ul>	
<p><b>Vision 2020</b></p>	<p>The Region of Hamilton Wentworth initiated Vision 2020 in the early 1990s. It has been updated and adopted by the City of Hamilton after amalgamation. It has been citizen lead and the Vision addresses sustainability in all its various forms. Annual monitoring occurs to measure progress towards the vision which follows:</p> <p>“As citizens, businesses and government of the City of Hamilton we accept responsibility for making decisions that lead to a healthy, sustainable future. We celebrate our strengths as a vibrant, diverse City of natural beauty nestled around the Niagara Escarpment and Hamilton Harbour. We are able to achieve our full potential through safe access to clean air and water, food, shelter, education, satisfying employment, spirituality and culture. We weight social/health, economic and environmental costs, benefits and risks equally when making decisions.”</p>	<p>Improving safe and interesting pedestrian environments is central to the vision, goals and objectives of Vision 2020. Implementation of the Pedestrian Mobility Plan will provide an important measure to monitor implementation of the Vision.</p>
<p><b>Growth Related Integrated Development Strategy (GRIDS)</b></p>	<p>In September 2003, the City of Hamilton provided direction to develop the GRIDS Study Design. From that effort, the new Hamilton Official Plan and various infrastructure and servicing Master Plans were developed.</p>	<p>The relevant directions that apply to the Pedestrian Mobility Plan follow:</p> <ul style="list-style-type: none"> <li>• <i>“Direction #6 – Expand transportation options that encourage travel by foot, bike and transit and enhance inter-regional transportation connections.</i></li> <li>• <i>Direction #7 – Maximize the use of existing buildings, infrastructure and vacant and abandoned land.</i></li> <li>• <i>Direction #8 – Protect ecological systems and improve air, land and water quality.</i></li> <li>• <i>Direction #9 – Maintain and create attractive public and private spaces and respect the unique character of existing buildings, neighbourhoods and settlements.”</i></li> </ul>

City Plans/Documents	Highlighted Policy	Comments/Consideration
<p><b>The Downtown Secondary Plan, Putting People First: The New Land Use Plan for Downtown Hamilton</b></p> 	<p>Putting People First: The New Land Use Plan for Downtown Hamilton is a plan for the downtown core, was approved in 2001. This secondary plan contains goals, actions, policies and implementation measures for the downtown. It presents the community's vision for the future of the downtown core to guide public and private decision-making. The City also sets priorities for publicly funded initiatives. The Secondary Plan fosters a dynamic mix of urban residential, commercial and institutional activities across the downtown core including comfortable streetscapes, access and safety for pedestrians.</p>	<p>The recommended toolbox solutions provide pedestrian designs and policies that will assist in the achievement of the City's goals, actions and policies for the downtown core. The routine accommodation decision-making process will help City decision-makers chose designs that address existing circumstances and planned futures while the routine accommodation decision-making process will help integrate pedestrian improvements into downtown streets.</p>
<p><b>City of Hamilton Recreational Trails Master Plan</b></p> 	<p>In 2007, the City of Hamilton approved the Recreational Trails Master Plan that provides a comprehensive, multi-purpose off-road recreational trail system to connect natural areas, cultural features and major land uses within the City. This system links to on-road cycling and pedestrian commuter systems and will be fully integrated into a larger network of Regional, Provincial and National recreational trails.</p>	<p>This multipurpose off road recreational trails system complements the development of a pedestrian mobility plan by providing trails that access natural and cultural parks and open spaces, by providing important and interesting links to major employment, shopping and institutional uses and, in the rural area, provides alternative off-road pedestrian environments.</p>

City Plans/Documents	Highlighted Policy	Comments/Consideration
<p><b>City of Hamilton Cycling Master Plan</b></p> 	<p>In 2009, the City of Hamilton approved the Cycling Master Plan. The Plan’s goal is to have 15% of trips by walking or cycling in 10 years. Presently about 1 – 2% of trips are cycling trips. Within urban context areas another goal is to have cycling infrastructure on 33% of the arterials and collectors within this time frame. Presently about 9% have installed infrastructure. In rural context areas the goal is to have paved shoulders on 25% of the roads.</p>	<p>These scheduled improvements can proceed hand in hand with the recommended toolbox solutions and routine accommodation decision-making process. As increasing numbers of Hamilton citizens will walk and cycle in the future, it will be important to coordinate cycling and pedestrian infrastructure improvements and programming in order to facilitate this transition.</p>
<p><b>Downtown Mobility Master Plan</b></p> 	<p>The Hamilton Downtown Mobility Street Master Plan is both a planning and implementation framework document. This Plan identifies strategies to enhance the public realm in the downtown core. Specific streetscape projects are addressed together with an implementation framework. Many of the enhancements are intended to improve the pedestrian and cycling environments.</p>	<p>The recommended toolbox solutions and routine accommodation decision-making process will increase the resources available to City staff to makes decisions in the implementation of the Downtown Mobility Master Plan. These resources will also help ensure consistency throughout the City.</p>
<p><b>Hamilton’s Comprehensive Outdoor Lighting Study</b></p> 	<p>In October 2008, a Task Force on cleanliness and security in the downtown core completed a report entitled: <i>“Protecting the Future: A Safety and Security Audit of the Downtown Hamilton Improvement Project Area”</i>. This report concluded that lighting improvements could improve public and pedestrian sense of security and reduce the fear of crime.</p> <p>In 2011, the City produced its Comprehensive Outdoor Lighting Study that provides guidelines for public and pedestrian lighting throughout the City. It addresses “how to light” and “when to light”. From both a safety and personal security standpoint, the study concluded that pedestrian lighting should be provided on all pedestrian facilities downtown and should follow industry practices set forth in the Transportation Association of Canada</p>	<p>The analysis showed streets and roads meet the acceptable lighting level requirements whereas pedestrian sidewalks failed to meet lighting standards recommended. This results in a less pedestrian friendly environment. City wide improvements will be required to improve pedestrian perceptions of safety. The recommendations can be implemented through routine accommodation.</p>

City Plans/Documents	Highlighted Policy	Comments/Consideration
	Guidelines.	
<p><b>Gore Master Plan</b></p>	<p>The Gore Master Plan creates a pedestrian plaza centred on Gore Park and the surrounding streets. The Plan was approved in September 2009 and is moving to implementation. It will create a public pedestrian plaza that is an important pedestrian focal point in the City of Hamilton that is rich in architectural and historic implications.</p>	<p>The Gore Master Plan will create a pedestrian plaza that will be unique within the City of Hamilton. The experience will be important to document and reflect upon where it might be best duplicated elsewhere within the City of Hamilton.</p>
<p><b>Hamilton Waterfalls Study</b></p> 	<p>The City of Hamilton is fortunate to have over 64 waterfalls (and counting) along the Niagara Escarpment within its jurisdiction. Some are privately and some are publicly owned. The publicly owned waterfalls are important tourism and recreational resources.</p>	<p>Proper signage and new or upgraded all-weather trails are required to ensure that year round access to the waterfalls is maintained and safety is of the upmost concern. The Waterfalls and Cascades of Hamilton Report observe these features provide “tremendous opportunities for historic, cultural, natural education as part of an overall public education program. The waterfalls and cascades also offer many opportunities for tourism as the “City of Waterfalls” given the fact that many are, or will be linked to the City-wide trails system as part of an overall eco-tourism potential.” The Hamilton Recreational Trails Master Plan links many of these trails to the trails system and the pedestrian facilities provided by the Pedestrian Mobility Plan.</p>
<p><b>Cultural Mapping</b></p>	<p>As part of a municipal cultural planning effort, known as “Love your City”, the City of Hamilton is mapping its cultural resources. Eight cultural resource categories are being mapped including: cultural industries; cultural occupations; community cultural organizations; cultural facilities and spaces, natural heritage; cultural heritage; cultural events and festivals and features of intangible cultural value.</p>	<p>Attention to detail is essential if interesting pedestrian environments are to be created. Public input highlighted the interest Hamilton’s pedestrian have in the cultural environment and street life. This mapping will be an important resource input into application of the routine accommodation decision-making process.</p>



City Plans/Documents	Highlighted Policy	Comments/Consideration
<p><b>Transit Oriented Development Guidelines</b></p>	<p>The “nodes and corridors” concept is central to the organization of the New City of Hamilton’s Urban Official Plan. The Transit Oriented Development Guidelines provide for redevelopment that reflects the transformative effect light rail and bus rapid transit will have on surrounding land use. The principles sought by implementation include:</p> <ol style="list-style-type: none"> <li>1. Promote place making;</li> <li>2. Ensure a mix of appropriate land uses;</li> <li>3. Require density and compact urban form;</li> <li>4. Focus on urban design;</li> <li>5. Create pedestrian environments;</li> <li>6. Address parking management;</li> <li>7. Respect market considerations;</li> <li>8. Take a comprehensive approach;</li> <li>9. Plan for transit and promote connections to all modes.</li> </ol> <p>The B-Line Opportunities and Challenges Study advances thinking on the transformative effect rapid transit will have and generally sets directions on sidewalk improvements needed to provide station access.</p>	<p>The recommended toolbox solutions provide design improvements that prescribe the varieties of designs available to achieve better pedestrian access. The routine accommodation decision-making process sets out a selection process that assesses existing conditions and takes into consideration planned futures while addressing a range of considerations that may affect detailed design.</p>



## **2.4. Legislative Implementation**

Each of these documents as documented in Section 2.2 and 2.3 have been considered and addressed in the development of the Pedestrian Mobility Plan. By summarizing the applicable policy, drawing inferences on the

application of this policy to pedestrian planning and by developing the toolbox solutions, the routine accommodation decision making process has sufficient flexibility for applicable policies to be addressed.



## 3. PLANNING CONSIDERATIONS

### 3.1. Introduction

Planning considerations represent Provincial policy and plans which require municipal plan conformity. City of Hamilton plans and policies direct how that conformity is addressed, together with City aspirations for land uses, civic spaces, built environments and streets. Taken together, these considerations

address the design of the City's public domain.

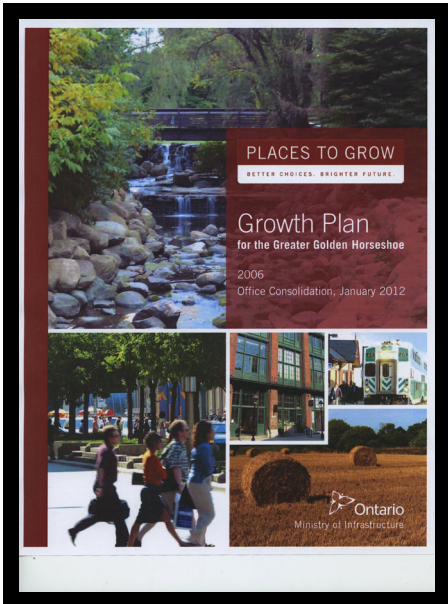
Section 3.2 addresses Provincial policies and plans to which City plans must be consistent with. Section 3.3 addresses the various City plans and policies that conform to Provincial policy and express the City's aspirations for land uses, civic spaces, built environments and streets.

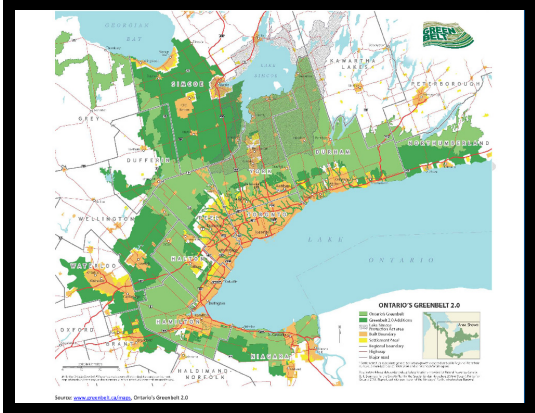
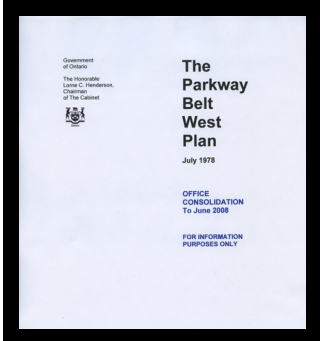


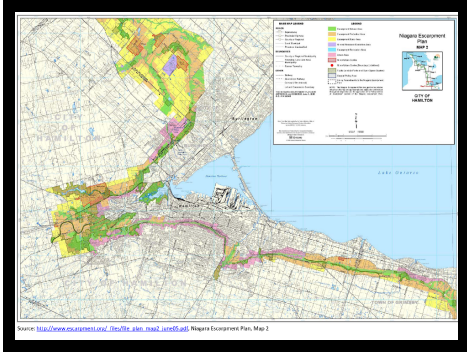
### 3.2. Provincial Plans and Policies

Table 3: Provincial Plans and Policies

Provincial Policies/Plans	Highlighted Policy	Comments/Consideration
<p><b>Provincial Policy Statement 2005</b></p>	<p><i>“The Provincial Policy Statement provides policy direction on matters of provincial interest related to land use planning and development.” “The long term prosperity and social well being of Ontarians depends on maintaining strong communities, a clean and healthy environment and a strong economy.” It states: “strong communities, a clean and healthy environment are inextricably linked. Long term prosperity, environmental health and social well-being should take precedence over short term considerations.”</i></p> <p>In Section 1.1, Building Strong Communities, <i>“efficient land use and development patterns support strong, liveable and healthy communities, protect the environment and public health and safety, and facilitate economic growth.”</i> In subsection 1.1.1, specific policies address:</p> <ul style="list-style-type: none"> <li>• <i>“accommodating an appropriate range and mix of residential, employment (including industrial, commercial and institutional uses) recreation and open space uses to meet long term needs, and</i></li> <li>• <i>avoiding development and land use patterns which may cause environmental or public health and safety concerns.”</i></li> </ul> <p>In subsection 1.5.1, <i>“Healthy active communities should be promoted by:</i></p> <ul style="list-style-type: none"> <li>• <i>planning public streets, spaces and facilities that are safe, meet the needs of pedestrians, and facilitate pedestrian and non-motorized movement, including but not limited to, walking and cycling;</i></li> <li>• <i>providing a full range and equitable distribution of publicly accessible built and natural settings for recreation, including facilities, parklands, open space areas, trails and where practical, water based resources.”</i></li> </ul> <p>Applicable policies that address long term prosperity (Subsection 1.7.1.) include</p> <ul style="list-style-type: none"> <li>• <i>“providing for an efficient, cost effective, reliable multi-modal transportation system that is integrated with adjacent systems and those in other jurisdictions, and is appropriate to address projected needs.”</i></li> </ul> <p>In Section 1.8, Energy and Air Quality, the following policies apply:</p>	<p>These policies provide further direction on how the matters of Provincial interest set out in the Planning Act and summarized on Table 2.2 are to be addressed. Specifically, they also justify the development and implementation of the City of Hamilton Pedestrian Mobility Plan.</p>

Provincial Policies/Plans	Highlighted Policy	Comments/Consideration
	<ul style="list-style-type: none"> <li>• “promote compact form and a structure of nodes and corridors;</li> <li>• promote the use of public transit and other alternative transportation modes in and between residential, employment (including commercial, industrial and institutional uses) and other areas where these exists or are to be developed;</li> <li>• focus major employment, commercial and other travel intensive uses in sites which are well served by public transit, where this exists or is to be developed, or designing these to facilitate the establishment of public transit in the future.”</li> </ul>	
<p><b>Places to Grow</b></p> 	<p>“Getting around will be easy. An integrated transportation network will allow people choices for easy travel both within and between urban centres throughout the region. Public transit will be fast, convenient, and affordable. Automobiles, while still a significant means of transport, will be only one of a variety of effective and well-used choices for transportation. Walking and cycling will be practical elements of our urban transportation systems.”</p> <p>“The plan is about building complete communities, whether urban or rural. These are communities that are well designed, offer transportation choices, accommodate people at all stages of life and have the right mix of housing, a good range of jobs, and easy access to stores and services to meet daily needs..... Convenient access to public transportation and options for safe, non-motorized travel is also provided.”</p> <p>In Subsection 2.2.3.7, intensification, “all intensification areas will be planned and designed to...support transit, walking and cycling for everyday activities.”</p> <p>Where infrastructure planning is concerned, “the transportation system... will be planned and managed to...</p> <ul style="list-style-type: none"> <li>• offer a balance of transportation choices that reduce reliance upon any single mode and promotes transit, cycling and walking;</li> <li>• be sustainable by encouraging the most friendly and environmentally appropriate mode for trip making;</li> <li>• provide for the safety of system users.”</li> </ul> <p>Policy 3.2.3.3 states “municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning to:</p> <ul style="list-style-type: none"> <li>• provide safe, comfortable travel for pedestrians and bicyclists within existing</li> </ul>	<p>The recommended toolbox solutions and routine accommodation decision making process will provide an effective means whereby City Departments can make the planning decisions necessary to implement these policies.</p> <p>Two elements are critical to making decisions that implement these policies:</p> <ul style="list-style-type: none"> <li>• integrating decision making between City Departments with input from stakeholders at large and the public; and</li> <li>• integrating decision making at all scales, from secondary planning to maintenance decisions.</li> </ul> <p>The creation of a Pedestrian Mobility Advisory Committee and the application of the routine accommodation decision-making process will address integration between Departments, stakeholders at large and the public. The range of toolbox solutions and routine accommodation process will enable the flexibility to help City staff make decisions that improve pedestrian mobility whether for maintenance or design.</p>

Provincial Policies/Plans	Highlighted Policy	Comments/Consideration
	<p>communities and new development;</p> <ul style="list-style-type: none"> <li>provide linkages between intensification areas, adjacent neighbourhoods and transit stations, including dedicated lane space for bicyclists on the major street network where feasible.”</li> </ul>	
<p><b>The Greenbelt Plan</b></p> 	<p>“The Greenbelt is a broad band of permanently protected land which provides for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation and resource uses.”</p> <p>Applicable tourism, recreation and cultural goals include:</p> <ul style="list-style-type: none"> <li>“provision of a wide range of publicly accessible built and natural settings for recreation including facilities, parklands, open spaces areas, trails and water based/shoreline uses that support hiking, angling and other recreational activities; and</li> <li>enabling continued opportunities for sustainable tourism development.”</li> </ul> <p>With respect to trails, encouragement is provided for “the development of a trail plan and a coordinated approach to trail planning and development in the Greenbelt to enhance key trail networks and to strategically direct more intensive activities away from sensitive landscapes.”</p> <p>With respect to municipal parkland, encouragement is provided to “develop and incorporate strategies (such as community specific levels of provision) into official plans to guide the adequate provision of municipal recreation facilities, parklands, open space areas and trails.”</p>	<p>The City of Hamilton Recreational Trails Master Plan provides the trail networks in a sensitive manner.</p>
<p><b>Parkway Belt West Plan</b></p> 	<p>The Parkway Belt West Plan provides for infrastructure corridor development. While much of the land within the Plan has been transferred to the jurisdiction of the Niagara Escarpment Plan, important lands within the City of Hamilton in the vicinity of Cootes Paradise remain. In addition, public lands acquired for implementation of that plan are being considered for final disposition.</p>	<p>The City of Hamilton Recreational Trails Master Plan provides the trail networks in a sensitive manner required by the Parkway Belt West Plan policy. Provided the trails in the Trails Master Plan are linked to pedestrian facilities within the Pedestrian Mobility Plan, the appropriate linkages will be there in a manner that addresses the objectives of the Parkway Belt West Plan.</p>

Provincial Policies/Plans	Highlighted Policy	Comments/Consideration
<p><b>Niagara Escarpment Plan</b></p> 	<p>“The purpose of this Plan is to provide for the continuous maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment.”</p> <p>The objectives include:</p> <ul style="list-style-type: none"> <li>• “to provide adequate opportunities for outdoor recreation;</li> <li>• to provide for adequate public access to the Niagara Escarpment.”</li> </ul> <p>Part 1 of the Plan provides for a series of designations: Escarpment Natural, Protection and Rural, all of which provide for recreational trails subject to the application of applicable development criteria in Part 2 of the Plan. Part 3 sets out the Niagara Escarpment Parks and Open Space System that provides for a parks system and the Bruce Trail.</p>	<p>The City of Hamilton Recreational Trails Master plan uses parts 1 and 2 of the Plan as a guide in developing the trail system and many of the parks addressed in the Niagara Escarpment Parks and Open Space System are located on the Niagara Escarpment within the City. Provided the trails in the Trails Master Plan are linked to pedestrian facilities within the Pedestrian Mobility Plan, the appropriate linkages will be there and in a manner that addresses the environmental goal and objectives of the Niagara Escarpment plan and the parent legislation.</p>
<p><b>Metrolinx’s Regional Transportation Plan</b></p>	<p>Metrolinx approved a Regional transportation Plan in November 2008. The Plan contains “over 100 priority actions and supporting policies... <i>The Big Move will help to revitalize our communities into kinds of places where residents can take transit, ride a bicycle or walk to fulfill their day’s activities, and where children can once again walk to school. Over 7,000 kms of new lanes trails and pathways for pedestrians and cyclists will make walking and cycling safe and encourage healthy lifestyles.</i>”</p> <p><i>“The critical link between land use planning and transportation planning is highlighted throughout the Regional transportation Plan. The primary land use policies for the GTHA are the Province’s Growth Plan for the Golden Horseshoe, 2006, the Greenbelt Plan and the Provincial policy Statement 2005. The Regional Transportation Plan provides the transportation plan that conforms to, and helps implement, these Provincial policy directions. The Regional Transportation Plan also provides additional direction on land use planning that builds on these policies, and ties together the Growth Plan for the Greater Golden Horseshoe’s urban structure policies within the transportation system envisioned by the Regional Transportation Plan.”</i></p>	<p>This Plan addresses funding commitments the Province made for transportation infrastructure projects and, while the Plan doesn’t have status as a legal document, it represents an understanding of infrastructure development needs that should be addressed when planning and transportation master planning decisions are made.</p> <p>The detailed work being undertaken on the B Line discussed elsewhere in this report is one of the highest priority projects. The Transit Oriented Development Guidelines are intended to guide new development along corridors such as that followed by the B Line, as well as explore pedestrian infrastructure needs.</p> <p>The Plan’s definition of “active transportation” helps frame how pedestrian activity integrates with other means of active transportation and where the necessary infrastructure changes will be needed in order to create a more active built environment. “Active transportation” is “non-motorized travel, including walking, cycling, roller-blading and movements with mobility devices. The active transportation network includes sidewalks, crosswalks, designated road lane and off-road trails to accommodate transportation.”</p>




Provincial Policies/Plans	Highlighted Policy	Comments/Consideration
<p><b>Ontario’s Action Plan for Healthy Living</b></p>	<p>Ontario’s Action Plan for Active Living is Provincial policy that addresses the future health care costs associated with obesity, physical inactivity and the built environment. Specific attention is directed to:</p> <ul style="list-style-type: none"> <li>• developing “an innovative, comprehensive multi-sectoral plan to address healthy weights in partnership with other Ministries;</li> <li>• promote active living and safe routes to school;</li> <li>• make it easier for children and youth to be physically active; promote healthier urban design;</li> <li>• support the implementation of initiatives such as the Growth Plan and the Greenbelt plan; and</li> <li>• build partnerships for change.”</li> </ul>	<p>This policy creates a framework within which the healthy and complete communities policies described in other Provincial plans and policies can be understood.</p>
<p><b>Climate Ready: Ontario’s Adaptation Strategy and Action Plan</b></p>	<p>Ontario’s Adaptation and Action Plan responds to the recommendations of the Report of the Expert Panel on Climate Change Adaptation released in November 2009. It emphasizes increased awareness of land use planning tools where sustainable transportation is concerned.</p>	<p>Increased pedestrian mobility will be an important way to reduce green house gas emissions.</p>

### 3.3. Municipal Plans and Policies

Table 4: Municipal Plans and Policies


Municipal Plans and Policies	Highlighted Policy	Comments/Consideration
<p><b>The City of Hamilton New Official Plan</b></p>	<p>In February 2003, the Hamilton City Council authorized the development of a new Official Plan. The development of this Official Plan occurred in two phases. The first culminated in the approval of the Rural Hamilton Official Plan in December 2008. The second culminated in the approval of the Urban Official Plan in March 2011. Both were under appeal and before the Ontario Municipal Board. The Rural Official Plan was approved by the O.M.B. March 2011. Within these documents, are policies that create pedestrian oriented places that are: safe, accessible, connected and easy to navigate for people of all abilities.</p> <p>To reach these goals, as well as an adequate integration of public and private places, several urban design principles are addressed. These include connecting urban areas and infrastructure through a more efficient and safe street network; a street lighting system design that considers pedestrian activities; and the provision of real and perceived safety measures not only for vehicles but all road users into street design.</p> <p>The Official Plan also recognizes the relationship between transportation and urban planning and the role that an integrated transportation network plays in creating complete communities and improving overall quality of life.</p> <p>To create these complete communities, specific policies are provided in Chapter C – City Wide Systems and Designations – for the development of an integrated and active transportation network. For example, Subsection 4.2.8 requires all secondary plans and designs for major transit generators allocate zones of higher density near transit stops or stations and make use of adequate land uses and road network configurations to promote modal choice. In Subsections 4.2.9 and 4.3.3 the connection between active transportation and direct access to transit facilities through an adequate sidewalk and walkway designs is highlighted. Subsection 4.3.5 provides for safer pedestrian environments based on separation of road users.</p> <p>The nodes and corridors concept is central to the organization of the City’s urban policies. The Growth Related Integrated Development Strategy and the Transportation Master Plan set out a nodes and corridors urban structure comprised of potential rapid transit lines shown in Appendix B, Major Transportation Facilities and Routes in the City of Hamilton Official Plan. The Plan provides the policies whereby these transit facilities are implemented. Several of these routes are included within the Regional Transportation Plan. Under the Move Ontario 2020 plan, the Province of Ontario provided funding to address planning, design and engineering</p>	<p>The functional road classifications and associated policies and standards for rural and urban roads mostly follow standards and best practices that promote and provide support for motorized vehicular traffic. The street classifications and resultant R.O.W. are intended to balance a wide range of competing requirements. While making provisions for an adequate right of way, wide enough to support all modes of transportation reduces the conflict between the different elements of the roadway. These requirements include street furniture, trees, amenities and infrastructure. This will provide more balanced treatment between vehicular, transit, cycling and pedestrian modes.</p> <p>This missing detail on pedestrian improvements would have helped promote the seamless integration between pedestrian infrastructure, transit facilities and the built environment. These not only improve mobility of specific sections of the population with no access to private vehicles (e.g., seniors, children), but also create an environment in which commuters can make use of public transit to reach destinations outside the range of a comfortable walk.</p> <p>Amendments to the Official Plan to include, or modify existing sections to rebalance existing transportation policies (e.g., sidewalk width and pedestrian amenities) are not recommended at this time. Alternatively, use of the context area mapping contained in this Pedestrian Mobility Plan, together with an assessment of neighbourhood and built environment characteristics, such as residential/employment densities; age structure and special needs; connectivity; proximity to jobs and transit; proximity to green space, parks and recreation centres can be integrated into detailed pedestrian planning and design recommended in this pedestrian mobility plan.</p> <p>Pedestrian mobility recommended practices, policies and/or toolbox solutions in this plan can be integrated with site planning standards, operational standards, and engineering design guidelines employed by the City. The new Urban Official Plan has policies related to “Complete Communities” and Complete Streets. When the City undertakes amendments to its Official Plan to implement “complete streets”, amendments to address issues identified above can be considered at that time. The toolbox solutions and recommendations of the Pedestrian Mobility Plan can be incorporated as applicable.</p>

	<p>work on the B Line in order to bring this project closer to implementation. This project is one of the 15 priority projects in the Metrolinx regional Transportation Plan.</p>	
<p><b>The City of Hamilton Transportation Master Plan</b></p> 	<p>With the intention of promoting walking activities in the next phase of detailed planning, the Transportation Master Plan articulated a “high level” plan to improve pedestrian facility conditions through a series of infrastructure improvements and supporting actions.</p> <p>The goals of this Plan are included within the Pedestrian Network Strategy and are summarized as follows:</p> <ul style="list-style-type: none"> <li>• Promote efficient, safe and enjoyable travel for commuters and other pedestrians using on-street pedestrian facilities, and</li> <li>• Promote recreational walking and active transportation using off-street facilities.</li> </ul> <p>Relevant, are the criteria used to evaluate the strengths and weaknesses of the existing pedestrian infrastructure:</p> <ul style="list-style-type: none"> <li>• Extent and continuity,</li> <li>• Directness,</li> <li>• Safety and comfort, with comfort described as an overall sense of personal security and enjoyment of the surroundings.</li> </ul> <p>The general policies of the road classification included in the Transportation Master Plan addressed safety and comfort of pedestrian facilities with the addition of a “buffer zone” (1.5 m wide as a minimum) between the pedestrian zone and the roadway for all types of roads; while extent and continuity is provided for with the presence of sidewalks on both sides of the road for all types of roads, with the exception of industrial and local residential roads.</p> <p>With respect to directness, the Transportation Master Plan relates this concept with street network design and connectivity as a ratio of the actual route distance and straight-line distance. For example, acceptable pedestrian route connectivity conditions are present in a neighbourhood if the walking distance to the nearest elementary school is less than 400m and the pedestrian route distance ratio between the distance on foot and the direct absolute distance is no greater than 1.5 times.</p>	<p>From a pedestrian perspective, the Transportation Master Plan still relies heavily on an auto oriented road classification and the consequent encouragement of street and road design standards that facilitate the use of motor vehicles.</p> <p>Furthermore, since the characteristics and location of pedestrian facilities are conjoined with road classifications (e.g., arterial, collector, local), the nature of the surrounding neighbourhood and the specific pedestrian environment are not fully considered. Subsection 4.2.8 of the City of Hamilton Official Plan introduces the concept of complete streets into urban design, it is reasonable to expect the use of the toolbox solutions and the application of the context areas contained in this Pedestrian Mobility Plan can be used to help implement this complete streets policy.</p> <p>The Transportation Master Plan and GRIDS set out the nodes and corridors around which the Official Plan is structured while the B and A Lines are being addressed in Metrolinx’s Regional Transportation Plan.</p>



### 3.4. Public Art

Table 5: Cultural Policy Report and Public Art Master Plan

City Plans/Documents	Highlighted Policy	Comments/Consideration
<p><b>Cultural Policy Report</b></p>	<p>The City of Hamilton Cultural Policy was approved unanimously by Council on June 27, 2012.</p> <p>The policy is based on input from more than 2,100 citizens including Cultural Leaders and a Citizen’s Reference Panel. The policy is a high level document which sets the City’s vision for culture and sets the foundation for the more detailed Cultural Plan which will be presented to Council in 2013.</p> <p>Planning and Economic Development, together with the new corporate sponsor for the Cultural Policy, view culture as central to city building, business attraction/investment and quality of life. This signals a new way of thinking and underscores culture’s contribution to economic and community development. In addition, the City of Hamilton formally acknowledges that Culture is the fourth pillar of sustainability (joining the social, economic and the environment pillars).</p>	<p>Read more about the Cultural Policy report and presentation under Staff Presentations: Item 7.4  <a href="http://www.hamilton.ca/CityDepartments/CorporateServices/Clerks/AgendaMinutes/GeneralIssues/2012/June20GeneralIssuesCommitteeAgenda.htm">http://www.hamilton.ca/CityDepartments/CorporateServices/Clerks/AgendaMinutes/GeneralIssues/2012/June20GeneralIssuesCommitteeAgenda.htm</a></p> <p>Click here to watch a video about the Citizens’ Reference Panel  <a href="http://www.youtube.com/watch?v=JocQcpWJTRo">http://www.youtube.com/watch?v=JocQcpWJTRo</a></p>
<p><b>Public Art Master Plan</b></p> 	<p>The City of Hamilton Public Art Master Plan, final report dated August 2008, is an important tool to help implement the City’s Public Art program. The document will continue to evolve, recognizing changes in urban development and policies. 14 priority sites were identified for public art, which include the downtown, waterfront, former town core areas to name a few. Recommendations for potential types of public art, scale and costs are provided for the 14 sites.</p>	<p><a href="http://www.hamilton.ca/CultureandRecreation/Arts_Culture_And_Museums/Arts/publicArtMasterPlan.htm">http://www.hamilton.ca/CultureandRecreation/Arts_Culture_And_Museums/Arts/publicArtMasterPlan.htm</a></p> <p>As streetscape, urban renewal and reconstruction projects continue, these projects may be quickly and easily cross referenced against the Public Art Master Plan to determine if any additional requirements apply.</p>



### **3.5. Planning, Going Forward**

Each of these documents in Section 3.2 and 3.3 have been considered and addressed the development of the Pedestrian Mobility Plan. The applicable policy, has been summarized drawing inferences on the

application of this policy to pedestrian planning. The toolbox solutions and routine accommodation decision making process have been developed with sufficient flexibility that the applicable policies can be addressed.



## 4. OPERATIONAL CONSIDERATIONS

### 4.1. Introduction

Operational considerations involve matters ranging from snow removal to traffic warrants, designed to assess the justification of matters such as the installation of traffic signals and mid-block crossings. Co-ordination of these matters with municipal planning, legislative, asset management, public works, and communications is essential, if the goals and objectives of this Pedestrian Mobility Plan are to be achieved.

### 4.2. Operational Policies

#### Hamilton Traffic Policy – Pedestrian Related Impact Review

##### Legislative Context:

The Highway Traffic Act (HTA) is an Ontario law which regulates the licensing of vehicles, classification of traffic offences, administration of loads, classification of vehicles and other transport related issues. First introduced in 1990s, there have been amendments due to changes to driving conditions and new transportation trends. In Ontario, the Ontario Traffic Manual (OTM) series, and policies established by the Province to implement the Highway Traffic Act,

provides information and guidance to transportation practitioners to promote uniform traffic control devices and systems across the province. In addition, the OTM provides a set of guidelines consistent with the intent of the Highway Traffic Act and to provide a basis for road authorities to generate or update their own guidelines and standards. The OTM is made up of a number of Books, which are being generated over a period of time, and for which a process of continuous updating is planned. The following books deal with pedestrian crossing control:

- Book 5: Regulatory Signs
- Book 6: Warning Signs
- Book 8: Information Signs
- Book 11: Pavement Markings
- Book 12: Traffic Signals
- Book 15: Pedestrian Crossing Facilities

Book 15 defines two distinct categories of pedestrian crossings as dictated by the *Highway Traffic Act*, OTM Book 15 has only recently become available after the bulk of this Pedestrian Mobility Plan was written. They are:

1. **A controlled crossing:** Where vehicles are required to stop or





yield to traffic legally in the intersection, which includes pedestrians.

2. **An uncontrolled crossing:** Where pedestrians must wait for safe gaps in traffic, sufficient for them to cross the roadway, prior to attempting to enter the roadway.

**Hamilton Transportation Master Plan -  
WARRANTS POLICY PAPER**

In 2005, a review of traffic policies was undertaken as part of the City-wide Transportation Master Plan. Whereby, it was recommended that the City maintain their existing traffic control device warrants. By maintaining and supporting the City's existing traffic control device warrants, the following benefits may be realized:

- Provide a relatively consistent application of traffic control;
- Establish priority funding of traffic control devices in a fair and logical approach;
- Reduce cases where traffic control is excessive, which causes additional person-delay and emissions;
- Reduce the potential for road user apathy and non-compliance, which may lead to an increase in collision potential;
- Facilitates the ability to effectively regulate and enforce traffic regulations and by-laws; and

- Provide the development community with a benchmark for establishing appropriate traffic control devices related to their development proposal impact.

**Pedestrian Mobility Plan - TRAFFIC  
POLICY REVIEW**

As part of the on-going City-wide Pedestrian Mobility Plan, a high-level review of existing Council approved traffic policies was undertaken. Comments from this review are provided in the following policy review matrix. The comments were developed by the study team and City staff. A caveat applies to these comments. In the event that the Highway Traffic Act and Ontario Traffic Manual are revised to address pedestrian, cyclists, complete streets and other mobility devices, revisions to these policies will be required.



Policy Review Matrix

Table 6: Policy Review Matrix

Traffic-Related Policy	Highlighted Policy	Comments/Consideration
<p><b>Pedestrian Signal Timing (2011 - revised)</b></p> <p><b>Related Policies:</b>  <i>Pedestrian Countdown Signals</i>  <i>Accessible Pedestrian Signals</i></p>	<p>The basis of this policy is a standardized walking speed (1.0 m/s). The decision to convert is based on recent research into walking speeds for pedestrians of various ages crossing at traffic signals. The underlying strategy is the universal application of the slower walking speed, recognizing the presence of children and seniors (groups that walk more slowly) at all locations throughout the City.</p>	<p>The recommended speed is less than typical speed recognized in the Ontario Traffic Manual Book (OTM) 12, and is the lowest speed recognized by the OTM.</p> <p>No Further Action – Policy is satisfactory and it is recommended that the content of the policy be linked with the recommendations on accessible pedestrian signals.</p>
<p><b>Setting Speed Limits (2009)</b></p>	<p>Endorses use of Transportation Association of Canada’s “Guidelines for Establishing Posted Speed Limits” for the various roadway classifications.</p> <p>School speed limits relating to roadways that have contiguous school property are considered for a reduced speed limit based on a number of additional factors.</p>	<p>Properly set speed limits promote consistency in the signing of speed limits and thus attempts to maximize the safety of the road network. Road safety may be enhanced through credible posted speed limits that match the expectation of the driver for a given roadway and its surrounding area.</p> <p>The policy also considers City-wide planning objectives, land-use considerations, and prioritizing vulnerable road users.</p> <p>No Further Action – Policy is satisfactory.</p>
<p><b>Roundabouts (2008)</b></p>	<p>Outlines prerequisites, minimum criteria and the selection process for neighbourhood mini-roundabouts on local and minor collector roadways.</p>	<p>The policy needs to be updated to include the provisions in OTM Book 15.</p> <p>Removal of illustrated marked crosswalk on Page 3 of policy. Incorporate other design details identified in the Pedestrian Master Plan toolbox solutions, as appropriate. Additional clarity and distinction is required in the policy between situations where roundabouts are considered as alternatives to signalized intersections and roundabouts as traffic calming measures.</p> <p>Update policy to be consistent with OTM Book 15 and Pedestrian Master Plan toolbox solutions.</p>
<p><b>Full Traffic Signal (2001)</b></p>	<p>Basis for deciding whether the installation of a full traffic signal is necessary and appropriate be the justifications in the Ontario Traffic Manual, Book 12. Engineering judgement of factors such as the roadway geometry, collision history and local driving characteristics should be applied to modify the decision, as required.</p>	<p>Hamilton’s practice has been to compute the traffic signal warrants based on 7 hours of count information, rather than the 8 hours required in the Ontario Traffic Manual. Since it is often the last hour or two of the count which determine whether or not the warrants are met, eliminating one hour from the count effectively makes it <b>10-20%</b> easier to achieve. Otherwise, the existing policy follows an approach similar to the one described in OTM Book 12.</p> <p><i>Need to reconsider provisions where a traffic signal is not warranted, specifically:</i></p> <ul style="list-style-type: none"> <li>- <i>increase rather than decrease, delay to overall users of the intersection</i></li> </ul> <p>In creating a balanced transportation system, delay may be a compromise to achieve improvements to more active modes of travel. Road user safety is recommended to be the determining factor over delay. For example, road users’ safety may imply more green time for left turn movements as well as more pedestrian crossing time.</p>

Traffic-Related Policy	Highlighted Policy	Comments/Consideration
		<p>A Review of 2003 TAC Canadian Warrant did not result in an update of the existing policy. Hamilton is leader among Canadian municipalities in warrant flexibility to accommodate full traffic signal installation. Book 12 is currently under review. Recommend that the City remain consistent with the revised Book 12 and that the City continue to monitor and evaluate existing policy according to emerging trends, as well as any revisions to OTM and TAC documents as appropriate.</p>
<p><b>Installation Policy for All-way Stop Control at Intersections (2001)</b></p>	<p>Outlines the installation criteria for determining when it is appropriate to install all-way stop control at intersections. The policy is applied in two-parts.</p> <p><b>Part 1:</b> Defines the prerequisite conditions for all-way stop to be considered.</p> <p><b>Part 2:</b> Identifies justifications for which all-way stop control would be recommended for an intersection.</p>	<p><b>Part 1:</b> Conditions are consistent with other municipalities and engineering professional documents. However, does not provide provisions for atypical physical or operational situations.</p> <p><b>Part 2:</b> Calculations of pedestrian volumes needs to be sensitive to vulnerable road users with special needs (<i>i.e., older pedestrians, cyclists or motorists, young pedestrians or cyclists or pedestrians with visual or hearing impairments</i>)</p> <p>The policy also includes provisions that consider atypical situations (e.g., physical constraints, intersection geometry)</p> <p>No Further Action – Policy is satisfactory.</p>
<p><b>IPS Midblock Signal (2001)</b></p>	<p>This policy details the installation criteria for determining when it is appropriate to install traffic signals which are exclusively to assist pedestrians crossing the roadway.</p>	<p>When considering the installation of an intersection or mid-block pedestrian signal, conditions required in all four sections must be achieved before a signal is justified or recommended. They are:</p> <p><b>1 – Distance to Nearest Protected Crossing:</b> <i>minimum 215 metres on two-way roadways; and minimum of 140 metres on one-way roadways.</i>  <u>Comment:</u> Consist with OTM approach and industry best practices.</p> <p><b>2 – Pedestrian Volume:</b> <i>100 pedestrians within 7 hours</i>  <u>Comment:</u> <b>Significantly</b> less than OTM 200 pedestrians in 8 hours and represents 50% less pedestrian volume required.</p> <p><b>3 – Justification System:</b> <i>Considers the volume of pedestrians, delay to pedestrians, age and mobility status of pedestrians, speed of traffic on the main road and distance to the nearest protected crossing as well as the pedestrian safety history.</i>  <u>Comment:</u> Weighting factors associated with age and mobility status of pedestrians is consistent with Book 12 where seniors, disabled and children volumes are calculated by a multiple of 2. Transit stops are also a consideration, which may naturally increase pedestrian volumes.</p> <p><b>4 – School Guard Crossing:</b> <i>If a pedestrian signal is to be installed at locations where school crossing guards are located, based on meeting Parts 1, 2 and 3 of this policy, the adult guard shall be removed after the signal has been installed and a suitable introductory period has concluded.</i>  <u>Comment:</u> No comment.</p>

Traffic-Related Policy	Highlighted Policy	Comments/Consideration
		<p>In addition, if there is a demonstrated pattern of pedestrian collisions, it can supersede the other criteria identified.</p> <p>No Further Action – Policy is satisfactory</p>
<p><b>Traffic Calming (2007)</b></p>	<p>Outlines prerequisites, minimum criteria and the selection process for traffic calming or traffic management projects on local and minor collector roadways.</p> <p>There is a clear distinction between “Traffic Calming” and “Traffic Management”.</p>	<p>Policy does not include any specific design or requirements for pedestrian facilities aside from the need for a “continuous sidewalk” on at least one side of the roadway where traffic calming measures are provided. However, when no sidewalk exists, the policy also considers the provision of a sidewalk on at least one side of the road before implementing any traffic calming measure”.</p> <p>The Pedestrian Mobility Plan identifies several traffic calming and management toolbox solutions that can be included into this policy.</p> <p>Review applicable traffic calming measures with similar devices identified in OTM Book 15.</p> <p>Recommend the policy be updated to include references to OTM Book 15 and the proposed toolbox solutions identified in the Pedestrian Mobility Plan; including but not limited to:</p> <ul style="list-style-type: none"> <li>- high visibility crosswalks/ marked crosswalks at controlled intersections (to be used in conjunction with speed humps and raised crosswalks)</li> <li>- Sidewalks, and sidewalk buffers</li> <li>- Curb extension/ bulb out</li> </ul>
<p><b>Barrier-free Design Guidelines (2006)</b></p>	<p>Design guidelines for exterior pedestrian routes and signals at crosswalks are provided in order to eliminate barriers that may impede/reduce the mobility of pedestrians with disabilities.</p>	<p>Document provides satisfactory detail to address pedestrian mobility in the International Charter for Walking. The City minimum sidewalk width (1.52m) may not meet the proposed AODA Built Environment Standard (the A.O.D.A. clear zone width is 1.5m). Consideration should also be given to updating design details with the toolbox solutions identified in the Pedestrian Mobility Plan.</p> <p>Recommend the policy be updated to be consistent with the final AODA Built Environment Standard and Pedestrian Mobility Plan toolbox solutions.</p>
<p><b>Transverse Rumble Strip (2009)</b></p>	<p>Endorses use of Transportation Association of Canada’s “Best Practice Guidelines for the Design and Application of Traverse Rumble Strips” in rural areas.</p>	<p>Alert drivers of imminent changes in driving conditions such as approaches to intersections. The City intends to limit the use of these devices for approaches to stop controlled intersections only. Based on request/complaint driven basis.</p> <p>This policy is beneficial to pedestrians at controlled intersections in high-speed roadways rural areas</p> <p>No Further Action – Policy is satisfactory</p>
<p><b>Pavement Marking on Rural Roads (2001)</b></p>	<p>Outlines conditions whereby pavement markings would be applied on rural roads.</p>	<p>No impact on pedestrian mobility issues.</p> <p>No Further Action – Policy is satisfactory.</p>



### 4.3. Other Traffic Related Policies

Table 7: Other Traffic Related Policies

Other Traffic Related Policy	Highlighted Policy	Comments/Consideration
<b>Draft Built Environment Standards (AODA.)</b>	The Accessibility for Ontarian’s with Disabilities Act 2005 is addressed in Section 2.2. The draft Initial Proposed Accessible Built Environment Standard sets out draft standards for the built environment. Of particular interest to the Pedestrian Mobility Plan are: Sections 5.0 Exterior Spaces; Section 6.0 Communications, Elements and Facilities; Section 11.0 recreation Elements and Facilities; and Section 12.0 Transportation Elements.	<p>In principle the toolbox solutions contained in this Pedestrian Mobility Plan will implement many of the improvements contemplated by the Draft Built Environment Standards. The toolbox solutions will need to be reviewed in detail when the final Accessible Built Environment document is issued.</p> <p>Continued meetings between City staff and the City Accessibility Committee are important to ensure a smooth transition from design to implementation of pedestrian projects. This should also include a review of implemented projects to document successes and areas for improvement.</p>
<b>Book 15: Pedestrian Crossing Facilities</b>	Book 15 was released in December, 2011. It addresses the planning, design and operation of pedestrian crossing facilities and is to be used in conjunction with other Ontario Traffic Manual policies to create safe driving behaviour.	<p>Book 15 addresses pedestrian street crossings and as such overlaps some of the toolbox solutions produced in the Pedestrian Mobility Plan. Care will need to be taken in implementation to address these policies when implementing street crossings.</p> <p>Book 15 and the other policies contained in the Ontario Traffic Manual do not address complete streets and will need revision if complete streets policies are to be implemented consistent with other Provincial policy and plans.</p>
<b>City Transportation and Pedestrian Policies</b>	<p>The City of Hamilton Development Engineering Guidelines and Financial Policies 2006 indicate that concrete sidewalks, 1.5 m wide, shall be installed on both sides of the street for arterial roads and minor and major collector roads and on one side of local urban roads. A 3.0 m wide boulevard separating the pedestrian zone from the roadway is required on arterial roads while a 1.75 m wide boulevard is required for minor and major collector roads and local urban roads. Right-of-way allowances of 26 and 18 metres are required for major collector roads and local urban residential streets.</p> <p>Regulations regarding on-street parking are described in By-law 01-218, and in general by the Transportation Master Plan. In the latter, on-street parking along major arterials is generally prohibited or at a minimum restricted in the peak hours. For minor arterials and collector roads on-street parking is only restricted in the peak hours. At the local level, on industrial, commercial and residential roads on-street parking is permitted on one or both sides of the road.</p> <p>With respect to off-street parking the City of Hamilton Site Plan Guidelines provide direction to</p>	<p>The guidelines provide a minimum space to satisfy pedestrian needs but the localized nature of the pedestrian environment is not taken into accommodation and will need to be in the future engineering standards updates.</p> <p>Subsections 3.3.10.1, 3.3.10.5 and 3.3.10.9 of the Hamilton Official Plan take into account parking provisions through a set of principles direction the way the street system, buildings, parking areas and other public spaces are connected.</p> <p>Although best practices recommend the use of on-street parking as a way to increase pedestrian safety by providing a physical barrier between the roadway and the pedestrian zone, this provision is not included as part of the current parking regulations. Similarly measures to improve pedestrian safety and comfort (e.g., dedicated pathways, pedestrian illumination and marked crosswalks) are not fully acknowledged by the Site Plan Guidelines. These are matters that may be addressed with the implementation of this Pedestrian Mobility Plan.</p>

Other Traffic Related Policy	Highlighted Policy	Comments/Consideration
	<p>landowners to support the City’s streetscape objectives regarding the proximity to building entrances, connection to the street network, location of parking areas, landscaping and lighting.</p>	<p>With respect to off-street parking, to create safer more interesting pedestrian environments, off-street parking should be located in rear yards. No parking should be provided in front yards between sidewalks and buildings and it is strongly recommended that no parking be permitted in side yards adjoining sidewalks. A continuous building frontage makes for enhanced pedestrian environment.</p> <p>Where commercial parking standards exist, these should be reviewed and, where possible the amount of parking space reduced to brings buildings closer to the street and improve pedestrian environments.</p>
<p><b>Existing Pedestrian and Road Safety Initiatives</b></p>	<p>In 2009 the City of Hamilton developed the Hamilton Strategic Road Safety Program that identifies a vision, mission, goals and areas of emphasis for achieving a safe road environment for all users. The primary emphasis areas were vulnerable users, aggressive driving and intersections.</p> <p>The Program is documented in two volumes: Rational and Data Analysis; and Action Plan. A steering committee was established to meet quarterly for follow-up on actions recommended in the Plan. Representatives include Public Works, Police Services, Emergency Services, the School Boards, the Ministry of Transportation and other stakeholders.</p> <p>In addition the City of Hamilton Public Health and Community Services have an injury prevention program which addresses pedestrian safety. This program educates the general public on how to avoid preventable accidents involving motor vehicles. The program also suggests actions specific to parents, teens, adults and professionals.</p>	<p>The following programs have been initiated and are available to complement the implementation of the Pedestrian Mobility Plan:</p> <ul style="list-style-type: none"> <li>• Active Safe Routes to School “Stepping it Up” (initiated in 2010)</li> <li>• Canadian Walking Master Class (Completed in 2009)</li> <li>• Safe Kids Canada Safe Kids Week (held in 2008)</li> <li>• Convert Unsignalized Intersections to Roundabouts</li> <li>• Identify Main Pedestrian Routes and Ensure Sidewalk Continuity and Crossing Safety at Intersections and Mid-blocks</li> <li>• Improving Lighting at Intersections (Lighting Study completed in 2010)</li> <li>• Install Pedestrian Countdown Heads (ongoing)</li> <li>• Flashing 40 km School Zones (Installed at 6 locations; limited by available funding)</li> <li>• Cyclemania</li> <li>• Stepping Out Safely</li> <li>• “Heads Up” DVD</li> </ul>
<p><b>Railway Crossings/Grade Separation Crossings</b></p>	<p>Railway rights-of-way and railway crossings are legislated under the Federal Railway Safety Act and Ontario’s Shortline Railways Act. Standards and guidelines to maintain, access, construct and improve pedestrian crossings are issued by Transport Canada for use by road authorities and railway companies.</p> <p>The roles and responsibilities of the railway company and road authority at-grade crossings are:</p> <ul style="list-style-type: none"> <li>• the railway company is responsible for the portion of the road crossing (including any pedestrian infrastructure) inside the limits of the railway tracks up to the elevation of the tracks; and</li> <li>• the road authority responsibility starts immediate before and thereafter.</li> </ul>	<p>There are no specific warrants for pedestrian infrastructure at grade separation crossings. For road traffic separation the main deterrent for the implementation of pedestrian infrastructure is cost.</p>

Other Traffic Related Policy	Highlighted Policy	Comments/Consideration
	<p>The City cannot undertake improvements to the railway crossing without direct railway company and Transport Canada involvement.</p> <p>The Federal Government in collaboration with the Railway Association of Canada is developing a national public information program “Operation Lifesaver”, to increase awareness of the dangers of crossing railways without care as well as funding through the Grade Crossing Improvement Program to conduct safety improvements at crossings. These are available to the municipality.</p>	
<p><b>Hamilton Street Railway and Rapid Transit</b></p>	<p>In 2010 an Operational Review of the Hamilton Street Railway was conducted. This review provided a plan to improve and develop public transit services in Hamilton consistent with the Transportation Master Plan and the Official Plan.</p> <p>In Section 3.2, Review and Assessment of Existing Routes, and in particular the use of walking distance as part of the existing Transit Service Guidelines, the walking distance to bus routes is 400 m for 90% of the population, where permitted by the local street network.</p> <p>Hamilton Street Railway’s preference is to locate the bus stop and sign before intersections to increase safety, convenience, time saving and curb space. Mid-block locations are also common, where travel origins/destinations are located between intersections or where the distances exceed recommended pedestrian walking distances.</p>	<p>The future Operational Reviews should be reconsidered with the applicable toolbox solutions contained in this Pedestrian Mobility Plan.</p>
<p><b>Rapid Transit Corridor – B&amp;A Lines</b></p>	<p>The Hamilton Transportation Plan recommended three rapid transit corridors: King Street/Main Street between Eastgate Square and McMaster University (currently referred to as the B Line); the James Street/Upper James Street route between downtown and Rymal Road (now referred to as the A Line); and an east west route on Hamilton mountain.</p> <p>The first two corridors were identified by the Province’s MoveOntario 2020 Plan for rapid transit. Since then Metrolinx has finalized the Regional Transportation Plan in which the B Line Rapid Transit Corridor is among the top 15 priorities. The City of Hamilton has initiated feasibility studies for both the B-Line and A-Line corridors and is undertaking a Phase 3 feasibility assessment for the B-Line.</p>	<p>The Pedestrian Mobility Plan will help provide for the planning, design and development of supportive pedestrian facilities.</p>



#### **4.4. Operations Going Forward**

Each of these documents in Section 4.2 and 4.3 have been considered and addressed in the development of the Pedestrian Mobility Plan. The applicable policy, has been summarized drawing inferences on the application of this policy

to pedestrian planning. The toolbox solutions and routine accommodation decision making process have been developed with sufficient flexibility that the applicable policies can be addressed.



## 5. COMMUNICATIONS CONSIDERATIONS

### 5.1. Introduction

Communication is an essential consideration and component in the preparation of the Pedestrian Mobility Plan. This section addresses communications during preparation of the Plan and communications to be undertaken during implementation of the Plan.

### 5.2. Preparing the Plan

#### 5.2.1. Public Consultation Plan

One of the key principles for successful Environmental Assessment planning is “consultation with affected parties early in and consistently throughout the process” (Municipal Environmental Assessment, 2007). In keeping with this principle, a consultation plan was developed at the start of the Pedestrian Mobility Plan. Its purpose was to identify potentially interested and affected stakeholders, and describe methods for meaningful consultation with stakeholders, the public and relevant regulatory agencies during the Pedestrian Mobility Plan study.

The overall objectives of the consultation plan were to:

- Inform the public of the Pedestrian Mobility Plan, its progress, and solicit their input.
- Provide opportunities for two-way communications with the public and other stakeholders at key stages of the Pedestrian Mobility Plan.
- Obtain input from relevant agencies to ensure compliance with public policy and regulatory requirements and to secure support from agencies that will implement the Pedestrian Mobility Plan.
- Meet the consultation requirements of the Municipal Class Environmental Assessment for Plans.

*The study exceeded the Municipal Class Environmental Assessment minimum requirements for public consultation by applying all of the above consultation methods. The outcome of various methods is described in the following sections of this report.*



### 5.2.2. Pedestrian Advisory Group

The City of Hamilton established a Pedestrian Advisory Group (PAG) to provide the Project Team with guidance and review at key stages of the Pedestrian Mobility Plan study. The role of PAG was to provide the Project Team with insight on relevant community issues and possible solutions. The objectives of PAG were to:

- *Advise on matters related to pedestrian mobility;*
- *Provide guidance and review key aspects of the project;*
- *Attend and participate in public and PAG meetings; and*
- *Encourage citizens to participate in the study.*

Membership was selected by the City of Hamilton. PAG members attended four (4) pre-scheduled meetings. Detailed notes of each meeting are included in **Appendix 4**.

The first PAG meeting was held from 2 to 4 pm on February 15, 2011 in Hamilton City Hall. Twenty-seven (27) people were in attendance: sixteen (16) members, seven (7) City of Hamilton Staff, and four (4) representatives of the Consultant Team. The purpose of the first PAG meeting was to introduce the project and confirm the membership and role of the advisory group through a Terms of

Reference, and solicit input on Pedestrian Mobility Plan goals and objectives.

The second PAG meeting was held from 1 to 3 pm on March 23, 2011 in Hamilton City Hall. Seventeen (17) people were in attendance: six (6) members, seven (7) City of Hamilton Staff, and four (4) representatives of the Consultant Team. The purpose of the second PAG meeting was to provide an overview of the information panels being prepared for the first round of PICs.

The third PAG meeting was held from 2 to 4 pm on June 21, 2011 in Hamilton City Hall. Fifteen (15) people were in attendance: four (4) members, eight (8) City of Hamilton Staff, and three (3) representatives of the Consultant Team. The purpose of the third PAG meeting was to review the study's progress and plans for the second round of PICs.

The fourth PAG meeting was held from 2 to 4 pm on August 23, 2011 in Hamilton City Hall. Seventeen (17) people were in attendance: six (6) members, seven (7) City of Hamilton Staff, and four (4) representatives of the Consultant Team. The purpose of the fourth PAG meeting was to provide an overview of the information panels being prepared for the second round of PICs.

### 5.2.3. Project Website

The City maintained a project website: [www.hamilton.ca/PedestrianMP](http://www.hamilton.ca/PedestrianMP). The project website provided public access to an online survey and web based mapping tool. Toole Design Group (TDG),



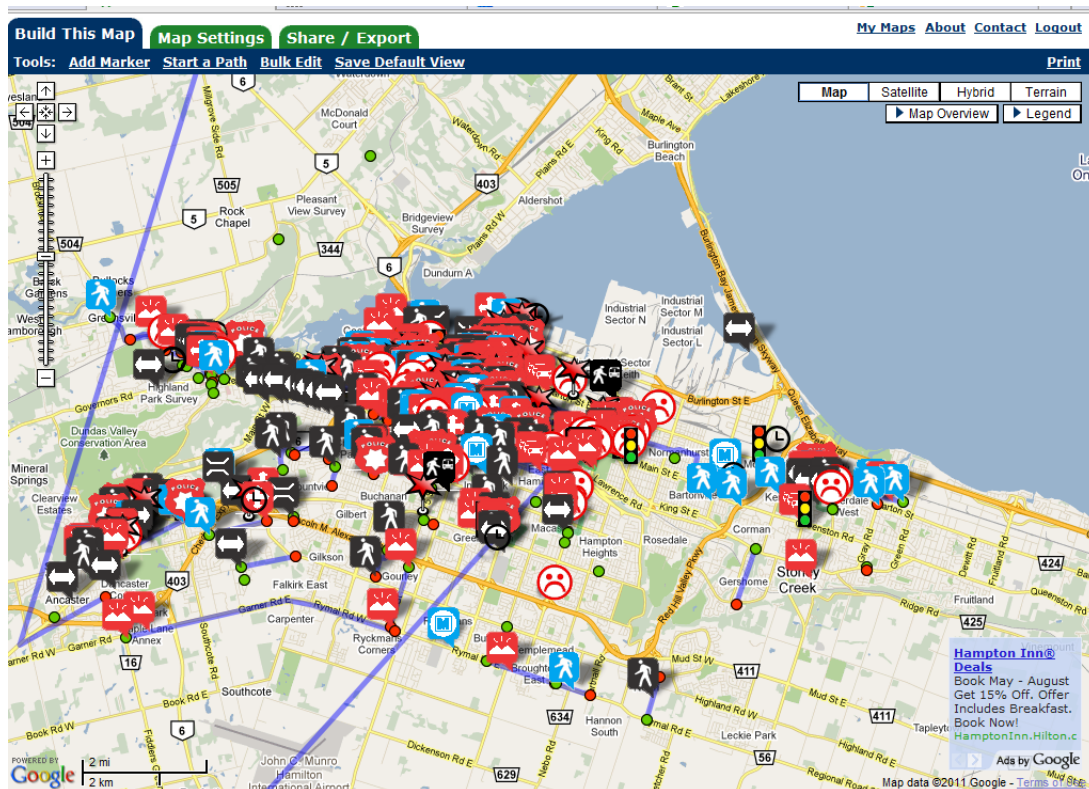


developed and managed the online survey and interactive mapping tool using the “CommunityWalk” platform to gather public input on specific issues and conditions related to walking in the City. The public was invited to participate and utilize the project website to respond to the user questionnaire and provide written/graphic input using the interactive mapping. Interactive mapping tool usage was well above capita average, almost twice that of similar sized Cities in the U.S.A.

### 5.2.3.1. Interactive On-Line Mapping

Members of the public were encouraged to add markers, paths, and descriptive comments to an interactive map in twelve preselected category areas. Between February and April 2011, 453 markers and 149 paths were added. The map was viewed 1,643 times. **Table 8** shows a ranking of the category areas placed by map users. **Figure 2: Screen shot of the Interactive Map** shows a screen shot of the online mapping tool with the markers and paths added by the public.

Figure 2: Screen shot of the Interactive Map



**Table 8: Interactive Map Category and Number of Markers**

Category	# of Markers
5. Poor sidewalk pavement conditions	64
9. Route I'd like to see improved for pedestrians	62
7. Unappealing pedestrian environment	61
14. Missing connection or crossing	56
1. Route I use frequently	50
3. Traffic is uncomfortable	34
8. Personal safety concerns	32
4. Difficult intersection	29
6. Pedestrian-vehicle accident location	21
11. Long wait time/unresponsive "walk" signal activation	12
2. I take the bus (on & off points)	12
12. "Walk" signal does not provide adequate time	8
10. Bridge improvement needed (existing or new)	7
13. Better access to transit facility needed	5

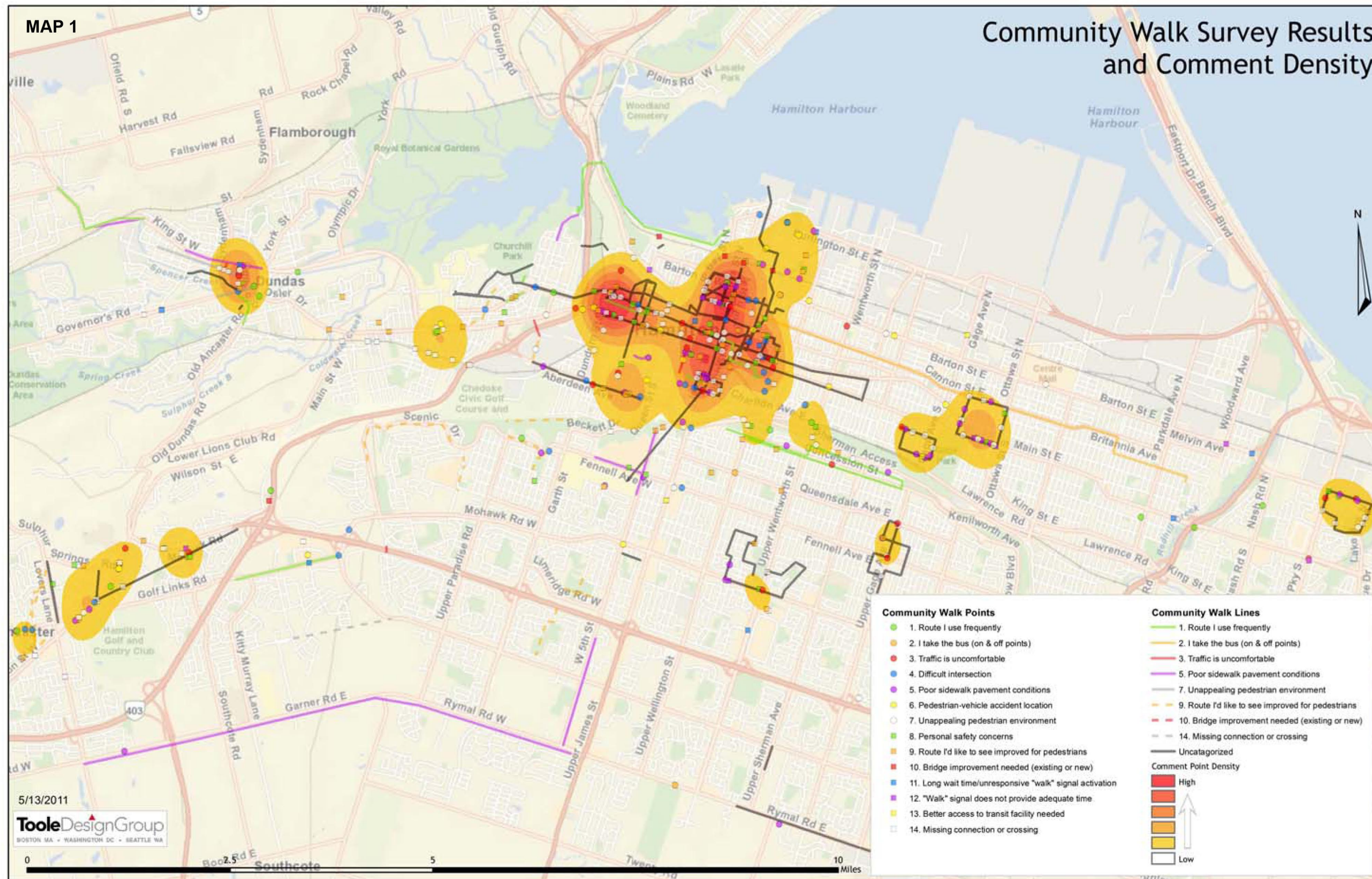
Comments that were received were imported through the online mapping tool into ArcGIS for improved display and to assist in analyzing the data. **Map 1** shows all the comments that were placed on the interactive map and the density comments using a kernel density method. While comments are dispersed

throughout the City, there are distinct areas where there are higher concentrations. Using a computer algorithm, the comments were sorted by density into the following three categories.



MAP 1

# Community Walk Survey Results and Comment Density



**Summary of Public Comments (Common Themes for Improvement)**

**Pedestrian Crossings**

- Pedestrian activated crossing light
- Longer times to cross at stoplights/pedestrian signals
- Highly visible and clearly marked/defined crosswalks
- Crosswalks that line up safely

**Sidewalks**

- More sidewalks, do not take away from enjoyment of nature
- Wider sidewalks to allow two people to walk side by side
- Level ramps into driveways with room to walk
- Even sidewalk surface
- Slopes at street corners

**Trails and Pathways**

- More marked, trails/paths
- Continuous connections of trails/paths

**Traffic Management**

- All way stop and stoplight, where needed
- Foot bridge, where needed
- Pedestrian Mall and Traffic Free Zones
- Traffic calming

**Pedestrian Comfort**

- Space for the replanting of shade trees
- Sidewalks, crosswalks and roads ploughed or shoveled in winter
- Facilities for shared use of scooters and bicycles
- Covered bus shelters at all stops, more frequent bus schedule

**Environmental Considerations**

- Maintained cultural heritage
- Enhanced access to natural environments

**Other considerations**

- Promotional materials for walking/hiking trails
- Past and ongoing, relevant Master Plans



## Community Walk Survey Results



**The following areas have the highest concentration of comments;**

- Intersections of Dundurn Street with Main and King Streets;
- Along James Street between approximately Young Street and Barton Street, with a hotspot occurring at the intersection of James and Colbourne Streets; and
- The intersections of Main and King Street and Ogilvie/Governor's Road/Main Streets.

**The following areas are of medium comment concentration:**

- The Downtown core approximately bounded by Charlton Ave (to south), Barton St. (to north), Chedoke (to west), and Wellington St. (to east). This area encompasses the previously mentioned high concentration areas.
- Aberdeen Ave. between Queen St. and approximately Mt. Royal Ave.
- The area bounded by Gage Ave. (to west), Ottawa St. (to east), Main St. (to south), and Cannon St. (to north).
- Broadway Ave. and Main St. W.

**Other areas of notable comment concentration include:**

- Intersection of Mohawk Rd. and McNiven Rd.;
- Wilson St. E. between Lover's Lane and Rousseau St.;
- Jerseyville Rd. just west of Fiddlers Green Rd.;

- Main St. W. in the vicinity of McMaster Hospital;
- Wellington St. N. between the railway tracks and Burlington St. E.;
- Wentworth St. N. around the Sherman Access;
- Gage Ave. in the vicinity of Gage Park;
- Gage Ave. in the Fennell Ave. and Queensdale Ave.; and
- Barton St./Lake Ave./Centennial Pkwy.

Predominantly, the comments address areas of the City that are the pre-1949 urban built environment, although there is some overlap into post-1949 urban built environments including the Upper Wentworth and Upper Gage areas; Lake Avenue Area in Stoney Creek, and the areas in Ancaster beyond Wilson Street and around McMaster University.

**5.2.3.2. On-Line Public Survey**

Residents provided feedback on a wide variety of topics, ranging from driver behaviour to locations needing pedestrian improvements.

An online survey was developed in the spring of 2011 with input from the consulting team, City Project Manager, Pedestrian Advisory Group, and the Project Team/City Staff. The survey was available online for approximately two months from March 3<sup>rd</sup>, 2011, through April 30<sup>th</sup>, 2011, concurrent with the on-line Community Walk mapping opportunity. The survey and Community

Walk map were publicized through the City of Hamilton website, Public Information Centres, local media coverage, the Notice of Commencement, and a newsletter.

The survey was designed to obtain public input for use in the development of this Pedestrian Mobility Plan. The main purpose of the survey is to broaden the reach of public input. The survey is part of a broader outreach program that includes other strategies. This section addresses the highlights from the survey results. The complete report summarizing the survey and survey results is contained in the appendices.

The survey results are not statistically representative of City of Hamilton residents. Nevertheless, there is a significant wealth of qualitative information in the survey results that can be used in this Pedestrian Mobility Plan. Response rates were significantly higher, approximately two (2) times higher, than response rates generated in other North American Cities where surveys and the Community Walk interactive mapping have been used.

Four hundred and fifty nine (459) of the respondents took the survey online, while nineteen (19) submitted hard copies which the project team entered into the data base for a total of four hundred and seventy-eight (478) surveys. Of the 459 respondents to the online survey, 294 completed the survey. All complete and

incomplete survey responses were analyzed.

### Survey Summary:

- Generally, survey respondents lived in the urban context areas, either constructed before 1949 (52%) or after 1949 (29%) or in suburban communities like Waterdown (13%).
- The remaining respondents lived on farms, rural hamlets and rural residential lots (6%). The five urban and suburban context areas used in this Pedestrian Mobility Plan are well represented in the responses.
- Respondents also identified the wards in which they lived. Generally speaking, most respondents come from Ward 1 (25.9%) followed by Ward 2 (19.9%). Wards 12 and 13, Ancaster and Dundas, are well represented (13.6 and 8.7 % respectively). Wards 3, 4, 7, and 8 follow (17, 11, 11, and 14% respectively). The remaining respondents come from the other Wards with the predominantly rural Wards having fewer respondents.
- Good representation for all age cohorts exists. 9% of the respondents were aged 15 to 20; 26% were between 21 and 30; 29% were between 31 and 45; 26% were between 45 and 60; 7% were between 61 and 70; while 3% were over 71. Forty one percent of the respondents were male while 59% were female. Ninety three percent of the respondents have no mobility issues while 7% do.



- Over 80% of the respondents walk in the City of Hamilton. Over 250 respondents indicated they walk for physical exercise, walk to reach destinations for running errands, shopping, or entertainment, or walk for leisure. Where people walk to reach destinations for running errands, shopping or entertainment, they did so between 2 and 5 times a week. Slightly less than 250 respondents walk to the bus stop/transit.
- Ninety percent use the sidewalks where these exist and 93% use the road or shoulder where sidewalks don't exist. Eighty five percent have recreational trails within 15 minutes walk of their residence and 89% use recreational trails.
- Where respondents were asked to rate Hamilton as a place to walk to work or school using several criteria and a five point scale ranging from "excellent" to "poor", generally Hamilton appears to be well rated as a place to walk. Using the "excellent" and "poor" ratings, some criteria appear to be outliers that need to be addressed in this Pedestrian Mobility Plan. The criteria addressing the "Niagara Escarpment", "Lake Ontario and Hamilton Harbour", "Historic Neighbourhoods" and "Interesting Destinations" received the highest excellent ratings. Alternatively the criteria addressing "Comfortable, safe street crossings" is by far ranked the poorest among the 15 criteria.
- Where respondents were asked to rate Hamilton as a place to walk for leisure or physical activity using several criteria and a five point scale ranging from "excellent" to "poor", generally, Hamilton is well rated as a place to walk. Using the "excellent" and "poor" ratings some criteria appear to be outliers that need to be addressed in this Pedestrian Mobility Plan.
- Again the criteria addressing "Niagara Escarpment" and "Lake Ontario and Hamilton Harbour" received excellent ratings. These high rankings were followed by "plenty of shade trees", "Historic Neighbourhoods", "Interesting Destinations", "Visually Interesting" and "Parks and Open Spaces." Conversely, and consistent with the findings where respondents walk to work or school, respondents rated "Comfortable, safe street crossings" poorest by a wide margin.
- Trips made for necessity (work/school) and for leisure appear to be comfortable so long as they route through or close to the following places: the Niagara Escarpment, Lake Ontario and Hamilton Harbour, historic neighbourhoods, visually interesting destinations, streets with plenty of shade trees, and parks and open spaces.
- One hundred and ninety two respondents provided insight into the factors that make it difficult to walk to work or school in the City of Hamilton using a five-point scale ranking 19





criteria. Those criteria ranked “very difficult” included “high speed traffic”, “heavy traffic (volume)”, “perceived dangerous drivers”, “space between the sidewalk and traffic” and “perceived dangerous/difficult road crossings”.

These criteria were followed by “insufficient sidewalk width” and “maintenance of the sidewalk surface.” Alternatively, the criteria ranked highest under “not at all” were “travel time (takes too long to reach destination)”, “lack of recreational trails”, and “lack of sidewalks”.

- Two hundred and twenty four respondents rated the criteria that make it difficult/unpleasant to walk for leisure/physical activity in the City of Hamilton using a five-point scale ranging from “very difficult” to “not at all”. Of 19 criteria, “high speed traffic”, heavy traffic volume”, truck traffic”, “perceived dangerous drivers”, “space between sidewalk and traffic”, and “perceived dangerous/difficult road crossings” were ranked most difficult.
- These were followed by “insufficient sidewalk width” and “unattractive/unappealing streets” “(no trees, large parking or vacant lots along sidewalk, long expanses of blank wall or screened windows)”. Alternatively the factors ranked highest as not at all difficult were “travel time (takes too long to reach destination)”, “lack of recreation trails”, “lack of sidewalks”, and “weather/conditions/temperature”.
- Three hundred and twenty six respondents rated the areas needing the most improvement on a five-point scale from “very difficult” to “not at all”. The highest ranked areas were: “near highway interchanges and crossings (e.g., Lincoln M. Alexander Parkway Highway 403, Queen Elizabeth Way); major arterials (e.g., Rymal Road, Twenty Road, Upper James Street)”; “snow and ice removal”; and “near major intersections”. The next grouping of factors needing improvement include “local shopping areas within 20 minutes walk from my home”, “on bridges and overpasses”, and “near bus/transit stops”.
- Alternatively areas not requiring improvements include “local neighbourhood streets”, “local shopping areas within 20 minutes walk of my home”, “near recreation destinations”, “near educational institutions (e.g., Mohawk College, elementary and secondary schools, McMaster University)”, and “near your employment in either industrial areas or office complexes”.
- Two hundred and forty five respondents identified “great places to walk in the City”. Aside from parks and conservation areas and associated recreational trails, the majority of the built environments predate 1949. It appears that parks and trails are comfortable places to walk to in the City. Common responses included the



following: Bayfront Park; Bruce Trail; Chedoke Radial Trail; Confederation Park; Dundas Valley; Locke Street; and Ottawa Street.

- Three hundred and seventy eight respondents identified “specific destinations in the City... that need improvements to make walking safer and more comfortable”. Generally these destinations can be classified in three categories: post-1949 urban built environments; sidewalks along arterials and specifically major arterial intersections in pre- and post-1949 built environments and redevelopment after 1949 in basically pre-1949 built environments.
- Popular “write in” responses for specific destinations in need of improvements included the following: Dundurn Plaza; Fortinos Plaza; Jackson Square; Meadowlands; McMaster; and King Street. Popular “write in” responses for intersections in need of improvements included the following: intersections with King Street; Main Street; Wilson Street; Longwood; and Dundurn.

Respondents were offered the opportunity to provide any additional comments they would like to make and many did. While it is difficult to classify all their comments into broad categories, they tended to fall into some broad general areas as follows:

- Many respondents were concerned that the needs of those with scooters and wheelchairs were not adequately

addressed and their concerns continue to exist even with the development of newer transit and sidewalk facilities downtown. Some respondents felt those facilities were not responsive to their needs.

- The pedestrian experience, especially on arterials where traffic volumes and speeds are high and one-way streets are involved, is overwhelmed by vehicular traffic noise, emissions and perceptions of safety. Relief is sought through a number of recommendations ranging from wider sidewalks to use of two-way traffic, buffering pedestrian sidewalks from traffic flows and lower speed limits.
- Sidewalk widths and better crossing facilities in order to better separate traffic from pedestrians and to enable safer street crossings are sought, especially on heavily traveled arteries.
- Some commented on the conflicts cyclists pose when they use sidewalks instead of the right of way. These conflicts also included the use of motorized scooters.

### **5.2.3.3. Farmer’s Market Summary**

City Project Manager, Steve Molloy, attended each of the six (6) Farmer’s Market locations during the fall of 2011 and provided preferences for the following pedestrian factors using an interactive panel display:



	Hamilton Mountain Farmer's Market	Downtown Hamilton Farmer's Market	Ancaster Farmer's Market	Ottawa Street Farmer's Market	McMaster Farmstand	Binbrook Farmer's Market	Total
<b>Attendance</b>	<b>43</b>	<b>8</b>	<b>25</b>	<b>37</b>	<b>40</b>	<b>26</b>	<b>179</b>
<b>Comfortable, safe sidewalks</b>	12	3	5	9	7	8	<b>44</b>
<b>Comfortable, safe street crossings (Intersections)</b>	11	0	11	9	12	2	<b>45</b>
<b>Street trees/shade</b>	14	2	5	10	6	7	<b>44</b>
<b>Visually interesting walk</b>	6	2	0	7	7	3	<b>25</b>
<b>Public transit system link</b>	4	1	9	4	12	6	<b>36</b>
<b>Links to parks and open spaces</b>	8	2	4	7	7	8	<b>36</b>
<b>Links to Niagara Escarpment</b>	1	2	1	5	2	2	<b>13</b>
<b>Sidewalk Lighting</b>	4	2	3	8	3	1	<b>21</b>
<b>Continuous network of sidewalks</b>	4	1	1	9	5	20	<b>40</b>
<b>Links to retail/commercial areas</b>	0	0	0	3	7	2	<b>12</b>
<b>Improved wayfinding</b>	4	3	0	2	3	1	<b>13</b>
<b>Improved sidewalk design</b>	5	0	2	4	6	5	<b>22</b>
<b>Improved street design</b>	1	0	6	2	2	1	<b>12</b>
<b>Pedestrian education</b>	10	2	4	6	3	2	<b>27</b>

#### 5.2.3.4. Open Streets

Open Streets Hamilton is an annual event in the core of the City<sup>11</sup>. Hamilton residents and visitors are encouraged to leave their cars behind and walk, ride or

roll down James Street North for part of a morning through to late afternoon. James Street North is closed to cars during this time.

<sup>11</sup> <http://openstreetshamilton.ca/>



In addition to the second set of PICs, a selected number of panels were presented to the public at two City events held as part of the Car-free Week, to gauge support and obtain input for the Pedestrian Mobility Plan. The Open Streets Hamilton was held on Sunday,

September 18<sup>th</sup>, 2011. Over 75 people visited the Pedestrian Mobility Plan booth to learn more about the study and to provide their comments. The following comments were provided regarding the toolbox solutions identified:

	Like	Dislike
<b>Walking along the street</b>		
Improved sidewalks, buffered medians, street trees	10	0
Safer driveway, crossings at sidewalks, crossings at access	1	0
Road diets (Reduce no. of lanes), Lane diets (reduced width)	5	0
Roadside parking management, restrictions at intersections, reverse angle parking	5	0
<b>Crossing the street</b>		
Signals, count down signals, signal timing, mid block signals	5	0
Crossings, high visibility crosswalks, marked crosswalk locations	2	0
Pedestrian lighting at crossings, lighting along street	5	0
Intersection design/geometry reduced crossing widths, better pedestrian wait areas	7	0

	Like	Dislike
Regulatory, no right on red light	0	1
<b>Policies</b>		
Transit stop locations, connections, crosswalk near stop, wider area at stop	2	0
<b>Other</b>		
Increased winter maintenance, on street parking, site plan guidelines, vehicle speed reduction, changes to Highway Traffic Act, etc.	7	0
<b>Programs</b>		
Public education and engagement, safe routes to school, etc.	3	0

### 5.2.3.5. Transportation and Healthy Living Fair

As mentioned in Subsection 5.2.3.4 (Open Streets), the second event was the Transportation and Healthy Living Fair held Thursday, September 22, 2011.

Over 40 people visited the Pedestrian Mobility Plan booth and provided the following preferences regarding the toolbox solutions:

	Like	Dislike
<b>Walking along the street</b>		
Improved sidewalks, buffered medians, street trees	9	0

	<b>Like</b>	<b>Dislike</b>
Safer driveway, crossings at sidewalks, crossings at access	3	0
Road diets (Reduce no. of lanes), Lane diets (reduced width)	8	0
Roadside parking management, restrictions at intersections, reverse angle parking	1	0
<b>Crossing the street</b>		
Signals, count down signals, signal timing, mid block signals	4	0
Crossings, high visibility crosswalks, marked crosswalk locations	3	0
Pedestrian lighting at crossings, lighting along street	2	0
Intersection design/geometry reduced crossing widths, better pedestrian wait areas	1	0
Regulatory, no right on red light	0	0
<b>Policies</b>		
Transit stop locations, connections, crosswalk near stop, wider area at stop	0	0
<b>Other</b>		
Increased winter maintenance, on street parking, site plan guidelines, vehicle speed reduction, changes to Highway Traffic Act, etc.	3	0



	Like	Dislike
<b>Programs</b>		
Public education and engagement, safe routes to school, etc.	4	0

**5.2.3.6. City Staff and Councillor Updates**

**Staff Project Support Team** - The City established a Staff Project Support Team to provide resources and technical input to the study. The Staff Project Support Team participated in four (4) meetings with the Consultant Team and included representation from the following areas of responsibility:

- Transportation Planning
- Traffic Engineering
- Community Planning
- Strategic Planning
- Culture
- Heritage and Urban Design
- Landscape Architectural Services
- Public Health Services
- Parks and Recreation

**City Staff Workshop** – A workshop was held with City staff on June 14, 2011 from 1 to 3 pm in Hamilton City Hall. Forty-four (44) people signed in to the workshop: three (3) members of the Consultant Team and forty-one (41) City staff primarily representing Planning and Economic Development, Public Health, and Public

Works (including Hamilton Police and HSR).

The purpose of the workshop was to update staff on the study, provide information based on staff, advisory group and extensive public input received to date, show alternatives and seek direction. The interactive session involved a **“walkabout” of Main Street, Bay Street and Hughson Street**, noting where the City is doing well and where areas for improvement in the context of pedestrian mobility can be made.

At the conclusion of the workshop, City of Hamilton staff identified obstacles and opportunities each of them faced in their respective departments when considering implementing a Pedestrian Mobility Plan.

**Councillor Workshop** - The City’s Project Manager provided City Council with regular project updates. In addition, Councillors were invited to attend a workshop on November 3, 2011 in Hamilton City Hall. The purpose of the workshop was to update Councillors on the study, provide information based on staff, advisory group and extensive public input received to date, walk like a



pedestrian, show alternatives and seek direction.

### 5.3. Implementing the Plan

#### 5.3.1. Mission Statement

In 2008, the City of Hamilton adopted a Strategic Plan and updated it in 2012. The Pedestrian Mobility Plan helps implement the City Strategic Plan by implementing the following elements of the Vision, Mission, Strategic Themes and addresses many of the Strategic Priorities.

**Vision:** *“To be the best place in Canada to raise a child, promote innovation, engage citizens and provide diverse economic opportunities.*

*Mission:*

- *We will provide quality public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.*

#### **Strategic Themes**

*Image – Changing the perceptions of Hamilton and promoting the City as a great place to live work and play.*

*Job Creation – Ensuring the City has a thriving and diverse business economy with sustainable jobs and employment for its residents.*

#### **Strategic Priorities**

*The City’s three Strategic Priorities are:*

- *A prosperous and healthy community*
- *Valued and sustainable services*
- *Leadership and Governance”<sup>12</sup>*

#### 5.3.2. Pedestrian Mobility Advisory Committee (P.M.A.C.)

A Pedestrian Mobility Advisory Committee (P.M.A.C.) is recommended as a commenting body to assist City staff with decision making on pedestrian issues. The intent is to have a committee to help implement the Pedestrian Mobility Plan by providing advice to staff when requested.

Two models were considered for the Pedestrian Mobility Advisory Committee (P.M.A.C.). The first is the model used for the existing cycling advisory committee that focuses on the cycling community primarily. The second is the model used for advisory committees such as Clean Air Hamilton Coordinating Committee.

Implementation of the Pedestrian Mobility Plan will be about much more than simply walking. For example, safe and interesting pedestrian activity will help:

<sup>12</sup> City of Hamilton, Strategic Plan, 2012-2015





- *improve the public health and well being of Hamilton’s residents,*
- *address Provincial and Municipal City targets and policies for energy conservation, public transit, green house gas emissions and air quality,*
- *address the economic aspirations of the larger community especially where higher education, the professions, business improvement areas and emerging technologies are concerned, and*
- *address the needs outlined in the Code Red effort.*

There is a great deal more at stake than simply walking. Using an advisory committee model similar to that used for the Clean Air Hamilton Coordinating Committee, with the necessary amendments, the membership can be drawn from the various City efforts underway that have improved pedestrian activity as a strategic goal. This will help build broader implementation support in a collaborative fashion.

### 5.3.3. Pedestrian Coordinator

Coordination between pedestrians, cycling, and road user needs is required. Sometimes, conflicts exist with pedestrians between cyclists and other mobility device users. This is particularly true as more cyclists, pedestrians and those with mobility devices use our streets and sidewalks. The mobility devices and

their applicable legislative framework in which they operate, are described in **Table 15**.

A Pedestrian Coordinator position will be required to act as a liaison or point person ensuring the various City Departments and groups are planning, designing and implementing works to address the needs of specific user groups. The Pedestrian Coordinator should be considered an important position. He/she will be involved with many ongoing and upcoming projects.

Given the range of issues to consider as illustrated on **Figure 1, City Implementation Considerations**, the Pedestrian Coordinator will need to be knowledgeable about matters addressing the following City functions: **Infrastructure, Planning Considerations, Legislative, Communications, and Operational**.

This Pedestrian Coordinator will also consider education and etiquette programs and policies to mitigate both current and future user conflicts. These conflicts exist today, for example, on multiuse trails. Developing etiquette standards and supporting policies will be important matter when user volumes increase and where cyclists and pedestrians may potentially conflict.

### 5.3.4. Wayfinding

Wayfinding is a particular challenge for pedestrians, because signage, like lighting systems, are primarily designed with





vehicular movement in mind. Two options exist: developing and installing a system of wayfinding and signs oriented to pedestrians; and developing a smart phone application, perhaps based on existing directional applications or newer software utilizing geographic positioning (G.P.S.) information. We are recommending the development of a smart phone application which together, might be used with the air quality health risk information discussed in section 8.6.

Wayfinding, although important, was not identified as a high priority by the public through the consultation process.

Urban Braille is also a form of wayfinding which assists people with visual impairments. The City of Hamilton has an excellent Urban Braille program and this Plan supports and should be consistent with current Urban Braille policies. For additional information, see Appendix 20, City of Hamilton Urban Braille System.

Addressing the wayfinding needs for pedestrians and other active modes (i.e., cycling and transit) can be achieved two-fold. Through the application of web-based technology and through conventional signs at the pedestrian-scale.

The City is currently investigating conducting a pilot project on providing a mobile application for smartphones. The mobile application would have proximity capabilities to provide users with nearby City destinations including transit stops and bicycle parking within a walkable distance range. If successful, this pilot

project can be refined and expanded to provide additional interpretive and cultural information to complement the wayfinding capabilities. This initiative represents the future of wayfinding and would be complimentary with traditional, signage based wayfinding. By exploring this mobile application, the City is exhibiting a cost-effective and innovative approach that has minimal operational and maintenance impacts.

The use of a traditional wayfinding system (i.e., signs) will continue to help residents and visitors to navigate through the City, particularly for those who do not have access to smartphones or other similar technology. Historically, wayfinding systems have been focused on automobiles. However, with recent trends in increased investment in transit and pedestrian/bicycle infrastructure, there is an identified need to provide a pedestrian-scaled wayfinding system. General guiding principles have been identified below to provide the City with direction on developing a wayfinding strategy.

- Focus on downtown, BIA locations, as well as key decision point locations along the recreational trail and bicycle network.
- Apply the “3-D” philosophy for wayfinding: **Distance**, **Direction** and **Destination**.
- Uniform signage (or brand) to provide a level of consistency throughout the system, while



maintaining flexibility to unique features within the City (i.e., individual BIAs).

- Integrate wayfinding system into existing transit infrastructure (i.e., stop locations and shelters) since all transit trips begin and end with a walking trip and are located within walking distance to most destinations.

The Ontario Wayfinding Research Study ([www.mtc.gov.on.ca/en/publications/OntarioWay Finding](http://www.mtc.gov.on.ca/en/publications/OntarioWayFinding)) speaks to the need to improve the quality and effectiveness of wayfinding for tourism benefits. This program is targeted at ways Regions across the Province can improve wayfinding in Ontario and be consistent with programs such as tourism-oriented directional signage (T.O.D.S.), which are the blue and white signs located on 400

series Highways in Ontario. Wayfinding includes more than directional signs, it includes print and electronic visitor information (maps, brochures, internet), directional/streetscape/landscaping features (buildings, landmarks, parks) and technology services including G.P.S., handheld devices and interactive visitor kiosks. With the rapid changes occurring in technology, G.P.S. or mobile devices will quickly allow people to perform “Where Am I” functions, find destinations or tourist attractions. In the longer term, a strategy between Tourism, and Rapid Transit should integrate a strategy for wayfinding throughout the City. The City of Hamilton will need to integrate wayfinding using more than only traditional methods and include mobile devices and tourism mapping. This should be considered as part of Tourism and Economic Development programs.



## 6. INFRASTRUCTURE CONSIDERATIONS

### 6.1. Introduction

Infrastructure management involves Municipal and Institutional responsibilities associated with the ownership, operation, management, development and renewal of physical assets. These include buildings, parks, streets and infrastructure such as underground utilities (sewers and water). Other services such as hydro, gas, cable and telephone services often are situated within the municipal streets. Life cycle replacement and co-ordination of ongoing maintenance, special projects and municipal capital projects are also often required. The majority of this work is coordinated through the Asset Management Department at the City.

Special and capital projects that involve municipal property and infrastructure, are also within asset management responsibilities. As the owner of property and infrastructure, the municipality is responsible for the safe operation and stewardship of these resources to ensure the municipalities many legal responsibilities are met and various goals and objectives are achieved. Pedestrian mobility needs to be addressed together with these other municipal responsibilities to ensure the safe and efficient use of City

streets and/or right of ways.

### 6.2. Routine Accommodation and Budget Considerations

Pedestrian mobility is critical to achieving the many municipal goals and objectives associated with efforts as far reaching as Vision 2020 and the City's Mission Statement. Pedestrian Mobility is also critical to meet the requirements of new Official Plan policy, while achieving environmental objectives such as clean air, energy conservation and climate change targets. The achievement of a balance that meets the various municipal responsibilities is essential.

This Pedestrian Mobility Plan documents many community efforts to address walkability within City neighbourhoods. This Pedestrian Mobility Plan could have developed a list of projects with various priorities and costing attached, and recommended these. However, in our opinion, this approach would not achieve the required balance, especially where the future involves change. While it might have been possible to address all the various policy and management concerns







that exist at the time of plan development, it wouldn't have been possible to address fully emerging and evolving policy concerns that may be quite different than those which exist today. We live in challenging times, financially and environmentally. Extrapolating from existing conditions 20 years into the future is uncertain.

The approach utilized in this Pedestrian Mobility Plan is called **Routine Accommodation**, which integrates toolbox solutions into each individual project on a routine basis. In this regard, there is not an ever ending "list of projects" and capital requests. Rather, in a proactive, consistent and traceable approach, a series of tools are put in place to allow for a repeatable, defensible decision making process that can be utilized on every project while addressing the City's many legal and policy concerns. This approach is consistent with the Complete Streets philosophy.

The Provincial Highway Traffic Act provides discretion to municipal transportation planners to innovate provided the municipality is consistent throughout its jurisdiction. Individual community walkability studies advance the need for pedestrian improvements, but implementation of some recommendations may not meet the standard the municipality has to meet City wide. Routine accommodation, conceived in this Pedestrian Mobility Plan, provides a menu of various designs (toolbox

solutions) that can be applied systematically across the municipality and in a manner that enables neighbourhood preferences and previous walkability studies to be addressed consistently.

When infrastructure renewal, maintenance, capital or special projects are conceived and implemented, Routine Accommodation recommended in this Pedestrian Mobility Plan provides for streetscape implementation of various pedestrian improvements. It recognizes pedestrian improvements need to be systematically applied across the City in a process that considers site specific conditions. Routine accommodation provides for the selection of appropriate pedestrian toolbox solutions that address each unique streetscape and involves an advisory committee which is populated by the various policies and community interests needed to make decisions on the most suitable pedestrian improvements. It also creates a forum where pedestrian concerns can be rebalanced with vehicular and cycling modes. Overall, a conservative estimate is expected that it will add approximately 5 to 10% to the costs of each project. We expect that over a 20 year period, significant pedestrian improvements will have occurred on most City streets as part of ongoing maintenance and reconstruction work or other ongoing and future City projects.





## 7. ENVIRONMENTAL ASSESSMENT ACT COMPLIANCE

### 7.1. Class Environmental Assessment

The planning framework for this study follows Phases 1 and 2 of the Municipal Engineers Association Municipal Class Environmental Assessment (October 2000, as amended in 2007). The Municipal Class Environmental Assessment is a planning and design process, approved under the Ontario Environmental Assessment Act, for routine municipal infrastructure and transportation projects. Projects that are subject to the Municipal Class Environmental Assessment are expected to have a predictable range of environmental impacts that can be mitigated. Consideration is given to the potential effects of each project on the natural, social, cultural and economic environments. As such, projects that are planned in accordance with the Municipal Class Environmental Assessment are approved under the Environmental Assessment Act.

Section A.2.7 and Appendix 4 of the Municipal Class Environmental Assessment document (2007) explains how the planning process can be applied to Master Plans. Appendix 4 of the

document recognizes three possible approaches. This Pedestrian Mobility Plan follows Approach #1, which completes Phases 1 and 2 of the Class Environmental Assessment process at a broad level. It serves as a backgrounder for future projects that are recommended as a result of implementing the Pedestrian Mobility Plan. These future projects may be subject to a separate Class Environmental Assessment study, requiring detailed investigations to fulfil Municipal Class Environmental Assessment requirements. For more detailed information, see Appendix 23.

### 7.2. Problem and Opportunities Statement

**Figure 3: Input for the Problem and Opportunities Statement** illustrates the various forms of input considered in the development of the Problem and Opportunities statement for this study:

- The **Hamilton Transportation Master Plan** and new **City Official Plan** emphasize expanded, safe, and



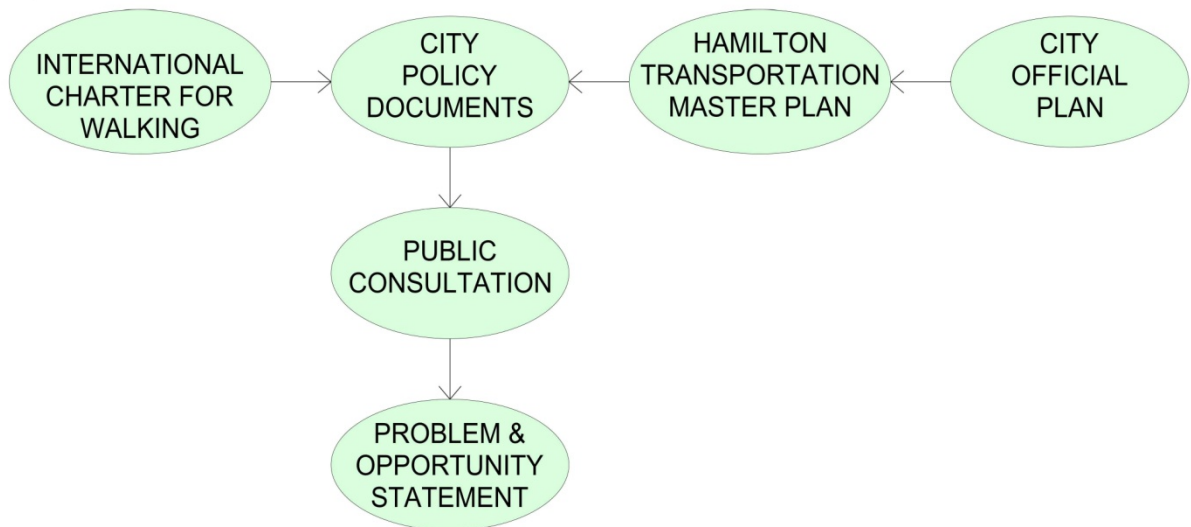
attractive pedestrian mobility that provides access to community institutions, recreational/leisure opportunities, employment and retail service which support multiple travel mode options.

- The City of Hamilton signed the **International Charter for Walking** in 2008, which promotes a set of principles to encourage a culture of walking.
- Furthermore, **Provincial legislation and policy initiatives** emphasize expanded pedestrian mobility to conserve energy,

adapt to climate change and to create a healthier, active, built environment/transportation system.

- The draft Problem and Opportunities statement was prepared for **Public Information Centre #1**. Based on both public input and Advisory Group feedback, it was refined and presented at **Public Information Centre #2**.

Figure 3: Input for the Problem and Opportunities Statement



The Problem and Opportunities Statement reads as follows:

*The City of Hamilton initiated the Pedestrian Mobility Master Plan to support its commitment to the International Charter for Walking, and develop a plan to achieve the applicable goals and objectives of local and provincial mandate. Improvements to the existing pedestrian environment are needed to create a community where people choose to walk.*

During the first Public Information Centre and in presentations to the Pedestrian Advisory Group, the public and the Group were invited to provide comments on a draft problem statement. Based on the comments received and the analysis conducted in this assessment, we confirmed the problem and opportunities statement set out above.

### 7.3. Existing Conditions

A complete discussion of the existing conditions discussion is included in the Appendices. See Appendix 23.

Walking occurs within the existing land uses and streets. This Pedestrian Mobility Plan explores these inter-relationships in order to enhance safe and interesting pedestrian movement.

Current activity generators and destinations are mapped on **Figure 4: Destinations and Generators**. A 400m

walking radius is a generally accepted distance and was used as an accepted, reasonable walking distance. The destinations include institutional facilities, churches, schools and other public facilities. The density and distribution of these destinations and generators closely coincides with the urban boundary and results of the Community Walk Map. As part of the review of the existing walking environment and network in the City, the existing pedestrian network was mapped.

**Figure 5: Existing Network** includes an inventory of existing sidewalks and recreational trails.

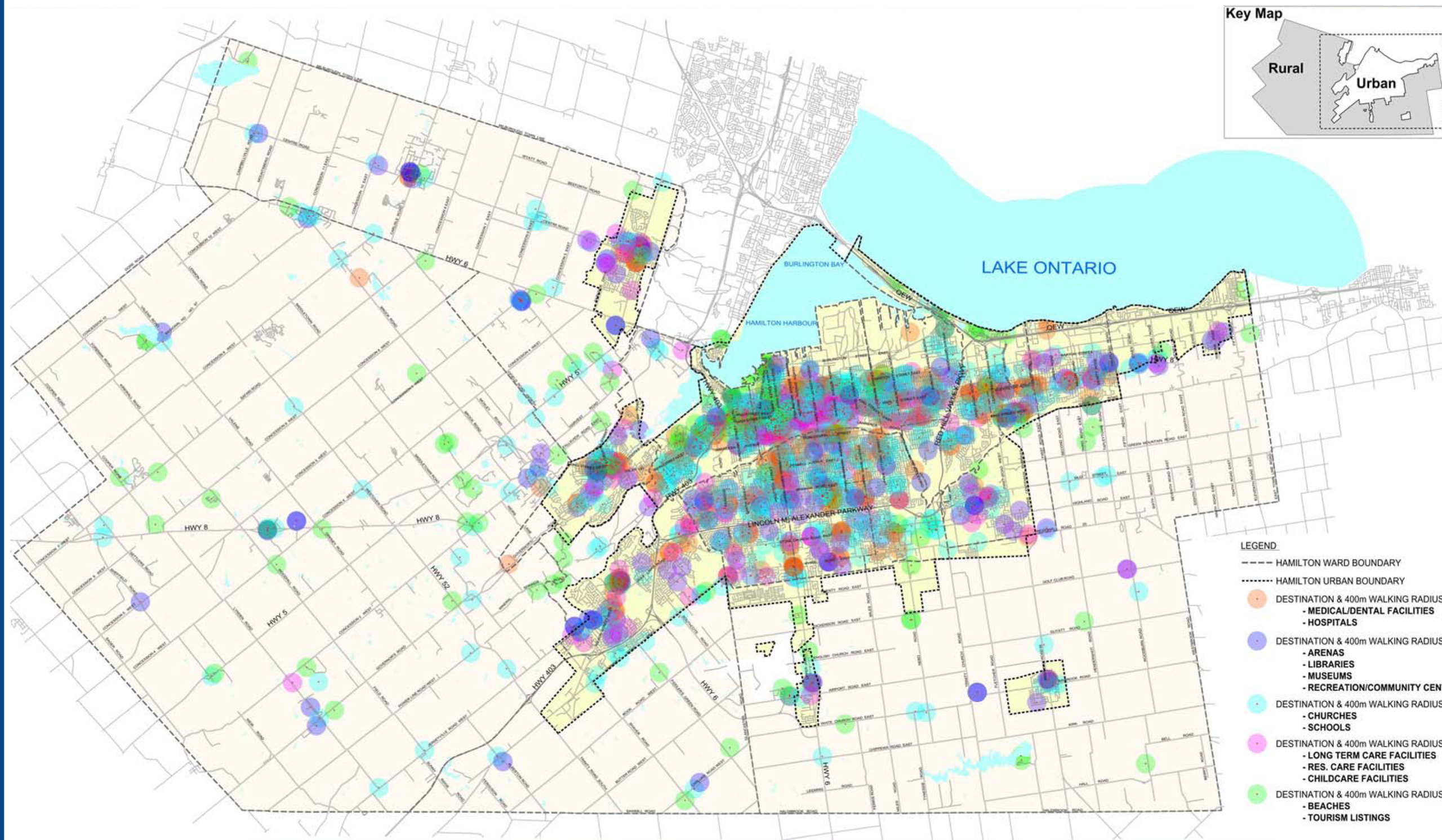




Hamilton



Destinations and Generators



G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 ■ Environmental Planning Fax. (905) 681-2944  
 e-mail: ocon@oconnor-consultants.com  
 ■ Resource Analysis website: www.oconnor-consultants.com

FIGURE 4

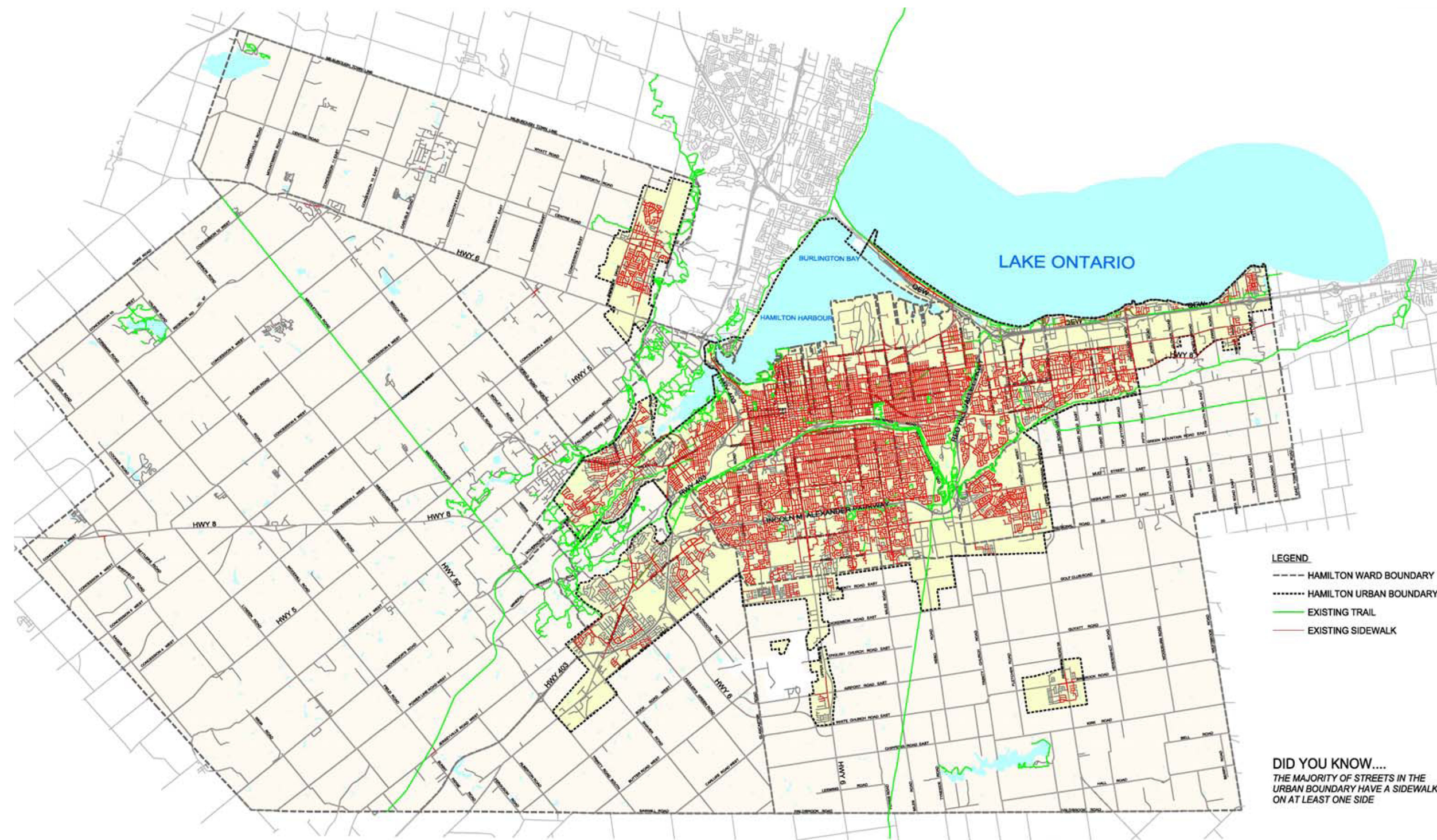




Hamilton



# Existing Pedestrian Network



**G. O'CONNOR CONSULTANTS INC.**

■ Landscape Architecture 3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 ■ Environmental Planning Fax. (905) 681-2944  
 ■ Resource Analysis e-mail: [ocn@oconnor-consultants.com](mailto:ocn@oconnor-consultants.com)  
 website: [www.oconnor-consultants.com](http://www.oconnor-consultants.com)

## FIGURE 5



### 7.3.1. Review of Best Practices and Lessons Learned

We followed the definition of “Best Practices” discussed in the 2008 Transportation Association of Canada (TAC) Report titled “Best Practices for the Technical Delivery of Long-Term Planning Studies in Canada” as “Practice proven successful”.

Based on this definition of “Best Practices”, a literature search was conducted in order to identify successful practices related to pedestrian activities and mobility in Canada and around the

world. A list of data sources and best practices were ‘matched’ to the various areas of opportunities by means of a matrix since applications of some of these best practices can vary depending on the nature of problems encountered at the location and land use characteristics in proximity to the pedestrian facilities. See **Appendix 2: Summary of Best Practices**, as of Fall 2011.

The most relevant lessons learned from this review are summarized in **Table 8**.

**Table 9: Lessons Learned based on Best Practices related to Pedestrian Activities**

Pedestrian Environments	Lessons Learned
<b>Sidewalk environment</b>	<ul style="list-style-type: none"> <li>• minimum sidewalk width of 1.5 m can generally accommodate the needs of two people walking side by side</li> <li>• increasing the sidewalk width to at least 1.82 m or greater allows a more comfortable environment for adults carrying children or the safe passage of wheelchairs/walkers</li> <li>• the width of the sidewalk should be based not only on the roadway classification but also on the purpose of the surrounding land use, facilities and the expected use of the sidewalk</li> <li>• expanding the installation of sidewalks on both sides of the street, especially in new subdivisions, may encourage residents to walk to destinations such as transit stops, schools, recreation centres or other facilities.</li> <li>• Sidewalk widths should consider and use the term</li> </ul>



Pedestrian Environments	Lessons Learned
	<p>clear zone rather than width. The clear travel zone width is more critical than the overall width which may have obstructions. A minimum width of 1.8m clear is recommended.</p>
<b>Buffer areas</b>	<ul style="list-style-type: none"> <li>• Increasing the physical separation between the pedestrian area and the roadway not only improves the pedestrian level of comfort, but also enhances the perceived level of safety</li> <li>• a separation of the curb and the sidewalk from 2 to 2.5 m or greater can be designed as a furniture area, buffer zone and space for snow storage during winter</li> <li>• shade trees can greatly improve pedestrian comfort and can be planted in the buffer zone. For street trees, a minimum of 3 m buffer zone is preferred.</li> </ul>
<b>Parking</b>	<ul style="list-style-type: none"> <li>• the use of on-street parking can provide a physical barrier between the pedestrian area and the roadway</li> <li>• the preferred width of a parallel on-street parking lane is 2.5 m wide on commercial thoroughfares and a minimum 2 m wide on residential thoroughfares</li> <li>• a minimum width of 1.82 m for secondary pedestrian connections as well as the provision of pedestrian illumination is advisable so that pedestrians are not unnecessarily exposed to safety hazards when traveling to and from off-street parking areas.</li> </ul>
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• Block length on urban centers and urban core areas should not be larger than 120 m but preferably between 68 and 90 m to support higher densities and pedestrian activity</li> <li>• protected intersection crossings should be located on average between 180 m for lower volumes or 100 m, in high pedestrian volume locations</li> <li>• In residential environments, considerations for pedestrian sidewalks, pathways or greenways to link</li> </ul>



Pedestrian Environments	Lessons Learned
	any cul-de-sac to another street or cul-de-sac within the development should be included as part of the development plans.

### 7.3.2. Collision Analysis

CIMA completed a collision analysis during Phase 1 of the Pedestrian Mobility Plan study. A copy of the collision analysis report is included in **Appendix 3**. The purpose of the analysis was to understand the characteristics of pedestrian collisions within the City of Hamilton, identify locations with a high frequency of pedestrian collisions, and identify intersections and/or corridors which have the potential for safety improvements.

It is intuitive that improving safety and security encourages people to use more active modes of transportation for a wider range of trip purposes. While the two elements are linked, they are also sometimes confused with each other. To provide clarity, in this study, safety is solely referred to as the expected number of collisions involving pedestrians and security is referred to as the perceived level of personal security, primarily with respect to crimes.

The collision analysis showed that pedestrian collisions constitute 7% of total collisions recorded in the City of Hamilton. From that proportion, the majority of pedestrian collisions (92%) were “injury” collisions. It was also shown that 41% of drivers involved in pedestrian collisions are between the ages 36 to 65. Further, it

was shown that 15% of drivers involved in pedestrian collisions are older than 65. These two cohorts could benefit from further educational programs relating to pedestrian safety and should be the focus of such programs in the City.

Regarding location of collisions, sixty-five percent (65%) of collisions occurred at intersections or were intersection related. Of those collisions, 68% occurred at signalized intersections. Based on these findings it was also identified that improving safety at signalized intersections for pedestrians should be a priority in the City of Hamilton.

**Figure 6: Locations of Vehicular Collisions With Pedestrians** shows the location of pedestrian-involved collisions. Based on the analysis, the majority of pedestrian-involved collisions occur in the downtown core. This finding is a reflection of the fact that in the City centre, pedestrian activities are much more prevalent than in suburban areas of the City. In the downtown core, there are relatively high numbers of pedestrians who are exposed to reasonably high traffic volumes. As a result, the finding of higher frequencies of collisions in this area was not unexpected and is similar to other North American Cities.





It is important to distinguish however, that higher collision frequencies in this area do not necessarily mean the location is less safe for pedestrians. Unfortunately, pedestrian volume data was not equally available across the City. As a result it was not possible to provide comparisons that would consider relative volumes for all areas of the city.

**The findings do indicate that when larger amounts of pedestrian movements take place in close proximity of relatively high vehicular traffic, the potential for collisions increases.** As a result, it is important to consider pedestrian safety where those conditions currently exist or where there is the potential for those conditions to exist once walking activity increases.

The analysis further supported findings that identify where focus should be given to address pedestrian safety and where it is not as critical. One important observation is that most pedestrian-involved collisions occurred on major roads and at intersections associated with major roads and not within neighbourhoods. One possible reason for this observation may be higher pedestrian volumes and crossing demands on major streets. As well, there may be lower pedestrian and fewer vehicular conflicts in the neighbourhoods.

These findings lead to the conclusion that the City should develop plans to facilitate the movement of, and increased safety for, pedestrians on major roads and at intersections. Based on our analysis locations of higher risk, both corridors and intersections are found in the downtown core area.

Finally, the analysis looked at factors that may be contributing to pedestrian collisions along the City of Hamilton's major corridors and at the City's major intersections. The findings include a determination that road surface conditions (i.e., snow covered), environmental conditions (i.e., snow), lighting (i.e., dawn/dusk), and time of day (i.e., 01:00 AM – 06:00 AM) are contributing factors. These factors are taken into consideration when developing general behaviour type alternatives that can be delivered more widely across the City of Hamilton.

In this study, safety is referred to as the expected number of collisions per year at each site (intersection or corridor). The expected number of collisions is a long term annual average number of collisions at each site and it is different from the average observed number of collisions during the study period.



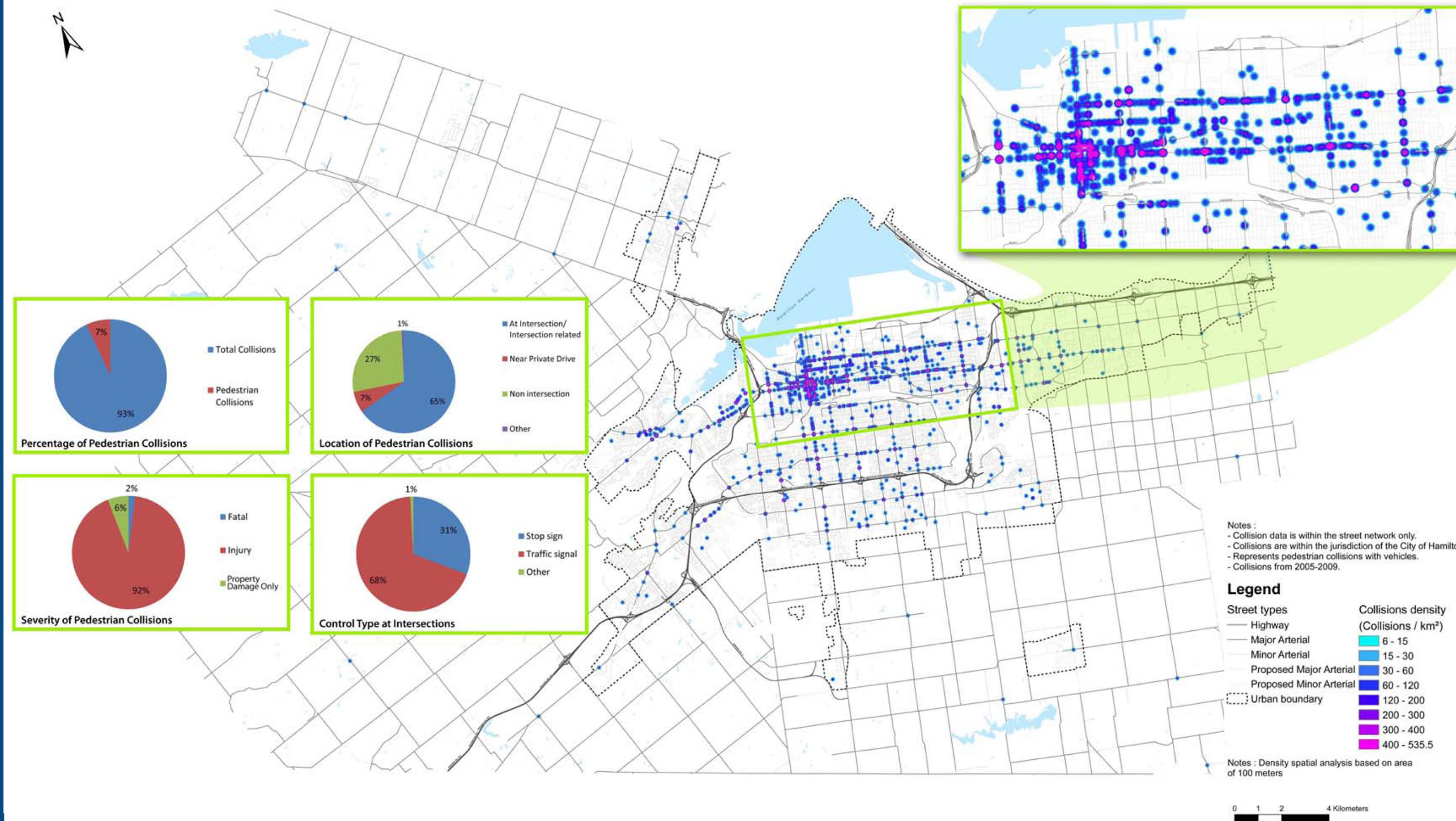




Hamilton



# Locations of Vehicular Collisions with Pedestrians



G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 ■ Environmental Planning Fax (905) 681-2944  
 e-mail: ocon@oconnor-consultants.com  
 ■ Resource Analysis website: www.oconnor-consultants.com

## FIGURE 6



### 7.3.3. Mobility Analysis

Mobility Analysis in this context, means the ability of pedestrians to move as limitless, freely and unimpeded, as possible through Hamilton's streets. A mobility analysis was completed in Phase 1 of the Pedestrian Mobility Plan to identify the major factors which deter people from walking. Three sources of information were used for this analysis: (1) public comments and input received during Public Information Centre No. 1; (2) comments obtained from the public using the CommunityWalk mapping; and (3) the public survey.

The most frequently cited concerns by the public can be categorized into two major areas: (1) **concerns related to perceived comfort and safety** and (2) **concerns related to accessibility**.

#### ***Perceived Comfort and Safety***

##### Intersections

Intersections with both high vehicular traffic volume and high pedestrian volume are often challenging for pedestrians and drivers alike. Difficulty and/or discomfort crossing at major intersections was one of the major concerns raised by the public. The main challenges associated with crossing intersections are:

- Intersections that did not have marked or controlled pedestrian crossings on all legs of the intersection: It was suggested that kind of intersection can discourage individuals from walking, and

perhaps even encourage them to cross illegally.

- Adequate space at intersection corners for pedestrians waiting for their signal: At busy intersections with high pedestrian volumes, especially in the downtown area, pedestrians require enough space at each corner in order to comfortably wait for their signal to cross the intersection. It is important to consider the conflict between the pedestrians waiting to cross and the pedestrian flow which is entering the sidewalk from the perpendicular approach.
- Pedestrian and vehicle conflicts at major intersections: Crossing at major intersections was one of the major concerns raised by the public. High right turning and left turning vehicular volume, high pedestrian volume, and short green time per phase for vehicles are common characteristics of busy intersections in urban areas. These characteristics can lead to aggressiveness of left and right turning vehicles (and often vehicles turning right on red) in order to find a gap among pedestrians on the crosswalks.
- Intersections with channelized right turn lanes: Pedestrians and right turning vehicles can get confused at intersections with channelized right turns which (1) do not provide clear and positive guidance to pedestrians or vehicles or (2) do not have clearly







marked crossings on the channelized lane.

Corridors

- **Mid-block Crossings:** One of the concerns raised by the public is the desire to have comfortable and safe mid-block crossings, or intersection crossings at locations where the street is uncontrolled. This concern is heightened at locations where transit stops are present and transit patrons must cross the roadway for one or both legs of their trip. It is noteworthy that the City of Hamilton developed a policy on installation criteria for intersection and mid-block pedestrian signals in January 2001. In certain flow conditions, reasonable distances between crossing opportunities, regardless of numbers using the movement, need to be imposed, otherwise traffic conditions will be barriers to promoting walking interests. If it is too far to walk, people are more likely to drive to cross the road. If flow conditions are widely varied, measures that do not interrupt traffic needlessly should be the best options practiced. Pedestrian initiated devices or a signal are better than the absence of any opportunity on our long blocks.
- **Sidewalk Width:** Sidewalk width is an important factor which contributes to comfort and the perception of safety by pedestrians. Lack of adequate sidewalk width is one of the factors raised by the

public as an impediment to walking in some areas of the City.

- **Major Highway Crossings:** Some major highways run through the City of Hamilton. Overpasses to cross these highways often lack wide and comfortable sidewalks as described by public comments. Another challenge associated with the overpasses is a lack of adequate lighting. The City has accommodated bicycle traffic with separate bike lanes on some of the overpasses. Where these facilities were present pedestrians identified that they perceived better safety and comfort for walking.

Winter Maintenance

Snow and ice removal for pedestrian facilities were another major concern of the public. Lack of snow clearing and treatment of slippery surfaces was identified as a hindrance to walking in winter. In particular, snow piled at intersections (wind rows) was identified as an issue. The City is undertaking a pilot program to improve snow removal at intersections and will report back to Council. It is worthy of note that while there exist regulations in the City for clearing of snow from sidewalks, based on public comments, the City's snow and removal bylaws are enforced on a complaint basis.

**Accessibility**

Public concerns with respect to accessibility to pedestrian facilities include





access to major destinations including parks and trails, access to public transit stops, and disconnected sidewalk network especially in suburban and rural areas.

Sidewalks are an integral part of a pedestrian friendly community. In order to promote walking in the City, it is critically important to provide access for pedestrians to major destinations (including parks and trails) within the City. Additionally, pedestrians should have safe and comfortable access to public transit using pedestrian facilities. This will not only encourage people to walk but will also increase mode share of public transit. One of the reasons for collisions along corridors is pedestrian crossings at undesignated crosswalks in order to get access to public transit stops.

The City of Hamilton includes communities which are suburban and rural in nature and are undergoing growth and urbanization. As a result, sidewalks should be proactively introduced into these communities to encourage the residents to walk. One of the examples of such a corridor is Wilson Street in Ancaster.

**Conclusions**

The results of the collision analysis were obtained by a statistical analysis of available collision data. The results of the mobility analysis were obtained primarily from public input gathered at Public Information Centre meetings and through other direct public feedback mechanisms. The overall findings from the two sources are in general agreement with each other

and generally consistent with findings in other North American Cities.

The primary safety and mobility challenges for the pedestrians in the City of Hamilton are along major corridors and at major intersections. As described in subsequent sections of this report, a range of alternatives have been developed that will allow the City to provide treatments at locations to address identified concerns. There is no single solution, rather a range of alternatives can be considered to address problems identified and used in conjunction with each other.

**7.3.4. Urban Transect and Pedestrian Context Areas**

The Urban Transect *“is a way of locating and understanding a variety of different types of human settlement within a comprehensive web of natural and human habitats.”*<sup>13</sup> This Pedestrian Mobility Plan adapts and modifies the urban transect, to characterize pedestrian environments by type of built environment and streetscape throughout the City of Hamilton. See **Figure 7: Development Patterns – Context Areas** and **Figure 8 – Existing Area Maps – Existing Conditions**.

This document is to be read in conjunction with the Official Plan, which takes priority.

<sup>13</sup> Bohl, Charles C., and Elizabeth Plater Zyberk., “Building Community across the Rural to Urban Transect” in Places, Forum of Design for the Public Realm, Volume 18, Number 1, Spring 2006, pg. 4.



The adaptations include adding an “Industrial” context area to address the heavy industry and port facilities associated with Hamilton Harbour and an “Urban Village” context area to address settlements that were enveloped within the urban area that retain some built environment and streetscape characteristics, often historic in nature, of rural villages.

The transect displays aerial photograph plan views of the existing street and intersection pattern and the relationship between buildings, streets and sidewalk. In each zone, a photograph of a typical street scene is shown to characterize the pedestrian environment. Context areas were mapped generally in plan view to differentiate pedestrian environments throughout the City. Attention to detail is essential if safe and interesting pedestrian environments are to be created. The Context Areas provide this necessary level of detail.

The context areas are not intended to be used as planning designations or zones, such as those in the City Official Plan and Zoning Bylaw. Rather, this transect is an instrument providing greater detail and clarity so that toolbox solutions, policies and programs can be developed to create and maintain interesting and safe pedestrian environments throughout the City. This allows for more refined implementation of appropriate toolbox solutions and the context to be considered for these solutions.

In addition, these context solutions should be tied back into the City Official Plan (i.e., if an existing area is designated rural and an area is designated for a more intense urban use, the City Official Plan governs. Good engineering and planning judgement should be used when considering all solutions.

Beginning from the left and working to the right of **Figure 7: Development Patterns, Context Zones**, the context area descriptions follow:

**Context Area: Natural**

Natural heritage features comprise the natural context area. These include stream and creek valleys such as the Spencer and Chippewa Creeks, the Beverley Swamp and the Niagara Escarpment. Extensive recreations trails exist within these features or rail trails connect them. This trail development represents a significant pedestrian resource for all inhabitants in the City of Hamilton.

**Context Area: Rural**

Scattered rural residential lots created by severance and a regular pattern of active and inactive farms associated with farm clusters exists in the Rural Context Area. Farms are organized around the original township surveys that also made provision for township and county roads. While farm amalgamation and consolidation has rearranged this pattern somewhat, generally the pattern holds, except where natural features, such as Beverly Swamp,



exist. Recreational Trails, where these exist and paved shoulder widening represents opportunities for pedestrian facilities.

### **Context Area: Village/Hamlets**

These villages and hamlets comprise older, agricultural service centres. Historically, community facilities like township municipal buildings and churches were situated in these settlements together with services for the local rural agricultural community. Often retiring farmers moved to these villages.

These Villages generally contained collections of historic and newer residences. The service functions they performed in the past have declined, while residential accommodations serve commuters primarily. Sidewalks may or may not exist. Generally development is focused on an intersection with little interior or residential development.

Examples include Millgrove, Jerseyville, Rockton, Freelton and Carlisle.

### **Context Area: Urban-Village**

The Urban Village Context Area generally comprises former rural settlements and villages around which urban growth has occurred, thereby engulfing these communities within the urban fabric. However, the streetscape and buildings within their core areas remain and are often historic in character with buildings with older uses. These represent unique and distinctive potential pedestrian environments.

Street widths and lengths between blocks are variable with underground services in trenches, except in older streets.

The urban core of Dundas is an older community, in many respects older than the former City of Hamilton. The core constitutes a unique collection of residential and commercial buildings and streetscape that is a unique pedestrian environment. The Niagara Escarpment and Spencer Creek frame this core. Both these natural features represent unique trail and pedestrian possibilities.

Ancaster is also an older, historic community, with a mixture of heritage buildings along Wilson Street and older residential neighbourhoods to the east. Balancing the needs of arterial traffic through the village core and the pedestrian and heritage potential of the former village will be a challenge.

Stoney Creek and Waterdown also represent older communities with a mixture of natural features, Stoney and Grindstone Creeks, and historic buildings and sites, Stoney Creek Battleground and streetscapes. Binbrook and Mt. Hope represent more recent developments where planned growth has occurred around their village cores.

One exception exists. Westdale Village is a planned community characterized by an oval street pattern around a commercial core. A park once existed in the commercial village centre together with a rail connection to downtown Hamilton.





Commercial parking and Main Street have replaced the rail connection and park.

**Context Area: Suburban**

Suburban residential neighbourhoods are those neighbourhoods built after 1949. Generally, residential neighbourhoods have been built within a framework of arterials with curvilinear interior street patterns. While sidewalks exist, street and pedestrian connectivity are poor. Street/lane widths are generally greater than downtown and signalized intersections are further apart.

In the former City of Hamilton, a standard neighbourhood template was developed around which commercial and residential neighbourhoods were planned. Residential uses were situated within the block interiors; while commercial uses fronted onto the exterior arterials. Natural features like the Red Hill and Chedoke Creeks were placed underground in storm sewers and removed the natural landform/pattern.

In the former municipalities of Dundas and Ancaster, street patterns were designed to address natural features associated with the Dundas Valley and the Ancaster and Spencer Creeks. In Stoney Creek, a mixture of natural features and neighbourhood templates focused on vehicular traffic.

The results are neighbourhoods with strong reliance on the automobile, poor ability to be serviced by public transit and

while sidewalks exist, poor pedestrian connectivity.

**Context Area: Urban General**

These neighbourhoods include a mixture of uses along arterials, while the interior neighbourhoods are primarily residential. Built in the latter part of the 19<sup>th</sup> century, the street pattern is characterized by longer interior blocks with shorter blocks fronting onto arterial streets. Streets are generally wider with some underground utilities in dedicated trenches.

The street patterns are generally rectangular in character. Less connectivity and lower intersections density exists making for less walkable pedestrian environments. Generally, larger residential lots exist with lower lot coverage and more tree cover both within residential lots and streets. Buildings are set back further from the street and street dimensions are larger than those found in earlier residential neighbourhoods.

**Context Area: Urban Core**

These predominantly residential streets surround the office and commercial downtown. Built prior to 1949, block lengths are regularly and generally equal distant and the intersection densities are high making for excellent street connectivity. Little urban renewal exists.

Street widths are variable, but more consistent with those found downtown. Underground utilities are not as densely placed as the Downtown.





The industrial and residential neighbourhoods closer to the west end of Hamilton Harbour and in Dundas contain the oldest streetscapes in the City. In the residential neighbourhoods, the physical street dimensions, lot sizes and dimensions and setbacks are of a finer scale than older neighbourhoods closer to the Niagara Escarpment in this Zone and elsewhere in the City.

Little or no redevelopment has taken place except where larger lots have been redeveloped for higher density residential development. Mature street trees often line these streets and higher density residential buildings are generally closer to the streets. Mixed uses occur closer to the industrial port.

Eventually, the older industrial areas that line the older port areas will be redeveloped. The Bay Front Park and pedestrian trails to the east and west to Princess Point have re-introduced the public to Hamilton Harbour and are highly valued by pedestrians.

### **Context Area: Downtown**

The downtown consists of significant concentrations of office and commercial development and increasingly, residential development. In Hamilton's downtown, pre-1949 built streets are organized as squares or rectangles with almost equidistant intersections. These short block lengths and dense intersection patterns, provide for efficient pedestrian movement. The exception occurs where urban renewal in the 1950's removed the

existing street fabric and replaced it with large block development such as Jackson Square and other public buildings.

A pedestrian plaza was created above Jackson Square together with elevated passageways across Main Street to the Convention Centre, Art Gallery and the Ellen Fairclough building. These innovations didn't have the intended effect and are being replaced by street level pedestrian facilities.

Gore Park serves as a pedestrian plaza, while the MacNab Street terminal acts as a transit hub for the Hamilton Street Railway. Together with the GO Station rail and bus terminal, the downtown is well served by public transit.

Streets are served with sidewalks and some street furniture. Street widths are variable from narrow 2-3 lanes, with larger 4-5 lane roads. Signalized intersections are frequent and follow a grid like pattern with relatively short distances between each signal.

There are combinations of one and two way streets. A number of key streets have been targeted for, or converted to 2-way traffic. This greatly assists pedestrian mobility

Underground utilities in the street are tightly placed given the narrow right of way. Shade trees exist on some streets with new plantings in some other areas. The entrance into International Village and the adjoining streets and sidewalks





**December 12/12**



Hamilton

are well equipped for pedestrian movement.

**Context Area: Industrial**

The heavy industrial area adjoining Hamilton Harbour is the City's heavy industrial and port area and along Burlington Street. Pedestrian environments exist to a limited extent where streets have sidewalks. Goods movement and heavy industrial activities characterize this zone. Aside from public transit facilities, little opportunity exists to enhance this pedestrian environment except in peripheral areas like Windemere Basin where reclamation to environmental and open space is occurring.





Hamilton



CONTEXT AREA:  
NATURAL



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- MULTI-USE RECREATIONAL TRAILS

CONTEXT AREA:  
RURAL



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- MULTI-USE RECREATIONAL TRAILS
- PAVED SHOULDERS

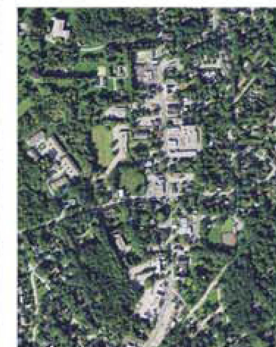
CONTEXT AREA:  
VILLAGE-HAMLET



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- MULTI-USE RECREATIONAL TRAILS
- PAVED SHOULDERS

CONTEXT AREA:  
URBAN-VILLAGE



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- RECREATIONAL TRAILS
- SIDEWALKS
- STREET TREES
- STREET FURNITURE
- CROSSWALK
- ILLUMINATION
- BIKE LANES

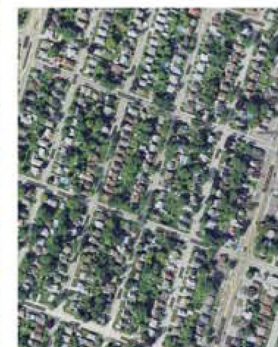
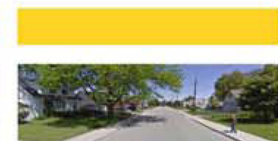
CONTEXT AREA:  
SUBURBAN



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- RECREATIONAL TRAILS
- SIDEWALKS
- STREET TREES
- ILLUMINATION
- BIKE LANES

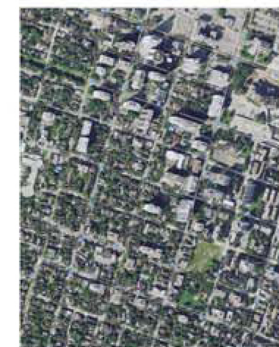
CONTEXT AREA:  
URBAN GENERAL



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- SIDEWALKS
- STREET TREES
- ILLUMINATION
- BIKE LANES

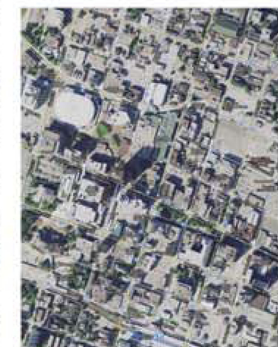
CONTEXT AREA:  
URBAN CORE



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- SIDEWALKS
- STREET TREES
- STREET FURNITURE
- ILLUMINATION
- CROSSWALKS
- BIKE LANES

CONTEXT AREA:  
DOWNTOWN



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- SIDEWALKS
- PEDESTRIAN MALLS
- STREET TREES
- PEDESTRIAN PLAZAS
- ILLUMINATION
- STREET FURNITURE
- CROSSWALKS
- BIKE LANES

CONTEXT AREA:  
INDUSTRIAL



PEDESTRIAN MOBILITY  
INFRASTRUCTURE SUCH  
AS:

- LIMITED SIDEWALKS
- ILLUMINATION

←  
RURAL

→  
URBAN

# Development Patterns Context Areas

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture  
 ■ Environmental Planning  
 ■ Resource Analysis

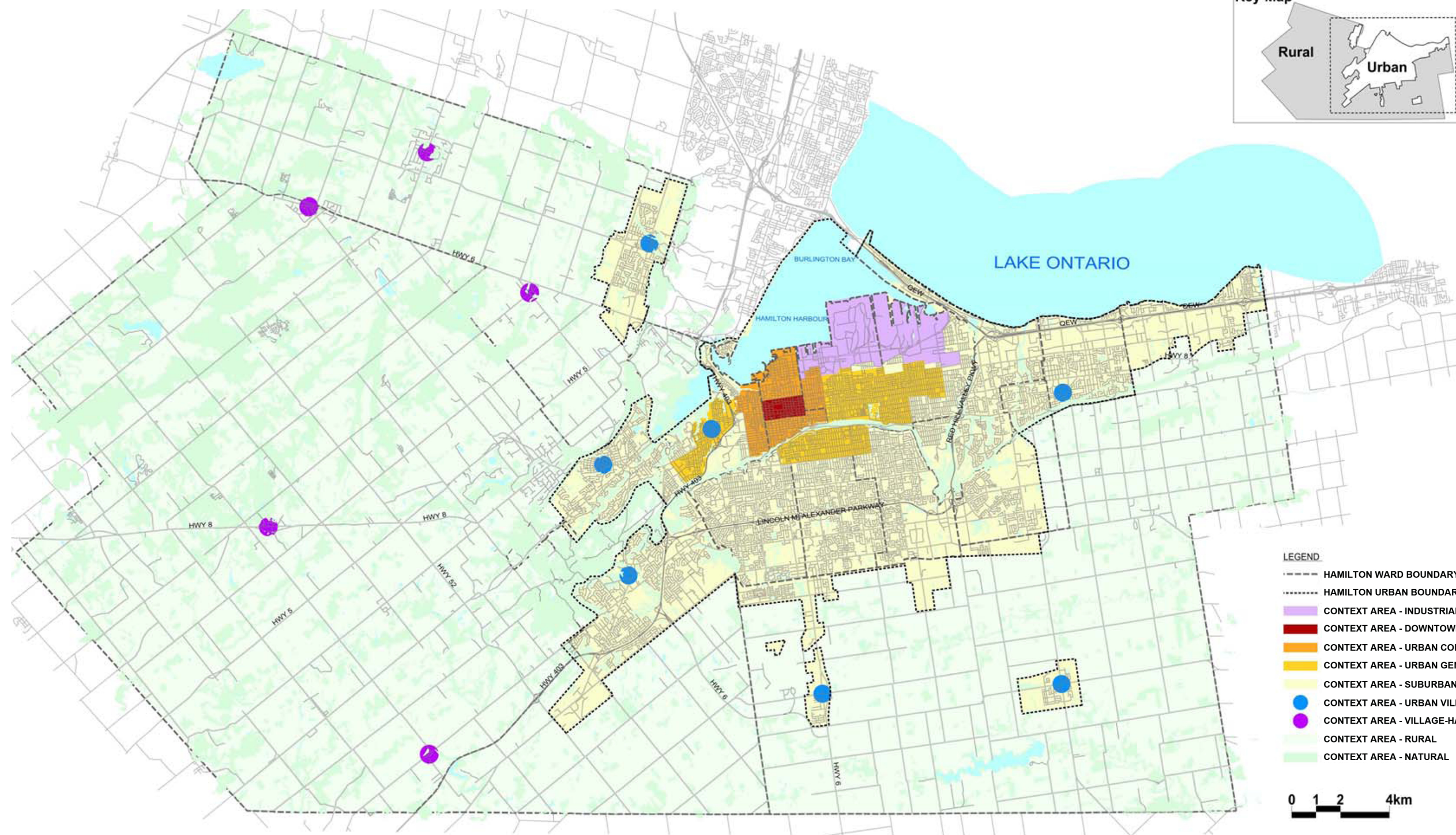
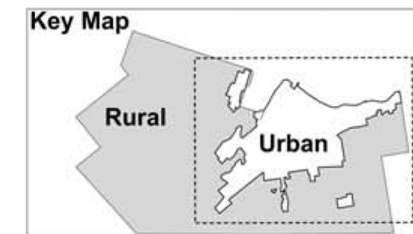
3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 Fax (905) 681-2944  
 e-mail: [ocor@oconnor-consultants.com](mailto:ocor@oconnor-consultants.com)  
 website: [www.oconnor-consultants.com](http://www.oconnor-consultants.com)

## FIGURE 7





Hamilton



# Existing Area Maps Existing Conditions

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 ■ Environmental Planning Fax (905) 681-2944  
 e-mail: ocon@oconnor-consultants.com  
 ■ Resource Analysis website: www.oconnor-consultants.com

## FIGURE 8





### **7.3.5. Public Information Centres**

The City of Hamilton, with assistance from the Consultant Team, hosted two rounds of Public Information Centres for the Pedestrian Mobility Plan. The general public were invited to attend the Public Information Centres via notice advertized in the Hamilton Spectator and in the local community newspapers. Notices were also posted to the City's project website at [www.hamilton.ca/PedestrianMP](http://www.hamilton.ca/PedestrianMP).

In addition, Public Information Centre announcements were provided through the Smart Commute Hamilton Fan pages of Facebook ([facebook.com](http://facebook.com)) and Twitter ([twitter.com](http://twitter.com)). Agencies and other interest groups represented on the updated study contact list were provided with a copy of the notice by mail. A copy of each Notice is included in **Appendix 4**.

#### **Public Information Centre No. 1**

Public Information Centre No. 1 was held in an open house format at four (4) locations during Phase 1 of the study. The four locations were selected to cover the upper (e.g., Hamilton Mountain) and lower (e.g., Stoney Creek, Downtown Hamilton, Dundas) areas of the City. The purpose of the first Public Information Centre was to receive input on the existing conditions within Hamilton, the outlined problem and opportunities statement, draft evaluation criteria and study framework.

A 'Notice of Study Commencement and Public Information Centre No. 1' was advertised in the Hamilton Spectator on March 4 and 11, 2011. This first notice introduced the project and announced opportunities for public input, including the availability of an on-line survey, on-line interactive map, and details of the first round of Public Information Centres. Contact information was provided so that the public could obtain additional information or submit comments directly to the Project Team.

The public was invited to attend one of four (4) PIC locations:

- **Monday, March 28, 2011** at Stoney Creek Municipal Service Centre on 777 Highway 8
- **Wednesday, March 30, 2011** at the Hamilton Convention Centre on 1 Summer's Lane in downtown Hamilton
- **Tuesday, April 5, 2011** at Dundas Baptist Church on 201 Governor's Road
- **Thursday, April 7, 2011** at the Sackville Senior's Centre, 780 Upper Wentworth Street on the Hamilton mountain

Each Public Information Centre was held from 6:00 pm to 8:00 pm, with a powerpoint presentation at 6:30 pm followed by a question and answer period. Project information was displayed on 22 boards for viewing throughout the evening. Two additional boards displayed the on-line interactive mapping tool for this project and the International Charter for Walking signed by the City's Mayor in 2008.



In addition to the information boards and PowerPoint presentation, two roll-out maps of the City of Hamilton were available where participants could stick a dot on places they chose to walk to and/or write comments regarding the pedestrian environment of interest. Mobility Surveys and Comment Sheets were also available so that participants could provide specific feedback or submit their comments in writing. A copy of the Public Information Centre materials is included in **Appendix 9**.

In total, eighty-two (82) people attended Public Information Centre No. 1. **Table 10** shows how many people attended by date.

**Table 10: Attendance at Public Information Centre No. 1**

Date of Public Information Centre (2011)	Attendance
March 28	11
March 30	16
April 5	39
April 7	16

Fourteen (14) written comments and four (4) mobility surveys were submitted in the comment box. Of the surveys received, three (3) were submitted on April 5 and one (1) was submitted on April 7, 2011. In addition, several locations of interest and comments were recorded on the roll-out maps. Feedback received through the mobility surveys and roll-out maps were reviewed with the results of the electronic surveys and interactive mapping available on-line at [www.hamilton.on/PedestrianMP](http://www.hamilton.on/PedestrianMP). As such, details and results of the survey and mapping exercise are summarized in separate sections of this report.

**Appendix 5** provides a summary of verbal comments recorded during the question and answer period of each Public Information Centre, and a copy of all submitted comment sheets. All present at the presentation were encouraged to fill out a comment sheet to ensure their comments were included and accurately recorded. Additional comments were received by regular and electronic mail.

For the purpose of this report, we have summarized and organized the comments under common suggested themes for improvement as outlined in **Table 11**.



**Table 11: Summary of Public Comments (Public Information Centre No. 1)**

<p><b>Pedestrian Crossings</b></p> <ul style="list-style-type: none"> <li>• Pedestrian activated crossing lights desired</li> <li>• Stoplights/pedestrian signals with longer times to cross</li> <li>• Crosswalks that are highly visible and clearly marked/defined</li> <li>• Crosswalks that line up safely</li> </ul>
<p><b>Sidewalks</b></p> <ul style="list-style-type: none"> <li>• More sidewalks, where they do not take away from enjoyment of nature</li> <li>• Wider sidewalks to allow two people to walk side by side</li> <li>• Ramps into driveways with room to walk on a level piece of pavement</li> <li>• Even sidewalk surface</li> <li>• Slopes at street corners</li> </ul>
<p><b>Trails and Pathways</b></p> <ul style="list-style-type: none"> <li>• More marked, trails/paths</li> <li>• Continuous connections of trails/paths</li> </ul>
<p><b>Traffic Management</b></p> <ul style="list-style-type: none"> <li>• All way stop and stoplight, where needed</li> <li>• Foot bridge, where needed</li> <li>• Pedestrian Mall and Traffic Free Zones</li> <li>• Traffic calming</li> </ul>
<p><b>Pedestrian Comfort</b></p> <ul style="list-style-type: none"> <li>• Space for the planting of canopy shade trees</li> <li>• Sidewalks, crosswalks and roads ploughed or shovelled in the winter</li> </ul>

<ul style="list-style-type: none"> <li>• Facilities for shared use of scooters and bicycles</li> <li>• Covered bus shelters at all stops and more frequent bus schedule</li> </ul>
<p><b>Environmental Considerations</b></p>
<ul style="list-style-type: none"> <li>• Maintained cultural heritage</li> <li>• Enhanced access to natural environments</li> </ul>
<p><b>Other considerations</b></p>
<ul style="list-style-type: none"> <li>• Promotional materials for walking/hiking trails</li> <li>• Past and ongoing, relevant Master Plans</li> </ul>

**Public Information Centre No. 2**

Public Information Centre No. 2 was held in an open house format at two (2) locations during Phase 2 of the study. The two locations were selected to centralize opportunity for people to gather. The purpose of the second Public Information Centre was to receive input on the assessment of alternative strategies and proposed framework to implement, as appropriate, the toolbox solutions, policies and programs that encourage more people to walk.

A 'Notice of Public Information Centre No. 2' was advertised in the Hamilton Spectator on August 25 and September 1, 2011. This second Notice invited public comment on the study and provided details regarding the second round of Public Information Centres. As with the first notice, contact information was provided so that the public could submit comments directly to the Project Team.

The public was invited to attend one of two (2) Public Information Centres:

- **Thursday, September 8, 2011** at the Hamilton Public Library on 55 York Boulevard in downtown Hamilton
- **Saturday, September 10, 2011** at the Turner Park Library on 352 Rymal Road East on the Hamilton Mountain.

The first Public Information Centre was held on September 8, 2011, from 4:00 pm to 7:00 pm, with a powerpoint presentation at 6:00 pm followed by a question and answer period. The second Public Information Centre was held on September 10, 2011, from 12:00 pm to 3:00 pm, with a powerpoint presentation at 2:00 pm.

Project information was displayed on 24 boards for viewing throughout the evening. One additional board displayed the International Charter for Walking



signed by the City’s Mayor in 2008. In addition to the information boards and powerpoint presentation, Comment Sheets were available so that participants could provide specific feedback or submit their comments in writing. A copy of the Public Information Centre materials is included in **Appendix 6**.

In total, sixty-three (63) people attended Public Information Centre No. 2. **Table 12** shows how many people attended by date.

**Table 12: Attendance at Public Information Centre No. 2**

<b>Date of Public Information Centre (2011)</b>	<b>Attendance</b>
<i>September 8</i>	<i>37</i>
<i>September 10</i>	<i>26</i>

Attendance on September 8 included at least one representative from the City’s Public Health Department and one

representative from Councillor McHattie’s office. More people attended on September 8 and 10, but did not sign in.

Thirteen (13) written comments were submitted in the comment box. Of the comments received, nine (9) were submitted on September 8, 2011 and four (4) were submitted on September 10, 2011.

**Appendix 7** provides a summary of verbal comments recorded during the question and answer period of each Public Information Centre, and a copy of all submitted comment sheets. All present at the presentation were encouraged to fill out a comment sheet to ensure their comments were included and accurately recorded. Additional comments were received from agencies and the public by letter and electronic mail.

For the purpose of this report, we have summarized and organized the comments under common suggested themes for improvement as outlined in **Table 13**.

**Table 13: Summary of Public Comments (Public Information Centre No. 2)**

<b>Pedestrian Crossings</b>
<ul style="list-style-type: none"> <li>• Scramble crossings, are they feasible?</li> <li>• Marked crossings (painted pavements)</li> <li>• Crossing etiquette at unmarked crossings is unclear; do cars or pedestrians get right-of-way?</li> <li>• Low physical barrier at corners, to discourage people crossing at unmarked</li> </ul>

<p>intersection</p> <ul style="list-style-type: none"><li>• Wider crosswalk lines</li><li>• Consistent crossing times at major intersections</li><li>• Sound control signal on 3 lane road</li><li>• Countdown signals; More countdown time for crossings near senior centres</li><li>• Push buttons for walk signals do not stay on long enough for seniors to cross safely</li><li>• Pedestrian crossing buttons usually not accessible: often too high for wheelchair users, often not on pavement</li><li>• Distance between crosswalks is difficult, especially for seniors; Crosswalks on busy four lane roads are too far apart</li><li>• Unsafe state of a building on John Street where there is not a crosswalk to the park right in front of it</li></ul>
<p><b>Sidewalks</b></p> <ul style="list-style-type: none"><li>• Need more sidewalks; Provide continuous sidewalks; Separated sidewalks are a great idea as walking in the direction with the traffic is terrifying – too many trucks</li><li>• In rural areas, roads are under maintained and narrow, with no shoulders, and are heavily travelled by pedestrians; Shoulders at Ministry of Transportation (MTO) standards are preferred over sidewalks</li><li>• Consistent construction standards when building sidewalks: no California curbs, well marked curb cuts, no bevelling of cement joints, no interlocking bricks, flush transfer from sidewalk to roadbed at corners (usually one is higher than the other), ramps at corners often not wide enough for cross walk marking</li><li>• Tilted sidewalks (in the winter, half the sidewalk is treacherous, non-usable and too narrow)</li></ul>
<p><b>Bicycles, Trails and Pathways</b></p> <ul style="list-style-type: none"><li>• Bicycles riding on sidewalks is illegal and this needs to be enforced; Stop parking bikes on sidewalks; Provide more E-bikes, bike parking, and bike lanes</li><li>• On trails, cyclists ride three abreast and it is difficult for seniors to get out of the way; Trails need to be segregated; there should be a divide in the lane even if it is a</li></ul>



white line to separate walkers from bicycles, skate boarders and roller bladers.
<b>Traffic Management</b>
<ul style="list-style-type: none"><li>• Designate Pedestrian Malls</li><li>• Plan for places where pedestrians and cars co-exist</li><li>• No right turn on red</li><li>• More citations should be handed out for cars that don't come for a full stop at a red light or stop sign</li><li>• Speed is a huge problem</li><li>• One-way versus two-way streets</li><li>• Pave more of the downtown streets</li><li>• Venue signage (wayfinding)</li><li>• Calculating a rate of risk for intersections might provide some further insight for potential high risk intersections that have not been identified because they do not yet have a high pedestrian use</li></ul>
<b>Pedestrian Comfort</b>
<ul style="list-style-type: none"><li>• Snow removal, particularly at intersections is very poor; Provide continuous maintenance of sidewalks; Enforce businesses to clear their sidewalks of snow more often</li><li>• The real problem is the crosswalks at the corners. The city snow plows push the snow to the side of the road and block the crosswalk. It is almost impossible for a senior to cross the street yet some do try and usually injure themselves. It is not clear who should clear the snow at the corner to open up the crosswalk.</li><li>• Better Lighting; Enforce businesses to provide lighting in back alleys, back of buildings</li><li>• Replant new trees for shading; Shrubs and bushes/hedges often encouraged on sidewalks; Trees cannot be too close to the corner; When planting trees, trenches have a much greater success rate than a square cutout</li><li>• Every bus stop should have a shelter; Every bus shelter should be in a safe place</li><li>• Consistent safety supervision: Bicycles and skateboards continue to use sidewalks,</li></ul>







many wheelchairs and scooters go on the road, many wheelchairs and scooters go too fast and do not consider pedestrians, there is no rescue program for people who have problems with their mobility devices, often wheelchairs have to wait for several HSR buses before getting necessary transportation to appointments (DARTS wants more disabled people to use HSR buses but the service/reliability is not there), there are few designated shops in the downtown for DARTs passengers to be unloaded (especially Stelco Tower)

- Non-electric scooters are becoming hazardous
- Doors opening onto sidewalks can be problematic
- Downtown streets and sidewalks are ill-kept (littered with cigarette butts and garbage and stains); Need to walk around large gathering of persons that are smoking; to make the downtown more friendly there should be a law that cigarette butts should not be thrown on the sidewalk and no smoking within four metres of the entrance to any building.

**Toolbox Solutions**

- Top five toolbox solutions: (1) Walking along the street - Safer driveway, crossings at sidewalks, crossings at access; (2) Walking along the street - Improved Sidewalks, buffered medians, street trees (3) Policies - Transit stop locations, connections, crosswalk near stop, wider area at stop (4) Crossing the street - Intersection design/geometry, reduced crossing widths, better pedestrian wait areas (5) Walking along the street - Road diets, lane diets.

**Other considerations**

- Age friendly cities
- Integrated transit stop
- Issues regarding eastward transit service
- Better student bus passes (cheaper) for the secondary students (HSR)
- Bus stops in the city need better planning. Many times there are poles, refuse containers or gardens right in front of one of the exit doors from the bus. The curb height needs to be more in line with the bus floor so the step off is not too deep. The bus stops should be on the far side of the intersection, especially for articulated buses. When a stop is before the intersection the back door is too far from the curb and a person has to step down to the road making it very difficult for



- seniors
- Park supervisors during the summer
  - A Pedestrian Advisory Committee is long overdue; A member of the Seniors Advisory committee should be on the committee
  - Routine accommodation is a good foundation
  - Laws and regulations should be based on need, common sense, and ‘science’; There is no point in passing regulations if they don’t make sense or are not enforced

During the Public Information Centre, participants were asked to select the top five (5) toolbox solution themes identified on an interactive panel to improve pedestrian mobility in the City. **Table 14**

summarizes the input received at each Public Information Centre.

*Total Score represents the addition of “like” (positive) and “dislike” (negative). The sum gives an idea of relative importance.*

**Table 14: Public Selection of Toolbox Solution Themes**

	Sept. 8/11		Sept. 10/11		Total Score
	Like	Dislike	Like	Dislike	
<b>Walking along the street</b>					
Improved sidewalks, buffered medians, street trees	+11	-1	+7	0	+17
Roadside parking management, restrictions at intersections, reverse angle parking	+4	0	+2	0	+6
Road diets (Reduce no. of lanes), Lane diets (reduced width)	+6	0	+2	-3	+5
Safer driveway, crossings at sidewalks,	+4	-1	+1	0	+4

	Sept. 8/11		Sept. 10/11		Total Score
	Like	Dislike	Like	Dislike	
crossings at access					
<b>Crossing the street</b>					
Signals, count down signals, signal timing, mid block signals	+7	-1	+7	0	+13
Crossings, high visibility crosswalks, marked crosswalk locations	+8	0	+3	0	+11
Intersection design/geometry reduced crossing widths, better pedestrian wait areas	+8	0	+2	0	+10
Pedestrian lighting at crossings, lighting along street	+6	0	+2	0	+8
Regulatory, no right on red light	+3	0	+1	-1	+3
<b>Policies</b>					
Transit stop locations, connections, crosswalk near stop, wider area at stop	+4	0	+3	0	+7
<b>Other</b>					
Public education and engagement, safe routes to school, etc.	+4	0	+5	0	+9
Increased winter maintenance, on street parking, site plan guidelines, vehicle speed reduction, changes to Highway Traffic Act, etc.	+6	0	+1	0	+7

In addition, participants were asked to share site specific issues or concerns regarding pedestrian mobility in the city. Issues and concerns were provided either



by the comment sheets and/or interactive Public Information Centre boards included in **Appendix 11**.

Other Comments

The City of Hamilton received one letter from the Assembly of First Nations in response to the second Notice of Public Information Centre. The Assembly of First Nations explained that its organization did not have entitlement to the lands referenced in this study and could not comment on behalf of the First Nation communities in the area. The Assembly of First Nations recommended that the City provide project information to First Nation communities in the vicinity of Hamilton. Contact information was provided for the Six Nations of the Grand River and Mississaugas of the New Credit First Nation.

**7.3.6. Public Review Period**

A final Pedestrian Mobility Plan report will be prepared at the conclusion of this study to document the decision making process that led to the recommended procedure for selecting toolbox solutions and policy changes for the purpose of improving pedestrian mobility in the City of Hamilton. The Pedestrian Mobility Plan report will be placed on the public record for a minimum 30-day review period.

A 'Notice of Study Completion' will be advertised in the Hamilton Spectator, and on the City's website, to announce when

and where the report will be available for public review, along with details on how the public can submit questions and/or written comments. The report will be filed with the City Clerk in Hamilton City Hall and made available for review at various Municipal Centres in the City. The Notice will be advertised in the local community newspapers as well as the Hamilton Spectator, and mailed to individuals and agency representatives on the updated study contact list.

As this Pedestrian Mobility Plan does not recommend individual projects, the Class Environmental Assessment provision for a Part II Order does not apply at this stage of the planning process. Environmental Assessment Act approvals will be obtained during future Class Environmental Assessment studies for individual projects, where applicable.

**7.4. Alternative Solutions**

Below are the alternative solutions identified to address the problem statement:

- **Alternative 1: Do Nothing**
  - No change to the pedestrian environment
- **Alternative 2: Develop and implement toolbox solutions to enhance the pedestrian environment**

*The toolbox solutions are designs intended to improve pedestrian environments by giving greater attention*



to detailed pedestrian needs. The toolbox solutions comprise three groups:

- Toolbox solutions for Walking along the Street
- Toolbox solutions for Crossing the Street
- Toolbox solutions for Transit Stops

Each group includes a number of designs described in detail in the appendices.

• **Alternative 3: Develop new and revised policies and standards to address applicable pedestrian environments**

*These standards and policies include engineering and site design standards the City applies in development review and other internal reviews intended for traffic decision-making. This alternative is comprised of two groups:*

- New policies and standards applicable to specific pedestrian environments
- Revised policies and standards applicable to specific pedestrian environments

• **Alternative 4: Develop new and revised public education, communication and outreach programs.** *This alternative is comprised of four groups:*

- New education, communication and outreach program
- Revised education, communication and outreach program
- Outreach/enforcement
- Monitoring

**7.4.1. Evaluation of Alternative Strategies**

The Municipal Class Environmental Assessment requires an environmental assessment of the alternatives to the undertaking. **Figure 9: Evaluation of Alternative Strategies** documents the evaluation used in this environmental assessment and recommends preferred alternatives. The analysis assumes the toolbox solutions will be implemented as components of larger projects, including future maintenance and infrastructure replacement. Policies, standards, education, communication and outreach programs will be implemented separately.

This evaluation relies on knowledge generated in this Pedestrian Mobility Plan preparation, expert opinion and municipal staff and public review and comment. Specifically, the analysis draws on:

- the collision and mobility analyses (subsection 7.3.2 and 7.3.3);
- the Pedestrian Advisory Group input (subsection 5.2.2);
- analysis of the Interactive On-Line Mapping (subsection 5.2.3.1);
- analysis of the On-Line Survey (subsection 5.2.3.2);
- public input gathered from Farmer’s Markets (subsection 5.2.3.3);
- public input gathered from Open Streets events (subsection 5.2.3.4);







- public input gathered from the Transportation and Healthy Living Fair (subsection 5.2.3.5);
- public input gathered from the Public Information Centres (subsection 7.3.5); and
- City staff and Councillor Workshops (subsection 5.2.3.6)

The analysis also draws on research undertaken to develop this Pedestrian Mobility Plan including:

- the **Legislative Considerations** outlined in **Section 2**;
- **Planning Considerations** outlined in **Section 3**;
- **Operational Considerations** described in **Section 4**;
- **Communications Considerations** outlined in **Section 5**; and
- **Infrastructure Considerations** described in **Section 6**.

The existing environment is described in **Section 7.3**, “Existing Conditions”, and includes: “Review of Best Practices and Lessons Learned” and “the Urban Transect and Context Areas”.

A study contact list was developed and used for prescribed public notices; two sets of public information centres (subsection 7.3.5); and a final public review period (subsection 7.3.6).

The Evaluation Criteria against which these alternatives are evaluated include three general environmental elements:

the natural, cultural heritage, and socio-economic environments intended to capture traditional environmental concerns. Each alternative is evaluated against these environmental components.

The evaluation indicates whether the criteria can be met satisfactorily, unsatisfactorily or without effect. Generally, sidewalks exist throughout the City. Infrastructure reconstruction and maintenance may involve their replacement and application of selected toolbox solutions during reconstruction described as “routine accommodation”.

We expect little impact or no effect on natural heritage features. In the event there are potential impacts, these can be addressed in subsequent approvals associated with individual reconstruction projects. The same can be said for potential impacts on the cultural and heritage resources and socio-economic environments. Alternatively, given the available science and municipal commitments to the International Charter for Walking, the “do nothing” alternative does not achieve the improvements sought in this Pedestrian Mobility Plan or those strongly requested by the public.

Four specific criteria indicative of the improvements sought in this Pedestrian Mobility Plan and critical to implementation are also used to measure the alternatives. The “**administrative, implementation, operations and maintenance** criteria” is intended to address the implementation of new





legislative and policy considerations as well as responding to issues raised in consultations undertaken in the preparation of this Pedestrian Mobility Plan. The recommended procedure, “**routine accommodation**” will enable the City to address this criteria during subsequent decision making.

The “**other modes of transportation**” is intended to measure whether the alternatives can be implemented in reasonable harmony with other transportation modes (e.g., the automobile and cycling) and functions (e.g., goods movement). Potential conflicts between vehicular traffic and special functions such as goods movement can be addressed in the design and application of toolbox solutions.

The “**emissions**” criteria is intended to address “**tail pipe**” air quality issues, especially along major arterials, and ensure increased public health improvements achieved by increased levels of physical activity are not compromised by transportation emissions. The evaluation assumes by coordinating emissions with City mobile monitoring, measures can be taken to minimize potential impacts by alerting the public of elevated emissions so pedestrians can plan walking trips accordingly.

The “**public health**” criteria is intended to confirm which alternatives address the public health improvements sought in the reduction of built environment public health risks associated with chronic

diseases and the sustainability improvements sought in subsections **1.4.1, “Public Health and Sustainable Communities”** and **1.4.2 “Healthy, Complete, Sustainable”**.

Alternatively, while the existing pedestrian environment provides a framework upon which to build and develop a safer and more interesting pedestrian environment, it performs poorly when compared to the improvements that can be made. While the “do nothing” alternative is not recommended to be advanced, there may be instances when the recommended routine accommodation process and environmental analysis required for subsequent approvals is undertaken where “do nothing” may be the final decision.

#### **7.4.2. Identification of Preferred Alternative Strategies**

This analysis concludes the “do nothing” alternative is not recommended while the application of toolbox solutions, both new and upgraded pedestrian policies and standards, and public education, communication and outreach programs are recommended to be advanced individually or in combination.





Hamilton



Evaluation of Alternative Strategies

List of Alternative Strategies	EVALUATION CRITERIA							RECOMMENDATION
	Administrative Implementation Operations & Maintenance	Other Modes of Transportation	Emissions	Public Health	Natural Environment	Cultural/Heritage Environment	Socio-Economic Environment	
<b>1. Do nothing</b>								
a. No change to the pedestrian environment	-1	-1	-1	-1	0	-1	-1	
<b>2. Develop toolbox solutions to enhance the pedestrian environment</b>								
a. Toolbox Solutions for Walking along the Street	+1	+1	+1	+1	0	+1	+1	
b. Toolbox Solutions for Crossing the Street	+1	+1	+1	+1	0	+1	+1	
c. Toolbox Solutions for Transit Stops	+1	+1	+1	+1	0	+1	+1	
<b>3. Upgrade Pedestrian Policies and Standards</b>								
a. New policies and standards applicable to specific pedestrian environments	+1	+1	+1	+1	+1	+1	+1	
b. Revised policies and standards applicable to specific pedestrian environments	+1	+1	+1	+1	+1	+1	+1	
<b>4. Develop Public Education, Communication and Outreach Programs</b>								
a. New education, communication and outreach program	+1	+1	+1	+1	+1	+1	+1	
b. Revised education, communication and outreach program	+1	+1	0	+1	0	+1	+1	
c. Outreach/enforcement	+1	0	+1	0	0	0	+1	
d. Monitoring	+1	0	0	+1	0	0	+1	

Note: Alternative Strategies may include combinations of any of the above.

Scoring Criteria	
+1	Satisfactory
-1	Unsatisfactory
0	No Effect

Ranking Score	
	Recommended
	Not Recommended

G. O'CONNOR CONSULTANTS INC.

3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 Fax. (905) 681-2944  
 e-mail: ocon@oconnor-consultants.com  
 website: www.oconnor-consultants.com





Hamilton



Evaluation of  
Toolbox Solutions - A

TOOLBOX SOLUTIONS	CONTEXT AREAS									EVALUATION CRITERIA											POLICY CONFORMITY		IMPLEMENTATION		
										Administrative Implementation, Operations & Maintenance					International Charter for Walking								COST		
Walking Along The Street	Natural	Rural	Village Hamlet	Urban Village Hamlet	Suburban	Urban General	Urban Core	Downtown	Industrial	Property Requirements	Natural Environment	Public Health	Safety	Implementation Timing	Interface: Other Modes of Transportation	Inclusive Mobility	Well Designed Spaces	Supportive Land Use Planning	Reduce Road Danger	Less Crime and Fear of Crime	Supportive Authorities	Create Culture of Walking	Municipal	Provincial	
Do Nothing	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	0	-1	-1	0	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	N/A
Along the roadway																									
Wayfinding	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	0	+1	+1	+1	0	0	0	+1	+1	0	\$
Widen, Construct, and/or Reconstruct Sidewalks			✓	✓	✓	✓	✓	✓	✓	-1	0	+1	+1	0	-1	+1	+1	0	+1	0	+1	+1	+1	N/A	\$\$
Provide Sidewalk Buffers			✓	✓	✓	✓	✓	✓	✓	-1	0	+1	+1	0	-1	+1	+1	0	+1	0	+1	+1	+1	N/A	\$\$
Provide Clearance for All Mobility Levels			✓	✓	✓	✓	✓	✓	✓	-1	0	+1	+1	0	0	+1	+1	0	+1	0	+1	+1	+1	+1	\$\$
Paved Shoulders	✓	✓							✓	0	0	+1	+1	0	+1	+1	0	0	+1	0	0	+1	+1	N/A	\$\$
Street Trees	✓	✓	✓	✓	✓	✓	✓	✓	✓	+1	0	+1	+1	0	0	0	+1	+1	+1	0	+1	+1	0	+1	\$\$\$
Driveways *																									
Modify Design of Sidewalk across Driveway				✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	N/A	+1	+1	0	+1	0	+1	+1	+1	N/A	\$
Minimize Driveway Width				✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	N/A	+1	+1	+1	+1	0	0	+1	+1	N/A	\$
Prohibit Driveways at Intersections				✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	+1	+1	+1	+1	+1	0	+1	+1	+1	N/A	\$
Consolidate Driveways, where possible				✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	+1	+1	+1	+1	+1	0	+1	+1	+1	N/A	\$
Provide Right-In, right out access only				✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	-1	0	0	0	-1	0	0	0	+1	N/A	\$
Channelization																									
Road Diets (Reduce No. of Lanes)				✓	✓	✓	✓	✓	✓	+1	0	+1	+1	-1	-1	+1	+1	0	+1	0	+1	+1	0	0	\$\$\$
Lane Diets (Reduce Width of Lanes)				✓		✓	✓	✓	✓	0	0	+1	+1	-1	-1	+1	+1	0	+1	0	+1	+1	0	0	\$\$\$
Curbside management																									
Parking Restrictions at Intersections			✓	✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	+1	+1	+1	0	+1	0	+1	+1	0	N/A	\$
Back Angle Parking			✓	✓	✓	✓	✓	✓	✓	0	0	0	+1	0	0	+1	+1	0	+1	0	0	0	0	N/A	\$

Scoring Criteria		Implementation Cost Comparison	
+1	Possible Positive Effect	Low	\$
0	No Effect	Medium	\$\$
-1	Possible Negative Effect	High	\$\$\$
N/A	Criteria not applicable (note: Natural, Cultural and Socio-Economic Environment criteria were considered in all cases to meet the intent of the Class EA process)		

\* Includes private and public costs

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 3310 South Service Road Suite 205  
 Burlington, Ontario  
 Tel. (905) 681-7604  
 ■ Environmental Planning Fax. (905) 681-2944  
 e-mail: ocon@oconnor-consultants.com  
 ■ Resource Analysis website: www.oconnor-consultants.com



Hamilton



Evaluation of  
Toolbox Solutions - B

TOOLBOX SOLUTIONS	CONTEXT AREAS									EVALUATION CRITERIA											POLICY CONFORMITY		IMPLEMENTATION COST		
										Administrative Implementation, Operations & Maintenance					International Charter for Walking										
Crossing The Street	Natural	Rural	Village Hamlet	Urban Village Hamlet	Suburban	Urban General	Urban Core	Downtown	Industrial	Property Requirements	Natural Environment	Public Health	Safety	Implementation Timing	Interface: Other Modes of Transportation	Inclusive Mobility	Well Designed Spaces	Supportive Land Use Planning	Reduce Road Danger	Less Crime & Fear of Crime	Supportive Authorities	Create Culture of Walking	Municipal	Provincial	
<i>Signals</i>																									
Pedestrian indicator (count down signal)				✓		✓	✓	✓	✓	N/A	0	+1	+1	+1	0	+1	0	+1	+1	0	+1	+1	+1	0	
Push button (location)				✓		✓	✓	✓	✓	N/A	0	+1	+1	+1	0	+1	0	+1	+1	0	+1	+1	+1	0	
Pedestrian interval (timing crossing)				✓		✓	✓	✓	✓	N/A	0	+1	+1	+1	-1	+1	0	+1	+1	0	+1	+1	+1	0	
Protected left turn phase				✓		✓	✓	✓	✓	N/A	0	+1	+1	+1	-1	+1	0	0	+1	0	+1	+1	+1	0	
Audible Signals				✓	✓	✓	✓	✓	✓	0	0	+1	+1	+1	0	+1	0	0	+1	0	+1	+1	0	N/A	
Half signals I.P.S. (Integrated Pedestrian Signal)			✓	✓	✓	✓	✓	✓		N/A	0	+1	+1	+1	-1	+1	0	0	+1	0	+1	+1	+1	0	
Mid-block signals I.P.S.				✓		✓	✓	✓		N/A	0	+1	+1	+1	-1	+1	+1	+1	+1	0	+1	+1	+1	0	
Mid-block staggered signals I.P.S.				✓		✓	✓	✓		N/A	0	+1	+1	+1	-1	+1	+1	+1	+1	0	+1	+1	+1	0	
Automatic pedestrian detection				✓		✓	✓	✓		N/A	0	+1	+1	+1	-1	0	0	0	+1	+1	0	0	+1	0	
Grade Separation		✓	✓	✓	✓	✓				+1	0	+1	+1	-1	0	+1	+1	+1	+1	0	0	0	0	0	
<i>Crossing</i>																									
High visibility crosswalks				✓		✓	✓	✓		N/A	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	+1	-1	0	
Marked crosswalk locations				✓		✓	✓	✓		N/A	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	+1	-1	0	
Provide Medians				✓	✓	✓	✓	✓		-1	0	+1	+1	0	-1	+1	+1	+1	+1	+1	0	+1	+1	N/A	
<i>Lighting</i>																									
Illumination at pedestrian crossings			✓	✓	✓	✓	✓	✓		N/A	0	+1	+1	+1	+1	+1	+1	0	+1	+1	0	+1	+1	0	
Illumination along street			✓	✓	✓	✓	✓	✓		N/A	0	+1	+1	+1	+1	+1	+1	0	+1	+1	0	+1	+1	0	
<i>Intersection geometry</i>																									
Modify design of curb side				✓	✓	✓	✓	✓	✓	N/A	0	+1	+1	0	+1	+1	0	+1	+1	0	+1	+1	+1	0	
Modify design of curb extension/bump out				✓		✓	✓	✓	✓	N/A	0	+1	+1	0	+1	+1	0	+1	+1	0	+1	+1	+1	0	
Modify design of curb radius			✓	✓	✓	✓	✓	✓	✓	N/A	0	+1	+1	0	+1	+1	0	+1	+1	0	+1	+1	+1	0	
Design for skewed intersection		✓	✓	✓	✓	✓	✓	✓	✓	N/A	0	+1	+1	0	+1	0	0	0	0	0	0	0	-1	0	
Right turn slip-lane design		✓	✓	✓	✓	✓	✓	✓	✓	N/A	0	+1	+1	0	+1	0	0	0	+1	0	0	0	-1	0	
<i>Regulatory signs</i>																									
No turn on red						✓	✓	✓		N/A	0	+1	+1	+1	-1	+1	0	0	+1	0	0	+1	-1	0	

Scoring Criteria		Implementation Cost Comparison	
+1	Possible Positive Effect	Low	\$
0	No Effect	Medium	\$\$
-1	Possible Negative Effect	High	\$\$\$
N/A	Criteria not applicable (note Natural, Cultural and Socio-Economic Environment criteria were considered in all cases to meet the intent of the Class EA process)		

G. O'CONNOR CONSULTANTS INC.

3310 South Service Road Suite 205  
Burlington, Ontario  
Tel. (905) 681-7604  
Fax (905) 681-2944  
e-mail: ocon@oconnor-consultants.com  
website: www.oconnor-consultants.com





Hamilton



TOOLBOX SOLUTIONS	CONTEXT AREAS									EVALUATION CRITERIA												POLICY CONFORMITY		IMPLEMENTATION		
										Administrative Implementation, Operations & Maintenance						International Charter for Walking								COST		
Policies	Natural	Rural	Village Hamlet	Urban Village Hamlet	Suburban	Urban General	Urban Core	Downtown	Industrial	Property Requirements	Natural Environment	Public Health	Safety	Implementation Timing	Interface: Other Modes of Transportation	Inclusive Mobility	Well Designed Spaces	Supportive Land Use Planning	Reduce Road Danger	Less Crime & Fear of Crime	Supportive Authorities	Create Culture of Walking	Municipal	Provincial		
<i>Transit</i>																										
Transit stop location				✓	✓	✓	✓	✓	✓	-1	0	-1	+1	-1	-1	+1	+1	+1	+1	0	+1	+1	0	0	\$\$\$	
Sidewalk connection				✓	✓	✓	✓	✓	✓	0	0	+1	+1	0	0	+1	+1	+1	+1	0	+1	+1	+1	0	\$\$	
Crossing near stop				✓	✓	✓	✓	✓	✓	0	0	+1	+1	-1	-1	+1	+1	+1	+1	0	+1	+1	+1	0	\$\$	
Sidewalk capacity at transit stop				✓	✓	✓	✓	✓	✓	-1	0	N/A	0	+1	+1	+1	+1	+1	+1	0	+1	+1	0	0	\$	
<i>Other Policies</i>																										
Increased winter maintenance				✓	✓	✓	✓	✓		N/A	0	+1	+1	0	+1	+1	0	+1	+1	0	+1	+1	+1	0	\$\$	
Road classification		✓	✓	✓	✓	✓	✓	✓		-1	0	0	0	0	-1	+1	+1	+1	+1	0	0	+1	-1	0	\$	
On-street parking				✓	✓	✓	✓	✓		0	0	0	0	0	-1	+1	0	0	+1	0	0	+1	+1	0	\$	
Site plan guidelines – commercial				✓	✓	✓	✓	✓		-1	0	0	+1	0	0	+1	+1	+1	+1	+1	+1	+1	+1	0	\$\$	
Site plan guidelines – residential			✓	✓	✓	✓	✓	✓		-1	0	0	+1	0	0	+1	+1	+1	+1	+1	+1	+1	+1	0	\$\$	
Vehicular speed management		✓	✓	✓	✓	✓	✓	✓		N/A	0	0	+1	0	-1	+1	0	+1	+1	0	+1	+1	-1	0	\$	
Transit Oriented Design (T.O.D.)			✓	✓	✓	✓	✓	✓	✓	-1	0	+1	+1	-1	+1	+1	+1	+1	+1	0	+1	+1	+1	+1	\$	
Urban design			✓	✓	✓	✓	✓	✓	✓	0	0	+1	0	0	0	+1	+1	+1	0	0	+1	+1	+1	0	\$	
Street furniture			✓	✓	✓	✓	✓	✓		0	0	0	0	+1	+1	+1	+1	+1	+1	0	+1	+1	+1	0	\$\$	
Urban braille						✓	✓	✓		0	0	+1	+1	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	\$\$	
City of Hamilton lighting study			✓	✓	✓	✓	✓	✓		N/A	0	+1	+1	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	\$\$\$	
Enforcement			✓	✓	✓	✓	✓	✓		N/A	0	+1	+1	0	0	+1	0	0	+1	+1	+1	+1	+1	0	\$\$	
<i>Program</i>																										
Public education and engagement		✓	✓	✓	✓	✓	✓	✓		N/A	0	+1	+1	0	0	+1	0	0	+1	+1	+1	+1	+1	+1	\$	
Safe routes to school				✓		✓	✓	✓		N/A	0	+1	+1	0	0	+1	0	0	+1	+1	+1	+1	+1	+1	\$	

Scoring Criteria		Implementation Cost Comparison	
+1	Possible Positive Effect	High	\$\$\$
0	No Effect	Medium	\$\$
-1	Possible Negative Effect	Low	\$
N/A	Criteria not applicable (note Natural, Cultural and Socio-Economic Environment criteria were considered in all cases to meet the intent of the Class EA process)		

Evaluation of Toolbox Solutions - C

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 3310 South Service Road Suite 205  
 ■ Environmental Planning Burlington, Ontario  
 ■ Resource Analysis Tel: (905) 681-7604  
 Fax: (905) 681-2944  
 e-mail: ocon@oconnor-consultants.com  
 website: www.oconnor-consultants.com



## 8. STEP FORWARD

### 8.1. Introduction: Paradigm Shift, A New Pedestrian Approach

This Pedestrian Mobility Plan focuses on rebalancing pedestrian and vehicular mobility on Hamilton's streets by providing for pedestrians needs, while accommodating vehicular traffic within the streetscape. For the past 50 years, transportation geometric design has started at the centre line and moved outwards to the periphery property lines ensuring adequate space for vehicular traffic. The remaining space left over at the edges is used to accommodate pedestrian and cycling needs.

The Pedestrian Mobility Plan implements a paradigm shift from traditional road design by starting with the requirements for pedestrians and cyclists first at the R.O.W. and working to the centre line. In this regard, conventional wisdom was that lane widths were absolute, whatever was left over could accommodate pedestrians or cyclists.

These recommended improvements will be implemented using a process named "routine accommodation". When streets are reconstructed for infrastructure

repair, replacement, or upgrades, and civic streetscape improvements, pedestrian improvements will be implemented as part of the overall project. Over time, this program of "routine accommodation" will recreate a pedestrian environment that is safer and more interesting thereby enabling many more functional pedestrian trips for shopping, work, play and civic life.

The following subsections describe the analysis and principles used to design "routine accommodation". Subsequently the process is described including: site inventory; review; evaluation; and implementation.

Summary implementation recommendations conclude this section.

#### 8.1.1. Integrating Principles

The following integrating principles were used to analyze the public input, applicable policy and inventory of existing conditions and to draft this Pedestrian Mobility Plan's routine accommodation planning process.

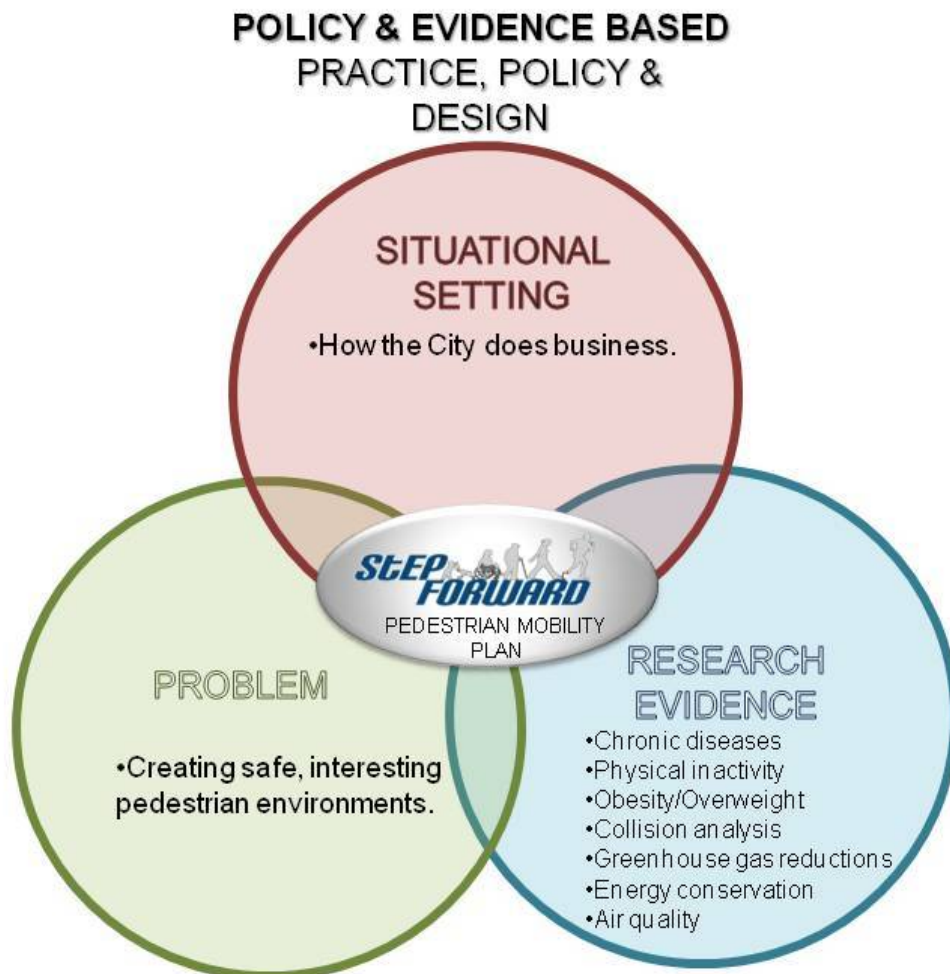
**The Application of Evidence Based Design:** McMaster University's Faculty of Health Sciences innovated the concept of



evidence based health care. Evidence involves taking the evidence on chronic disease risks associated with physical inactivity, and applying it to improve pedestrian environments by carefully considering the streetscape and City decision making environments when

based design for pedestrian mobility decisions are made. This approach was adapted for the Pedestrian Mobility Plan by employing context-specific and problem based analyses (see attached **Figure 13, Policy and Evidence Based Practice, Policy and Design**).

Figure 13: Policy & Evidence Based Practice, Policy & Design





**The importance of being Resilient:**

Pedestrian mobility improvements will increase the economic, social and cultural resilience of Hamilton's neighbourhoods by making it possible for residents to travel on foot to many more functional destinations. This will help Hamilton's residents, businesses and institutions address a wide range of economic, social, environmental and public health challenges facing the City now and in the future.

**Transportation Planning and Design is Changing:**

National and international geometric and design standards are changing. The Transportation Association of Canada is in the midst of revising its recommended road geometric designs. The United States Highway Administration is also revising its street and highway design guidelines to address complete streets legislation. The toolbox solutions and selection planning process recommended in this Pedestrian Mobility Plan, support this transition by providing alternative designs for pedestrian movement that can be used now while existing geometric street standards are updated.

**The Importance of being Consistent:**

Several stakeholders and community groups have undertaken studies and made recommendations for neighbourhood pedestrian street improvements. Current City transportation practices don't enable some of these improvements to be made within a consistent policy framework. The toolbox solutions and "routine

accommodation" planning procedure are intended to provide a consistent approach to improving pedestrian mobility.

**More attention to Detail is needed:**

Pedestrians experience the streetscape much more intimately than cyclists or motorists because they are traveling slower and interact much more with the streetscape. Consequently, more attention to detailed design is needed to create interesting pedestrian environments. The context areas developed in this Pedestrian Mobility Plan, are intended to focus attention on this detail and the improvements that are needed for each specific area.

**More attention to Safety is needed:**

The collision analysis contained in subsection 7.3.2 and public comments summarized in section 5, indicates: that pedestrian collision fatalities and injuries occur predominantly at signalized arterial street crossings; that the public considers arterial intersection crossings to be difficult and sidewalks which are not buffered from traffic flows are perceived to be threatening. Pedestrian intersection crossing designs and mid-block crossings need to be improved if the increased pedestrian activity sought in the City Official Plan, Transportation Management Plan (T.M.P.), The Big Move and Provincial Growth Plan and Provincial Policy Statement 2005 is to be achieved safely.

**One Size doesn't fit all:** Public Health science on physical activity and the built environment has become a major forum







for assessing built environment improvements. The findings emphasize urban built environments and don't take into account the variety of streetscapes found throughout Hamilton's regional setting. The context area analyses and toolbox solutions contained in this Pedestrian Mobility Plan and the "routine accommodation" planning process are intended to apply this science appropriately and consistently throughout the City.

**The shortest Distance between two points:** The shortest distance between two points is a straight line. However, for a pedestrian, the shortest distance is a function of intersection density and block length. In general, higher intersection densities and shorter block lengths help achieve shorter walking distances from a pedestrian perspective. Pre 1949 built urban context areas, tend to have higher intersection densities and shorter block lengths. Post-1949 suburban neighbourhoods have curvilinear streetscapes, longer block lengths and cul-de-sacs making function walking trips very difficult. These suburban neighbourhoods will be especially difficult to retrofit to pedestrian environments.

**The Public Realm is of Crucial Importance:** Attention to design detail within the public realm is the most immediate and constructive measure that can be taken to improve pedestrian safety and interest in the near and mid-terms. The City has sole responsibility for the development, maintenance and design of

City streets. The toolbox solutions developed in this Pedestrian Mobility Plan, represent a significant innovation and contribution to improving pedestrian mobility and addressing safety and comfort within the pedestrian environment, whether walking along the street, crossing the street or accessing public transit.

**Official Plan Designations and Policy are Transformative:** The Official Plan is a vision of what the community wants to become in the future. This Pedestrian Mobility Plan is intended to improve existing pedestrian conditions now: while providing many of the tools necessary to implement the Official Plan's vision in the future. This will be in a manner consistent with its policies as new development and redevelopment occurs.

**New Challenges need to be anticipated and addressed:** Increased cycling activity and the introduction of newer mobility devices such as e-bikes and scooters represent growing challenges and conflicts with pedestrian mobility. Clarification of the operational standards applicable to each device as well as research and development of appropriate operating standards and education and enforcement policies will be required to limit potential future conflicts.







## 8.2. Description of Toolbox Solutions, Policies & Programs

The improvement of pedestrian mobility in the city requires a series of design solutions and greater attention to detail. This report sets out a systematic method for identification of issues, and alternative solutions using toolbox solutions, policies and/or programs.

The range of solutions presented in **Figures 10 through 12** broadly address three (3) areas of the street. **A) Walking Along The Street, B) Walking Across The Street, and C) Public Transit.**

These toolbox solutions apply to a wide variety of circumstances which can be applied where appropriate within a City context area on streetscapes that are being renewed, replaced or reconstructed.

Current design standards, throughout the City, are in a state of transition and need to be standardized. Historically, these standards have focused on the requirements for vehicular travel. These standards are now evolving to balance the requirement of vehicles, pedestrians and cyclists together.

The range of toolbox solutions provided in this report, are based on best practices and current solutions from many sources across North America. These toolbox solutions can be utilized individually, but are most effective when combined together within each context area to

resolve particular issues/conditions. Various City Departments (i.e., Public Health) or agencies (i.e., Green Venture) implement programs and policies to encourage pedestrian mobility. These efforts need to be better coordinated to provide comprehensive solutions and approaches consistently throughout the City.

### 8.2.1. Routine Accommodation

“Routine Accommodation”, (**Figure 14**), is a process where changes to improve pedestrian streetscapes utilizing toolbox solutions, are regularly employed on each and every streetscape project as a matter of course. The process comprises four steps: **Site inventory; Review; Evaluation; and Implementation.** The decision making process includes a screening, scoring and selection tool which is employed to implement appropriate toolbox solutions making walking safer and more interesting. This tool will enable staff to make appropriate, objective, and traceable/defensible decisions. Each of these steps are addressed in the following subsections. See Appendix 17, Routine Accommodation and Toolbox Solutions.

### 8.2.2. Site Inventory

Where road and street reconstruction and maintenance projects occur, or where the implementation of civic projects such as the Downtown Mobility Street improvement and the implementation of Rapid Transit or other City initiatives





occur, the responsible staff should apply the adapted Complete Streets Checklist to the street/project.

This checklist, when completed, generates basic streetscape data and assists decision making on the existing pedestrian and vehicular environments providing an important foundation on which candidate toolbox solutions, policies and programs can be evaluated and preferred solutions selected for implementation.

The checklist itemizes a detailed menu on controlled intersections and roadway sections and intersections. Using the basic information on topics such as pavement markings, signalization, sidewalks, known issues to be resolved, public input, etc., together with background information on the context area(s) in which the street is situated, important inventory information will be generated for analysis and selection of appropriate toolbox solutions. The checklist will also help the design team's analysis and if engaged, Pedestrian Mobility Advisory Committee (P.M.A.C.) to think about the pedestrian streetscape improvements needed.

Context Area descriptions and mapping can be used to provide neighbourhood context and identify local opportunities and constraints that may impact the selection of appropriate pedestrian improvements. **Figure 4, Destinations and Generators**, will help provide a sense of significance of local destinations, especially those within 400 metres, and

potential usage of the local existing sidewalk infrastructure.

Official Plan mapping of City nodes and corridors as well as application of the Transit Oriented Development Guidelines will provide a policy overview within which improvements should be considered. To the extent possible, streetscape projects should incorporate the pedestrian improvements needed to support planned future public transit projects, neighbourhood development strategies and secondary plans.

At the conclusion of the site inventory, the completed documentation can be reviewed with the Pedestrian Coordinator for further consideration and refinement.

### **8.2.3. Review**

Using **Figure 1, City Implementation Considerations**, the Pedestrian Coordinator will summarize the completed checklist and context area mapping together with a project summary and determine which City Departments need to be involved in the review, evaluation and implementation of pedestrian improvements. The Departments may represent responsibilities ranging from operations, infrastructure, planning, legislative and communications and could include members of the Planning, Public Works and Public Health Department as well as Police Services and the Hamilton Street Railway.

The design of the Departmental team and the Pedestrian Mobility Advisory





Committee (P.M.A.C.) and the development of the Committee’s working procedures would benefit from drawing upon the substantial successful experience of other City committees such as: Clean Air Hamilton and community organizations such as the Bay Area Reclamation Council (B.A.R.C.).

The Pedestrian Coordinator may decide that advice from the Pedestrian Mobility Advisory Committee may or may not be required for individual projects. Many routine projects will not require Advisory Committee input when they are straight forward. However, that involvement should be sought where community stakeholder input i.e., Business Improvement Areas (B.I.A.), or specialized research would assist decision making. A decision to involve the Committee may be made by the Pedestrian Coordinator at the commencement of project review or alternatively, after the Departmental team begins its review if issues arise where advice may be warranted.

**8.2.4. Evaluation**

**Engineering; Equity;  
Encouragement; Education;  
Enforcement.**

With guidance from the Pedestrian Coordinator, the evaluation will consider the five “E’s”:

Decisions will balance engineering and appropriate toolbox solutions that address street function requirements. The first “E” is **Engineering**. A consistent set of engineering design standards is to be applied throughout the City considering the local context area. The Pedestrian Mobility Plan’s “toolbox solutions” represent the new pedestrian designs that need to be considered, to achieve the Pedestrian Mobility Plan’s goals and objectives. Some of these solutions are currently used by the City. Consistent application of these solutions on a City-wide basis is important.

**Equity**, address community equity issues such as the mobility requirements of its citizens between the ages of 8 and 80, no matter their abilities.

**Encouragement, Education and Enforcement** need to be addressed because the transition being undertaken is not only a design challenge. The transition also involves messaging in terms of **Encouragement**: i.e., walk to school and transportation demand management programming; **Education**: i.e., educating street users, cyclists and motorists, of needs and challenges increased pedestrian mobility poses and providing advice to pedestrians; and **Enforcement**: i.e., the conflicts inherent in the proliferation of different mobility devices that use the sidewalk and street as well as conflicts inherent in increased numbers of cyclists and pedestrian, especially where cyclists use sidewalks will need to be addressed.





More active communities will require greater education and more enforcement on matters such as cycling on sidewalks and sidewalk etiquette, particularly associated with increased electric mobility devices and cycling. Education and enforcement will be important elements to successful implementation of this Pedestrian Mobility Plan and existing programs will need to be enhanced or refined.

Using the Five “E’S”, the Pedestrian Coordinator and the Interdepartmental Review Team and, when engaged, the Pedestrian Mobility Committee, can assign priorities as to how design improvements might be paired with program considerations ranging from public transit to transportation demand management to “walk to school” programs to “proper” etiquette education and enforcement programs.

Using the Five “E’s” and a series of policy and analytical prompts set out in the evaluation tables, **Figures 10, 11 and 12**, the Pedestrian Coordinator and the interdepartmental team will analyze the situation and select the toolbox solution(s) to be applied, together with any equity concerns and programming needed to address encouragement, education and enforcement considerations. The evaluation table prompts will raise general substantive considerations, the Pedestrian Coordinator and team member may wish to consider as they make decision.

The toolbox solutions are intended to reclaim the pedestrian environment by addressing:

- *walking along the street;*
- *crossing the street; and*
- *programs and policies.*

Each toolbox solution contains a brief description and image, graphic/diagram or photograph to explain the intent and illustrate the purpose of the solution. When used in combination, these are highly effective tools to improve pedestrian environments.

Official Plan and Provincial policy will also be addressed during the application of the evaluation tables and adjustments will be made to address conformity issues, if applicable, at this time. By considering the site and surround neighbourhood through the use of the checklist, context area descriptions and mapping, the site issues should be clarified for evaluation. By applying the evaluation table prompts, the factors to be considered in selecting countermeasures and supportive policies will be assessed.

The evaluation table prompts are organized on rows grouped in three broad categories: “*toolbox solutions to be applied walking along the street*”; “*toolbox solutions to be applied crossing the street*”; and “*toolbox solutions to be applied to policies*”. “*Programs*” and “*Policies*” are addressed separately and complete the rows. Within these broad categories, individual toolbox solutions





are prescribed for items such as “driveways”, “channelization”, “curbside management”, “signals”, “lighting”, “intersection geometry,” and “regulatory signs”. Policies and programs address encouragement, education and enforcement programs that support implementation of the toolbox solutions.

The columns address four basic considerations to be addressed where appropriate in decision making:

- **context areas** identify where toolbox solutions are intended to apply;
- **evaluation criteria** to be applied when selecting the appropriate toolbox solution(s);
- **policy conformity** such as the appropriate official plan designation; and
- **implementation costs** provide costing orders of magnitude.

The context area columns provide direction on where toolbox solutions, policies and programs are appropriate and where they are not. Under evaluation criteria, the columns addressing “administrative, implementation, operations and maintenance” concerns address City considerations that need to be considered when solutions are applied.

The intent of these tables is to highlight considerations that will help guide staff and the Pedestrian Mobility Advisory Committee analyze and select solutions.

From this the preferred toolbox solution is selected and applied to the project design and contract documents.

### 8.2.5. Implementation

The project moves from design to implementation in this phase. The Pedestrian Coordinator will coordinate with the appropriate Department staff team responsible for construction /implementation. Monitoring and measurement of improved pedestrian environment is an essential element of this evidence based design approach and the implementation of this Pedestrian Mobility Plan. Preferably, before and after pedestrian activity counts will be monitored to assess the effectiveness of Plan implementation solutions. The Pedestrian Coordinator and the implementing Departments will make provision for an appropriate monitoring program.

Implementation costs are expected to add between 5 and 10% to the costs of each streetscape project. Many of the toolbox solutions are design changes with limited or no cost implications. Some are geometric changes or alternative techniques. When used together, these solutions are proven to resolve issues. Over a 20 year period, significant pedestrian improvements will have occurred on most streets throughout the City. Incremental, long term operating costs for some improvements will need to be considered as well.





**December 12/12**

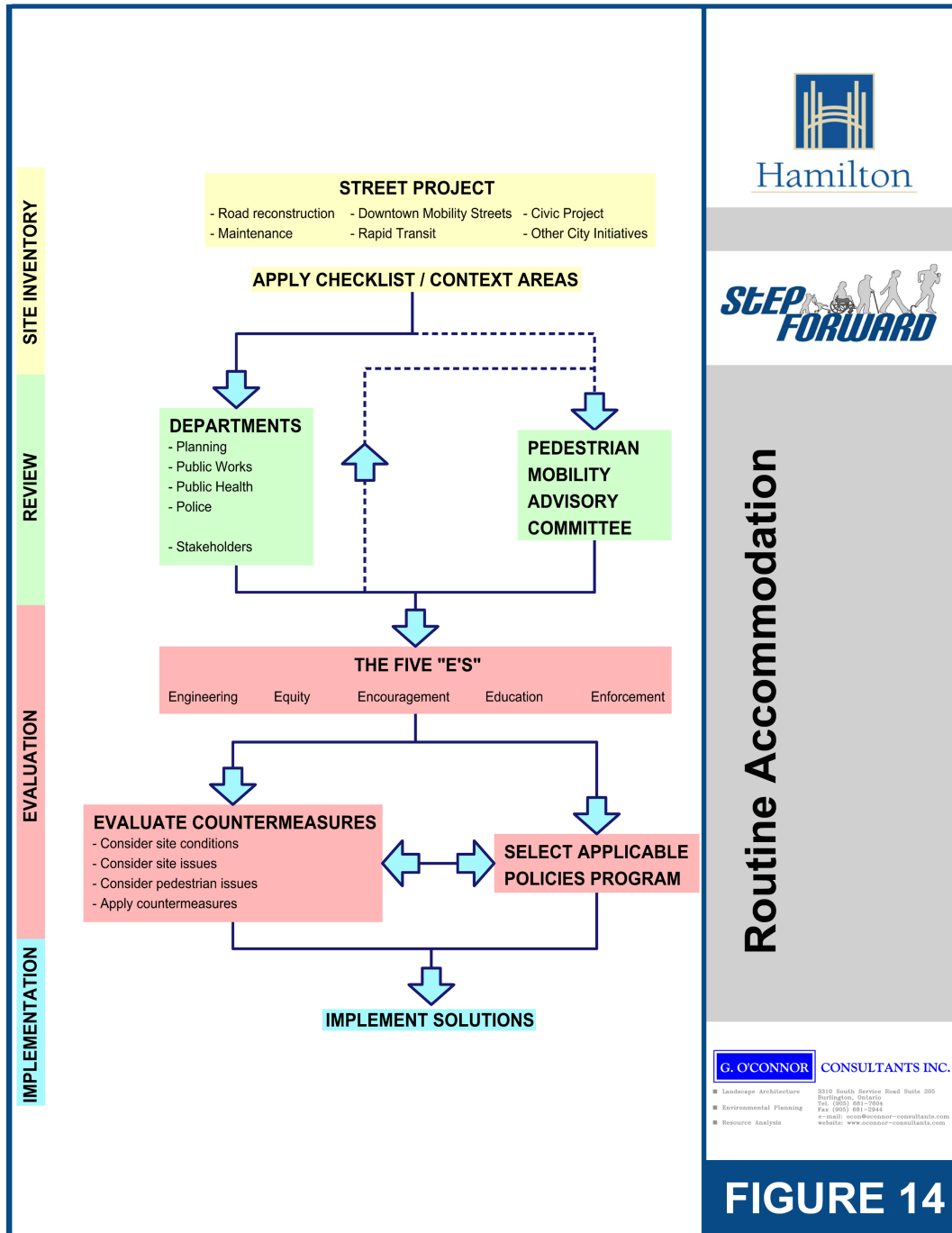


Hamilton

Over time, it may be necessary to accelerate implementation of this Pedestrian Mobility Plan more rapidly. In the event this is the case, the planning procedure can be adapted to an advanced capital works implementation and is flexible enough to meet changing needs through additional analysis. In the recommendations subsection, specific programs are identified where coordination between pedestrian improvements and program implementation are addressed. In the event, implementation needs to be accelerated, strategic improvements can be considered where these programs are being implemented.



Figure 14: Routine Accommodation



### 8.3. Recommended Policies

With respect to the Official Plan and the Transportation Master Plan (T.M.P.), road classifications and standards should be reviewed in the future and amended to include provisions contained in this Pedestrian Mobility Plan. These amendments should be undertaken when the City of Hamilton refines its existing “complete streets” policy. With that policy in place, amendments can also be made to the Cycling and Pedestrian Mobility Plans.

### 8.4. Recommended Programs

These recommendations will assist in the implementation of existing and new City programs.

1. Pedestrian improvements should support work of the **Transportation Management Association (T.M.A.)**, part of Smart Commute Hamilton, who is working with Sustainable Prosperity to develop a parking management pilot project to test theories and encourage the use of other transportation modes such as walking.
2. To the extent possible, use the "**existing conditions checklist**" to help analyze the existing pedestrian environment, and street infrastructure. Pedestrian improvements should be coordinated with the implementation of these guidelines and siting criteria and support the Transportation Demand Management Committee work on guidelines for new and existing developments especially large institutional uses and school siting.
3. The 2012 Transportation Summit inaugurated the development of a "**complete streets strategy**". This strategy will inventory the tools and examples that currently exist in Hamilton to link existing plans and policies together to ensure coordinated implementation. The Pedestrian Mobility Plan and the various analytical and design tools contained in this Plan, should be utilized to the extent possible in this inventory and subsequent implementation.
4. The Pedestrian Mobility Plan should be used to improve pedestrian links/infrastructure with the development of a "**public bike share**" system to help feed the A and B Line rapid transit corridors. In 2010 a business plan, station location analysis and market analysis were undertaken to ensure coordination with the development of the bike share system.
5. Pedestrian improvements should be linked to the **Hamilton Car Share** that currently operates downtown and in the west end, its expansion is supported with a small revolving line of credit by the City of Hamilton. Smart Commute Hamilton operates a regional ride-share that has become very popular and well used.
6. Pedestrian infrastructure and improvements should be linked to the **Neighbourhood Development Strategy**



that is working with community groups in selected neighbourhoods to develop community plans. To the extent possible pedestrian mobility plan should be used to help implement these community plans. Other important secondary planning programs, planning precincts as part of larger redevelopment areas are also underway and planned.

7. **Higher priority** should be given to pedestrian improvements in the **lower City** where pedestrian activity and collisions are higher, along major arterials, especially at intersections where street infrastructure is being improved.
8. Where pedestrian comments/concerns were raised during public consultations. Those were recorded and have been added to the public record and database of the City. Locations within 400 metres of pedestrian generators, pedestrian improvements should receive higher priority when street infrastructure projects are planned.
9. Municipal transportation demand management and “walk to school”, Urban Braille programs as well as programs encouraging walking, cycling and transit use, such as important pedestrian generators, i.e., schools, hospitals, institutions, will be considered

during the application of the recommended “routine accommodation”. Where revisions to existing programs are required or where new programs may be needed, the amendment of existing and development of new programs should be co-ordinated with Pedestrian Mobility Plan implementation.

10. With the proliferation of electric bicycles and scooters, greater attention needs to be given to interactions between these devices and cyclists and pedestrians. Active healthy living will result in increased cycling and pedestrian activity. **Table 15** summarizes the vehicle types that utilize Hamilton’s sidewalks and multi-use Recreational Trails. Many vehicles potentially conflict with pedestrian movement and may pose safety concerns. Greater clarity is needed on impacts the growing use of these devices will have. This table is beginning point. **Monitoring is recommended to clarify the requirements and standards needed for these mobility devices and to develop educational, as well as required enforcement measures to ensure safety for all while minimizing potential conflicts with pedestrian movement** (this work needs to be coordinated with M.T.O.).

Table 15: Vehicle Types, Multi-Use Recreation Trails and Sidewalks

Vehicle Types	Human powered?	Permitted on:				Helmets	Operator Qualifications
		Sidewalk	Multi-Use trail	On-street bike lanes	On-street auto lanes		
Low-speed vehicles (golf cart)	No, battery only	No	No	No	No	Not required	Valid driver's license
Pocket Bikes	No, gas only	No	No	No	No	Likely only recommended	
Motorcycles/Motor-Tricycles (no pedals)	No, gas only	No	No	No	Yes	Helmet required for all	Valid motorcycle license (class M)
ATV's	No, gas only	No	No	No	Yes – when licensed	?	?
Limited-speed Motorcycles	No, gas only	No	No	No	Yes	Helmet required for all	Valid motorcycle license (class M)
Motor-assisted Bicycles (moped or can look like a typical bike)	Combo with gas	No	No	No	Yes	Helmet required for all	Valid motorcycle license (class M)
e-bikes: with impractical pedals	Combo with battery	No	No	Yes	Yes	Helmet required for all	Ask MTO to require a license & to require a license plate & to require a speed regulator
e-bikes: pedaling NOT required to engage electric power assist	Combo with battery	No	No	Yes	Yes	Helmet required for all	Ask MTO to require a license & to require a license plate & to require a speed regulator
e-bikes: electric power ASSIST (pedaling required to engage power assist)	Combo with battery	No	Yes	Yes	Yes	Helmet required for all	16 or older
Bicycles	Yes (only)	No, children excepted (how to define?)	Yes	Yes	Yes	Helmet required younger than 18, aim for all	
In-line skates	Yes (only)	No	Yes	No	No	Likely only recommended	
Personal Transport (segway)	No, battery only	Yes for disability or letter carrier	Yes for disability or letter carrier	No	No	Helmet required younger than 18	14 or older
Personal Mobility Devices (wheelchairs)	No, battery only	Yes with 10 km/hr speed regulator	Yes	No	No	Not required	
Electric or Motor Scooters (skateboard with a steering stick)	Combo with gas or battery	Yes for electric (children only)	Yes for electric	No	No	Likely only recommended	

General Notes:

- Rules for the general public, exceptions for service vehicles and police/emergency services
- Bicycles with training wheels treated the same as “Bicycles”
- Trailers/bikes/child-attached-one-wheelers do not change the classifications of the above table

Source: City of Hamilton, Alternative Transportation, October, 2011.

- Toy vehicles are permitted on sidewalks and multi-use Recreational Trails, but are subject to enforcement/banishment if operating in a dangerous manner to the operator or to other users
  - Law in place in October (2009) and the law incorporated a max weight of 120kg for e-bikes, this data to be confirmed
- \* This table represents our best information at this time. As additional information becomes available, revisions and additions will be made.





## **8.5. Recommended Guidelines**

### **8.5.1. Engineering Standards & Urban Design Guidelines Update**

The existing City of Hamilton Development Engineering and Urban Design Guidelines need to be amended to include provision for the proposed toolbox solutions, especially where design standards do not include all the toolbox solutions. The Urban Design Guidelines and the Barrier-Free Guidelines are found within the Site Plan Guidelines. Both documents are guidelines, not standards. These standards need to integrate complete streets. In addition, greater emphasis on higher intersection densities together with either shorter block lengths and/or provision for mid-block crossings should be provided. These mid block crossings must align the new Book 15 guidelines. Secondary plans and subdivision approvals for greenfield development should also provide for higher intersection densities and shorter block lengths. Pedestrian trail development may be considered where endangered species habitat exists, subject to applicable studies being completed.

Many of the proposed toolbox solutions are utilized currently within the City. An updated, comprehensive set of

Engineering Standards is needed to support the consistent application of toolbox solutions.

Public comments made in the CommunityWalk web site and survey responses indicate that residents within the suburban context area are walking. To the extent possible, arterial intersections should be the focus of pedestrian improvements, especially within 400 metres of pedestrian destinations. Connectivity in suburban residential neighbourhoods built after 1949 and especially in the Dundas Valley, along ravines and other natural features is often very limited. These context areas will require more future study.

### **8.5.2. Preferred Sidewalk Widths – Context Areas**

Current, City of Hamilton sidewalk standards are applied on a City-wide basis which generally, requires sidewalks of 1.5m in width. The use of Urban Braille is required, consistent with current policies, which includes a 1.5m clear zone, plus two shorelines of .23m for a total width of 1.96m. In general, sidewalk widths should vary to address context areas needs. **Figure 7, Development Patterns – Context Areas** and **Figure 8, Existing Area Maps – Existing Conditions**, illustrate the types and locations of the context areas. Sidewalk widths must vary, based on the



number of users, types of users and adjacent land uses associated with the sidewalk/streetscape precinct. As well, sidewalk widths must vary depending on whether the sidewalk is adjacent to the road or, separated by a buffer/furniture zone. Sidewalks adjacent to arterials require more width for safety/comfort and to accommodate utility poles, lights, snow storage and trees between the clear zone and the curb.

**Figure 7, Development Patterns – Context Areas**, illustrates the gradient of land uses across the City from the natural areas through to the industrial area. In the rural areas, sidewalks may be replaced in function by multi-use recreational trails or widened shoulders with painted markings. By contrast, the downtown and urban core zones have the highest volume of use and most intense cross-section of user groups and/or mobility devices.

Pedestrian mobility is inclusive for walking, running, strollers, scooters, wheelchairs and walkers. In the urban context, the concurrent use will drive the requirement for increased sidewalk widths. City of Hamilton T.O.D. guidelines, suggest sidewalk widths for urban nodes as 1.8m-2.5m wide, up to 4.5m in higher traffic areas, with 3.5m as an ideal width. The City T.O.D. notes that sidewalks within

400m of public transit stops should be increased to accommodate higher user volumes.

This is a reasonable start, however, a number of other factors need to be considered which will assist in refining this guideline in the future to create appropriate sidewalk widths in each context area. Sidewalk widths within a context area can and should vary, depending on adjacent land uses. For example, within each zone, residential housing dominant areas may have a narrower sidewalk width than a commercial or shopping district within the same context area.

Unobstructed, “clear zones” for walking, like those referred to in Urban Braille, require minimum operating clear widths which are free of street furniture, trees, light poles, bus shelters, other obstructions or appurtenances. This is consistent with the A.O.D.A. Built Environment Standards. The area that contains the trees, lights and other items is referred to as the buffer or furniture zone.

Sidewalk widths must also increase in width when a sidewalk is adjacent to the curb, without a buffer zone between users and vehicles as a safety measure.

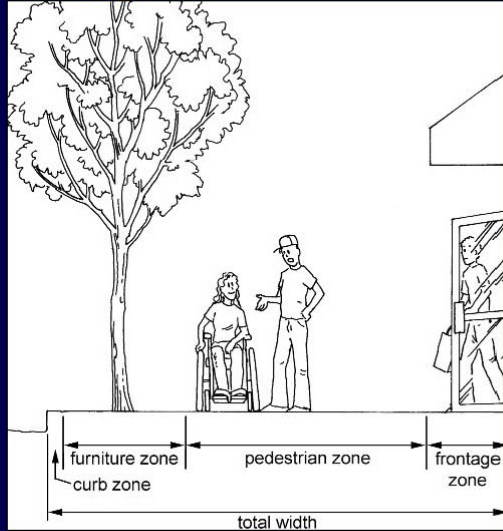




## Sidewalk Corridor The Zone System

Sidewalk corridor extends from the edge of roadway to the edge of right-of-way:

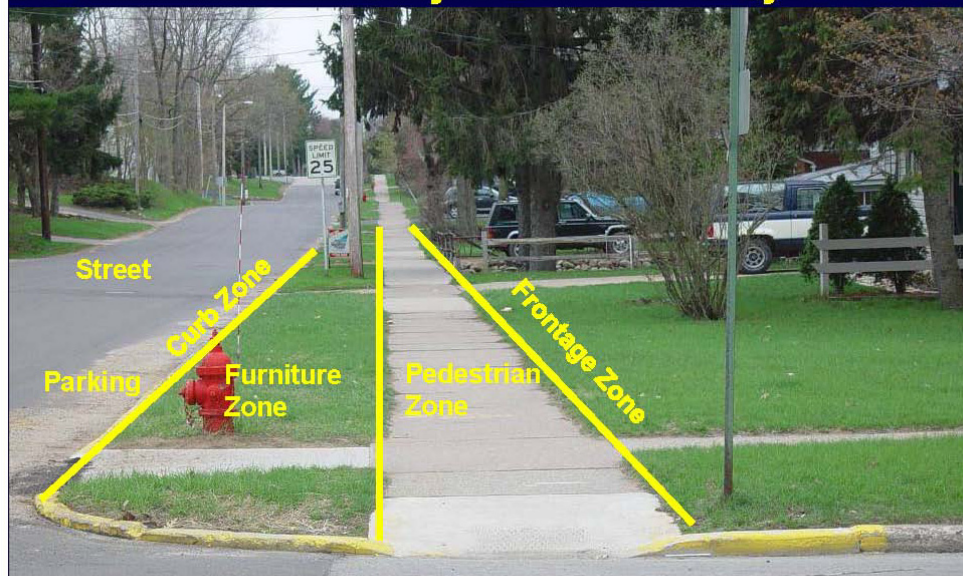
- Curb zone
- Furniture zone
- Pedestrian zone
- Frontage zone



Designing for Pedestrian Safety - Walking Along the Road

2-1

## The Zone System - Summary



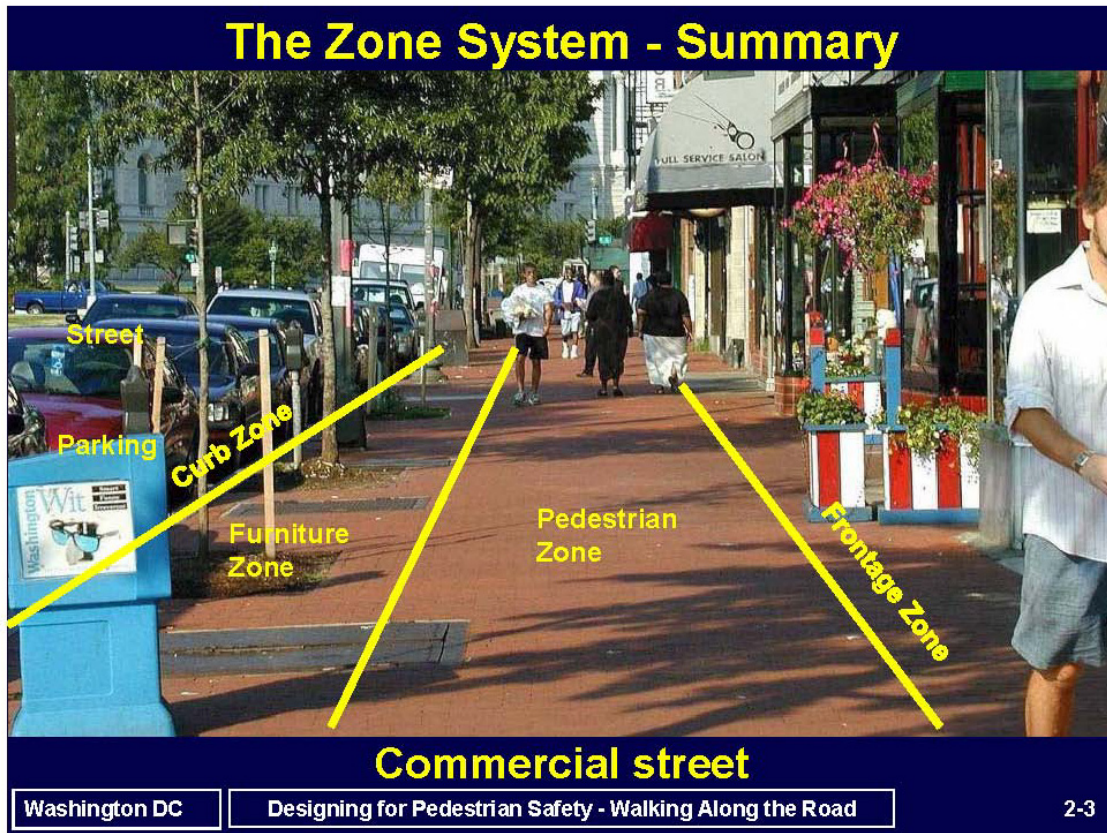
### Residential street

Designing for Pedestrian Safety - Walking Along the Road

2-2







\* Slides courtesy of Toole Design Group, May, 2011

Additionally, when a sidewalk is adjacent to shopping/retail and restaurants or store front shopping, the sidewalk width should increase to accommodate increased volume, window shopping, street cafes, grocery stands, etc. These factors must also be considered when evaluating, selecting and applying the toolbox solutions contained in this Plan.

Subsection 8.5.4, Physical Improvements, discusses street furniture, trees, etc. These areas and elements must also be considered carefully. Sidewalk widths for

the context areas are not a standard to be applied universally across the City, but rather, the sidewalk widths must consider the context area, adjacent uses, destinations and generators of activities, transit stops and retail/commercial areas. **Table 16** outlines recommended minimum sidewalk clear zone design widths for each of the context areas. Where sidewalks are adjacent to road edges (no buffer zone), the sidewalk is wider to accommodate roles and provide a safer separation to vehicles. Conversely, where sidewalks have a buffer zone, the width is decreased

**December 12/12**



Hamilton

as the safety aspect is increased in the buffer/furniture zone. Sidewalk widths adjacent to commercial, retail/shopping are increased to allow for the frontage zone.





Table 16: Context Area Sensitive – Recommended Sidewalk Clear-Zone Widths<sup>1</sup>

Affected Context Areas	Situational Setting	Proposed Clear-Zone Width
Natural	<ul style="list-style-type: none"> <li>• Multi-use Recreational Trail</li> <li>• Paved Shoulder (where applicable)<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2.0 Metres</li> <li>• As per Cycling Master Plan</li> </ul>
Rural	<ul style="list-style-type: none"> <li>• Multi-use Recreational Trail</li> <li>• Paved Shoulder (where applicable)<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2.0 Metres</li> <li>• As per Cycling Master Plan</li> </ul>
Village-Hamlet	<ul style="list-style-type: none"> <li>• Multi-use Recreational Trail</li> <li>• Paved Shoulder (where applicable)<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2.0 Metres</li> <li>• As per Cycling Master Plan</li> </ul>
Urban-Village	<ul style="list-style-type: none"> <li>• Local, Collector, Arterial Roads</li> <li>• Adjacent to high pedestrian generators<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 1.5 Metres</li> <li>• Minimum 2.0 Metres</li> </ul>
Suburban	<ul style="list-style-type: none"> <li>• Local, Collector, Arterial Roads</li> <li>• Adjacent to high pedestrian generators<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 1.5 Metres</li> <li>• Minimum 2.0 Metres</li> </ul>
Urban General	<ul style="list-style-type: none"> <li>• Local, Collector, Arterial Roads</li> <li>• Adjacent to high pedestrian generators<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 1.8 Metres</li> <li>• Minimum 2.5 Metres</li> </ul>
Urban Core	<ul style="list-style-type: none"> <li>• Local, Collector, Arterial Roads</li> <li>• Adjacent to high pedestrian generators<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2.0 Metres</li> <li>• Minimum 3.5 Metres</li> </ul>
Downtown	<ul style="list-style-type: none"> <li>• Local, Collector, Arterial Roads</li> <li>• Adjacent to high pedestrian generators<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2.0 Metres</li> <li>• Minimum 3.5 Metres</li> </ul>
Industrial	<ul style="list-style-type: none"> <li>• Case-by-case basis, includes business parks</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 1.8 Metres</li> </ul>

<sup>1</sup> The recommended sidewalk widths includes the proposed 1.5 metre clear width identified within the AODA guideline.

<sup>2</sup> Paved shoulders identified within the Hamilton Recreational Trails Master Plan (2007) and the Cycling Master Plan may also serve for pedestrian use.

<sup>3</sup> High pedestrian generators include, but are not limited to schools, hospitals, commercial districts (e.g., BIAs, downtown), major employers, etc.

Table 17: Recommended Sidewalk Width Cost Implications

Sidewalk Width	Cost <sup>1</sup> One-side Per KM	Cost <sup>1</sup> Two-sides Per KM
<b>1.5 Metres</b> (existing minimum – includes space for signs and utilities, etc. therefore clear width maybe less than 1.5 metres)	\$85,000	\$170,000
<b>Minimum 2.0 Metres</b> (1.5 Metres clear width, plus space for signs, light poles, utilities, etc., and increase pedestrian demand relating to land use)	\$114,000	\$228,000
<b>Minimum 3.5 Metres</b> (1.5 metre clear width plus space for signs, light poles, utilities, etc., and high pedestrian generators <sup>2</sup> )	\$198,000	\$396,000

<sup>1</sup> Unit cost based on \$85 per square metre – does not include engineering cost (this cost may vary depending on situational setting) – all dollar figures are rounded to 2012.

<sup>2</sup> High pedestrian generators include, but are not limited to schools, hospitals, commercial districts (e.g., BIAs, downtown), major employers, etc.

Sidewalk widths must fit within the road R.O.W., in some cases, given the existing urban infrastructure, or R.O.W., road lane widths may need to be modified to fit the road and sidewalks within the existing R.O.W.

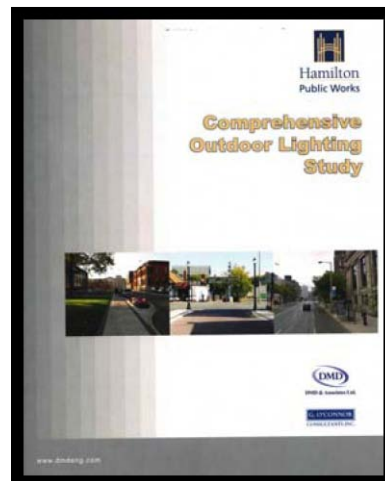
### **8.5.3. Pedestrian Lighting**

When lighting is designed and installed to nationally recognized standards, safety and security is improved. It is difficult to measure or predict the exact benefits due to the large number of variables. In addition to security benefits, good night time illumination includes benefits such as:

- Enhancement of the City's image.
- Improved visibility of the Downtown.
- An enhanced feeling of comfort.
- Increased public night usage/enjoyment of the Downtown

When undertaking the design of pedestrian facilities, there is often a disconnect between those who design the lighting and those who design the surrounding environment. For example the surroundings (sidewalks and building surfaces) have reflective properties which

impact lighting. Published sidewalk lighting levels do not take in account these reflective properties and can be misleading as the reflective properties of the sidewalks and buildings have an impact on the overall brightness and visibility. Visibility can be improved by using light coloured building finishes which reflect light much better than dark finishes.





**Figure 15: Examples of Sidewalk Lighting**

**Figure 15: Examples of Sidewalk Lighting**, shows two examples of how the reflective properties of the sidewalk and buildings can impact, visibility. The open sidewalk in the left figure together with the reflective building and sidewalk surfaces, enhance the lighting which aids long range visibility and surveillance creating a feeling of comfort. The figure on the right illustrates the sidewalk and building are dark and don't reflect light as well as the lighter surfaces in figure on the left. Though the recommended sidewalk illuminance levels don't take in account building and sidewalk surface reflectances, they can be a much greater factor with respect to visibility and creating a feeling of comfort than light levels themselves.

Selecting the reflective properties of the building and sidewalk will play a major factor with respect to visibility. The City of Hamilton should encourage architects and developers, to design building and sidewalk with good reflective properties

(30% or greater) to enhance the sidewalk lighting and improve visibility. This is significant in the downtown where development is very dense and can have a positive impact on lighting, visibility and safety.

Visibility on the sidewalk can also be reduced where trees block or filter the pedestrian lights. Street trees block light and create shadows which reduce uniformity and visibility. Trees and lighting should be considered together in lighting designs and where required, additional lighting should be added to mitigate light blockage from trees.

Pedestrian lighting should follow the recommendations noted in the **City of Hamilton Outdoor Lighting Study**. Lighting for pedestrians should be designed specifically for pedestrians, which in some cases, may require a separate lighting system from the roadway in order to meet the required lighting levels. When



designing pedestrian lighting, the designer may consider the back light from the roadway lighting, which will in many cases, will provide a suitable level lighting. In urban areas with high pedestrian activity a separate lighting system may be required with shorter (3.5-5m high) pedestrian scale lighting. Examples of pedestrian scale lighting are shown in **Figure 15: Examples of Sidewalk Lighting** above. Surface reflectance and potential lighting blockages such as trees and awnings should be considered when undertaking a lighting design as they can greatly impact the results of lighting uniformity.



Designing crosswalk lighting with high level of vertical illumination as noted in the study can have a significant benefit in improving visibility of pedestrians and thus improving safety.

#### 8.5.4. Physical Improvements (trees, pedestrian amenities, benches, waste receptacles, signs)

As streetscape projects, road improvements, capital works and maintenance are undertaken, the application of toolbox solutions will require modifications to both the Urban Design & City Engineering Standards.

Based on extensive public input, **street trees** and **comfortable, safe sidewalks** were in the top three (3) priorities listed by the public.

Currently, street trees are generally not allocated an adequate space for the amount of soil, width of tree pit or area needed to properly grow a tree. Trenches





3m wide are required along roadsides to adequately accommodate street trees. Soil root zones should be as wide and long as practical to accommodate multiple trees within the furniture/buffer zone. Specific dimensional details need to be reviewed with Urban Forestry Staff.

Adequate street furniture, including benches, waste receptacles, signage and other amenities such as newspaper boxes, notice posts/wayfinding all need to be integrated into the streetscape. Street furniture needs are context area sensitive and must consider the anticipated volume of uses, A.O.D.A. concerns and mobility issues. Specialty areas with sidewalk shopping, window displays, cafes, grocery stands also need to be integrated carefully into final designs.

The intention is to include these elements, including street lights and trees, into a zone which, as a result, maintains the recommended clear sidewalk zones.

### **8.5.5. Monitoring Plan /Evaluation**

Existing pedestrian monitoring data is limited in Hamilton. In 2011, the City acquired pedestrian/cycling counters to monitor pedestrian/cycling use on selected sidewalks and multi-use trails in the City. These mobile monitors can be moved to various locations to obtain baseline data to apply in implementing the Pedestrian Mobility Plan.

Pedestrian monitoring data will benchmark and confirm the net benefit of

proposed enhancements. Post construction monitoring will also provide an indication of the effectiveness of different pedestrian designs.

As road/streetscape reconstruction and maintenance projects advance, ongoing monitoring, post construction, will confirm overall changes in pedestrian movements. This benchmark will assist with confirmation that the objectives of this study are being achieved and the toolbox solutions used are successful.

The Transportation Master Plan (T.M.P.) currently incorporates performance measures for numerous transportation indicators including pedestrian activity from available sources. The City-wide Transportation Master Plan identified a target of 15% trips made by walking and bicycle. This target will continue to be monitored as part of that existing program to track changes in the City-wide travel mode splits.

In addition to these existing indicators, the City is also currently engaged in a pilot program to benchmark Active Transportation (i.e., pedestrian and cycling) activity along existing trail corridors. Year-one of this pilot program is currently being reviewed to determine the effectiveness of data collection to input into the various City decision-making processes. An information update will be provided to council regarding this program in early 2013.

In addition, the creation of a Pedestrian Mobility Advisory Committee (P.M.A.C.) as





an advisory committee of City Council is recommended to assist in creating a more walkable City. The mandate of the committee is to aid in providing a safe and accessible pedestrian environment for pedestrians of all ages and level of mobility through improvements to the existing road network for both residents and visitors, and by promoting safe and responsible practices of all modes of travel for commuting and recreation.

### **8.6. Next Steps**

Sufficient direction exists in the Official Plan and Transportation Master Plan to provide authorization for implementation of this Pedestrian Mobility Plan. With the approval of this Pedestrian Mobility Plan, Environmental Assessment Act approvals will have been achieved for the recommended “routine accommodation” planning procedure and menu of toolbox solutions. City of Hamilton Engineering Guidelines and Urban Design Guidelines for various areas of the City should be amended as soon as possible, to be consistent with this document and ensure a smooth transition and optimal use of toolbox solutions going forward.

The “Air Quality Health Index” replaced the “Air Quality Index” in the City of Hamilton during the summer of 2011. The new online index, which is found on Environment Canada website, provides guidance as to the overall level of ambient air quality health risk throughout the City of Hamilton.

With this information, individuals are able to make informed decisions on where and when to walk and exercise in order to minimize health risk exposure. Smart phone applications can be used to provide real time public health risk information to Hamilton residents before strenuous walks are undertaken. Further consultation is recommended with Clean Air Hamilton and its stakeholders on the development of means whereby existing and future research on these matters can be made accessible and available for use by Hamilton’s residents.

## 8.7. Future Studies

Table 18: Future Studies

Study	Description
Engineering Guidelines for Developments, Update	Hamilton Council has directed staff to develop an update of the existing engineering guidelines for developments to incorporate the findings and recommendations of the Pedestrian Mobility Plan, as well as updates to recent engineering best practices. This update will guide the development of complete communities and complete streets.
Site Plan Control Guidelines (various Urban Design Guideline Amendments)	An update of the existing site plan control guidelines and updates to relevant urban design guidelines through “housekeeping” amendments to incorporate the findings and recommendations of the Pedestrian Mobility Plan as well as updates to recent urban design best practices.
Development Charges By-Law Update	An update of the existing Development Charges By-Law to incorporate AODA requirements and recommended sidewalk widths identified in the Pedestrian Mobility Plan.
City-wide Wayfinding Strategy	Develop a pedestrian-scaled wayfinding strategy using web-based and conventional methods. Focus on Downtown and BIA areas plus key decision points along recreational trail and bicycle networks. The system is recommended to be integrated within the City’s transit system infrastructure. Phase 1 of this strategy is proposed to be undertaken in 2013 with a capital budget submission by Planning and Economic Development dealing specifically with Downtown and Lower City destinations. Phase 2 is recommended to occur between 2014-2018 to address other parts of the City.
Coordinated Street-Furniture Strategy	Hamilton Council has directed staff to develop site selection criteria for a coordinated street furniture program. Operations and Waste Management (O&WM) are currently working with a stakeholder group to investigate the possibility of funding this initiative by revenue sharing. The intent is to develop a cohesive style, appropriate for the City of Hamilton that incorporates flexibility for neighbourhood expression. The anticipated completion date for this project is 2014.



## 8.8. Conclusions, Recommendations and Directives

Step Forward, Pedestrian Mobility Plan, presents a comprehensive review of the City of Hamilton pedestrian system. The Pedestrian Mobility Plan provides the City of Hamilton with a comprehensive working tool that will enable appropriate, objective, traceable and defensible pedestrian decisions. The Pedestrian Mobility Plan provides for improved pedestrian mobility. Implementation will strengthen inter-departmental work with the intent to streamline work and potential duplication between departments. The following are recommended first steps towards implementation of the Pedestrian Mobility Plan:

### Recommendations:

1. **A Pedestrian Mobility Advisory Committee (P.M.A.C.)** should be set up to advise staff on ongoing projects, review, comment and as a resource.
2. **A staff training workshop** should be held following Council approval of this report to ensure a smooth transition from report text to a plan of action.
3. **A Pedestrian Coordinator** should be appointed to oversee implementation and coordination of this Pedestrian Mobility Plan as a single point of contact. **The Pedestrian Coordinator will be a resource person** for City

Departments ensuring that all City projects incorporate pedestrian improvements. Secondary plans, site plans and other City streetscape or civil projects should have input from the Pedestrian Coordinator to ensure implementation of the toolbox solutions.

4. **Update Existing Development Engineering Guidelines** as soon as practical and as required to incorporate the recommended toolbox solutions. A.O.D.A. Standards must also be fully integrated into the standards.
5. **Update Other Design Guidelines – Site Plan Control and Various Urban Design Guidelines**
6. **A City-wide Wayfinding Study** should be undertaken to review technologies and methods to enhance wayfinding.
7. **A City-wide coordinated, street furniture program** should look at City-wide Standards applicable to context areas.
8. **Monitoring and pedestrian/cycling data collection**, which commenced in 2011, should continue going forward.





**Proposed Study Directives:**

- Balancing Competing Priorities
- Multi-departmental Communications
- Rural and Village Hamlet Areas
- Outreach
- Toolbox Solutions

1. **Balance Competing Priorities** in part, by utilizing the objective analysis system in this report and implementing pedestrian enhancements through “Routine Accommodation”.
2. **Multi-departmental communications** need to be improved to ensure that appropriate decisions and

improvements are made as outlined in Step Forward.

3. In rural and village hamlet areas, the **initiatives of the Hamilton Recreation Trails Master Plan should be aligned with pedestrian enhancements.** Painted paved shoulders should be considered.
4. The City should **maintain pedestrian updates on the City website** as part of ongoing public outreach.
5. As future toolbox solutions become available as a living document, **toolbox solutions should be updated, enhanced and support complete streets.**



## References

Aboriginal Affairs and Northern Development Canada. 2011a. First Nation Detail for the Mississaugas of the Credit River. [http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND\\_NUMBER=120&lang=eng](http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND_NUMBER=120&lang=eng). Reserves and Registered Population last modified on 2008-12-11. Accessed on July 19, 2011.

Aboriginal Affairs and Northern Development Canada. 2011b. First Nation Detail for the Six Nations of the Grand River. [http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND\\_NUMBER=121&lang=eng](http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND_NUMBER=121&lang=eng). Reserves and Registered Population last modified on 2008-12-11. Accessed on July 19, 2011.

Aboriginal Affairs and Northern Development Canada. 2011. First Nation Profiles Interactive Map. <http://fnpim-cippn.inac-ainc.gc.ca/index-eng.asp>. Accessed on July 19, 2011.

Agriculture and Agri-Food Canada. 2011. <http://res.agr.ca/cansis/nsdb/cli/intro.html> Modified 2011-05-10. Accessed on July 19, 2011.

Canada Department of Agriculture. 1968. Canada Land Inventory. Soil Capability for Agriculture. Toronto 30M. Cartography by the Soil Research Institute, Research Branch, Canada Department of Agriculture and Capability Classification by the Ontario Soil Survey with the support of ARDA, Canada Department of Forestry and Rural Development. Base map and printing by the Surveys and Mapping Branch, Department of Energy, Mines and Resources. Ottawa.

City of Hamilton. 2000. Hamilton Steel Sector Profile. City of Hamilton Economic Development Department.

City of Hamilton. 2003. Hamilton's Heritage Volume 3: Canadian Inventory of Historic Buildings. City of Hamilton Planning and Development Department.

City of Hamilton. 2004. Hamilton's Heritage Volume 4: Inventory of Registered Archaeological Sites.

City of Hamilton. 2005a. Hamilton's Heritage Volume 6: Inventory of Cemeteries and Burial Grounds. City of Hamilton Planning and Economic Development Department.

City of Hamilton. 2006a. Hamilton Advanced Manufacturing Industry Profile. Developed by urbanMetrix inc. for the City of Hamilton Economic Development Division.

City of Hamilton. 2006b. Hamilton Food and Beverage Industry Profile. Developed by urbanMetrix inc. for the City of Hamilton Economic Development Division.

City of Hamilton. 2008. Hamilton Agricultural Profile 2008. An Update to the City of Hamilton Economic Impact and Development Study (2003). Prepared by Planscape for the City of Hamilton.

City of Hamilton. 2009a. Draft Economic Development Strategy.

City of Hamilton. 2010a. Hamilton Economic Development Strategy 2010-2015 Executive Summary. City of Hamilton Economic Development.

City of Hamilton. 2010b. City of Hamilton. Map Produced by GIS Services Section, Information Technology Services.

City of Hamilton. 2011a.

<http://www.hamilton.ca/CityDepartments/PlanningEcDev/Divisions/Planning/CommunityPlanning/NaturalHeritage/>. Includes "Map of the ESAs in the City" in the Regional Official Plan. Accessed on July 19, 2011.

City of Hamilton. 2011b. Facts and Figures. 2006 Census Highlights for the City of Hamilton.

<http://www.hamilton.ca/CityDepartments/PlanningEcDev/Divisions/StrategicServicesSpecialProjects/GISPlanningAnalysis/FactsandFigures.htm>. Accessed on July 19, 2011.

City of Hamilton. Date Unknown (b). Goods Movement. City of Hamilton Economic Development.

City of Hamilton. Date Unknown (a). CleanTech.

City of Hamilton. 2009b. Rural Hamilton Official Plan.

City of Hamilton. 2009c. Urban Hamilton Official Plan.

City of Hamilton. 2005b. Environmentally Significant Areas. Map No. 4.

City of Hamilton. 2005c. Hamilton's Heritage Volume 5: Reasons for Designation under Part IV of the Ontario Heritage Act. City of Hamilton Planning and Development Department.

City of Hamilton. 2007a. Hamilton's Heritage Volume 1 Second Edition: List of Designated Properties and Heritage Conservation Easements under the Ontario Heritage Act. City of Hamilton Planning and Development Department. August 2000 (Revised March 2007).

City of Hamilton. 2006c. Growth Related Integrated Development Strategy: Growth Report. Completed by Dillon Consulting Limited for the City of Hamilton.

City of Hamilton. 2007b. Hamilton Transportation Master Plan Class Environmental Assessment Report. Completed by IBI Limited for the City of Hamilton.

City of Hamilton. 2002. Hamilton's Heritage Volume 2: Inventory of Buildings of Architectural and/or Historical Interest. City of Hamilton Planning and Development Department.

City of Hamilton. 2007c. Hamilton's Heritage Volume 8: Part A Inventory of Places of Worship; Ancaster, Beverly, Binbrook, Dundas, East Flamborough, Glanford, Saltfleet, and West Flamborough. City of Hamilton Planning and Economic Development Department.

City of Hamilton. 2010c. City of Hamilton Register of Property of Cultural Heritage Value or Interest: Section B-1 Non-designated Heritage Properties. City of Hamilton Planning and Economic Development Department.

City of Hamilton. 2007d. City of Hamilton Stormwater Master Plan Class Environmental Assessment Report (City-wide). Prepared by Aquafor Beech Limited for the City of Hamilton.

City of Hamilton Site Plan Guidelines, Section 3.0 Site Design

Columbia International College. 2008. <http://www.cic-totalcare.com/en/> Accessed on July 19, 2011.

Dwyer, Jill, and Anthony G. Goodban, and Alan Wormington, and William G. Lamond, and George A. Coker, and Bruce Duncan, and Bob Curry, and Kara Vlasman. 2003. "Species Checklists" in Nature Counts Project Hamilton Natural Areas Inventory.

Dwyer, Jill, and Jay Lindsay, and Brian McHattie, and Cathy Plosz. 2003. "Nature Counts: Hamilton Natural Areas Inventory Summary Report" in Nature Counts Project Hamilton Natural Areas Inventory.

Engineering Guidelines for Servicing Land Under Development Applications, Section 2.4.5.5., June 2006

Ewing, Reid, Robert Cervero, Travel and the Built Environment: A Meta-Analysis, Journal of the American Planning Association, U of K No. 3 Summer 2010

Hamilton Economic Development Office. 2007-2011a. Why Hamilton Location Advantage/Maps. <http://www.investinhamilton.ca/why-hamilton/location-advantage-maps.html>. Accessed on July 19, 2011.

Hamilton Economic Development Office. 2007-2011b. Why Hamilton Top Ten Reasons. <http://www.investinhamilton.ca/why-hamilton/top-ten-reasons.html>. Accessed on July 19, 2011.

Hamilton Economic Development Office. 2007-2011c. <http://www.investinhamilton.ca/> Accessed on July 19, 2011.

Hamilton Economic Development Office. 2007-2011d. Why Hamilton Quick Facts. <http://www.investinhamilton.ca/why-hamilton/quick-facts.html> Accessed on July 19, 2011.

Hamilton Street Railway Operational Review, IBI Group, March 2010, Section 3.2 Review and Assessment of Existing Routes and Service Levels

Hamilton Naturalists' Club. 2003a. Nature Counts Project. Hamilton Natural Areas Inventory. Species Checklist.

Hamilton Naturalists' Club. 2003b. Nature Counts Project. Hamilton Natural Areas Inventory.

Hamilton Urban Official Plan, 2010, Chapter E, Urban Systems and Designations, Section 2.2

Healthy Living Niagara. Supporting Active Transportation in the Official Plan 11.11.pdf. Accessed November 30, 2011.

Healthy Living Niagara. Walkable Community Checklist Report May 2010 without appendix 2.pdf. Accessed November 30, 2011.

Indian and Northern Affairs Canada. 2011a. First Nation Detail for the Mississaugas of the Credit River. [http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND\\_NUMBER=120&lang=eng](http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND_NUMBER=120&lang=eng). Reserves and Registered Population last modified on 2008-12-11. Accessed on July 19, 2011.

Indian and Northern Affairs Canada. 2011b. First Nation Detail for the Six Nations of the Grand River. [http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND\\_NUMBER=121&lang=eng](http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND_NUMBER=121&lang=eng). Reserves and Registered Population last modified on 2008-12-11. Accessed on July 19, 2011.

Institute of Transportation Engineers and the Congress for New Urbanism, Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, 2010

McMaster University. 2011. <http://www.mcmaster.ca/> Accessed on July 19, 2011.

Ministry of Aboriginal Affairs. <http://www.aboriginalaffairs.gov.on.ca/english/default.asp>

Ministry of Municipal Affairs and Housing. 2005. Greenbelt Plan.

Ministry of Natural Resources. 2006. Forest Resources of Ontario 2006. State of the Forest Report 2006.



Ministry of Natural Resources. 2011a. Conservation Land Tax Incentive Program. Types of Conservation Land.

[http://www.mnr.gov.on.ca/en/Business/CLTIP/2ColumnSubPage/STEL02\\_167425.html](http://www.mnr.gov.on.ca/en/Business/CLTIP/2ColumnSubPage/STEL02_167425.html)  
Accessed on July 12, 2011.

Ministry of Natural Resources. 2011b Biodiversity Explorer.

<https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do> Last Updated July 7, 2010. Accessed on July 12, 2011.

Ministry of Natural Resources. 2009. Natural Heritage Information Centre Database.

<http://nhic.mnr.gov.on.ca/>. Modified November 2, 2009. Accessed on July 12, 2011.

Mohawk College. 2004-2011. <http://www.mohawkcollege.ca/> Accessed on July 19, 2011.

<http://mtc.gov.on.ca/en/publications/OntarioWayFinding.pdf> (accessed October 27, 2011)

Niagara Escarpment Commission. 2007. Niagara Escarpment Plan Statistics.

Niagara Escarpment Commission. 2011a.

<http://www.escarpment.org/home/index.php>. Accessed on July 19, 2011.

Niagara Escarpment Commission. 2011b. The Niagara Escarpment Plan Office Consolidation.

Ontario's Highway Traffic Act (HTA), Section 130 and Section 140(4)

Presant, E. W., Wicklund R. E., and Matthews B. C. 1965. Soils of Wentworth County. Report No. 32 of the Ontario Soil Survey. Prepared jointly by the Research Branch, Canada Department of Agriculture and the Ontario Agricultural College. Ontario Department of Agriculture, Toronto. Canada Department of Agriculture, Ottawa.

Redeemer University College. 2011. <http://www.redeemer.ca/> Accessed on July 19, 2011.

Six Nations Council. 2007. Six Nations of the Grand River Community Profile.

<http://www.sixnations.ca/CommunityProfile.htm> Accessed on July 19, 2011.

Statistics Canada. 2007. *Hamilton, Ontario (Code3525005)* (table). *2006 Community Profiles*. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa.

Released March 13, 2007.

<http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>

(accessed July 19, 2011).





**December 12/12**



Hamilton

Transportation Association of Canada, 2008 “Best Practices for the Technical Delivery of Long-Term Planning Studies in Canada”





## APPENDICES

- Appendix 1: Collision Analysis
- Appendix 2: Study Contact List
- Appendix 3: PAG Terms of Reference
- Appendix 4: PAG Minutes of Meetings, Agendas, Quick Facts
- Appendix 5: Steering/Technical Committee Minutes of Meetings, Agendas
- Appendix 6: Staff/Councillor Workshops Minutes of Meetings, Agendas, Quick Facts
- Appendix 7: Newspaper Notices
- Appendix 8: Newspaper Articles
- Appendix 9: Public Information Centres #1 Presentation Boards
- Appendix 10: Community Walk Survey Results & Comments
- Appendix 11: Public Information Centres #2 Presentation Boards
- Appendix 12: City of Hamilton Newsletter #1 and #2
- Appendix 13: Farmer's Markets Presentation Boards
- Appendix 14: Farmer's Markets Feedback
- Appendix 15: Summary of Public Comments
- Appendix 16: International Charter for Walking
- Appendix 17: Routine Accommodation and Toolbox Solutions, as of Fall 2011
- Appendix 18: Summary of Best Practices, as of Fall 2011
- Appendix 19: City of Hamilton Urban Forestry Street Trees Policies
- Appendix 20: City of Hamilton Urban Braille System
- Appendix 21: Literature Reviews
- Appendix 22: Planning Considerations
- Appendix 23: Environmental Class Assessment

### Proposed Minimum Clear Zone Widths

Affected Context Area	Situational Setting	Proposed Clear Zone Width
Natural	Multi-use Recreational Trail Paved Shoulder (where applicable) <sup>2</sup>	Minimum 2.0 Metres As per Cycling Master Plan
Rural	Multi-use Recreational Trail Paved Shoulder (where applicable) <sup>2</sup>	Minimum 2.0 Metres As per Cycling Master Plan
Village-Hamlet	Multi-use Recreational Trail Paved Shoulder (where applicable) <sup>2</sup>	Minimum 2.0 Metres As per Cycling Master Plan
Urban-Village	Local, Collector, Arterial Roads Adjacent to high pedestrian generators <sup>3</sup>	Minimum 1.5 Metres Minimum 2.0 Metres
Suburban	Local, Collector, Arterial Roads Adjacent to high pedestrian generators <sup>3</sup>	Minimum 1.5 Metres Minimum 2.0 Metres
Urban General	Local, Collector, Arterial Roads Adjacent to high pedestrian generators <sup>3</sup>	Minimum 1.5 Metres Minimum 2.0 Metres
Urban Core	Local, Collector, Arterial Roads Adjacent to high pedestrian generators <sup>3</sup>	Minimum 2.0 Metres Minimum 3.5 Metres
Downtown	Local, Collector, Arterial Roads Adjacent to high pedestrian generators <sup>3</sup>	Minimum 2.0 Metres Minimum 3.5 Metres
Industrial	Case-by-Case Basis	Minimum 1.5 Metres

<sup>1</sup> The recommended widths are consistent with the AODA Design of Public Space in the Built Environment Standard.

<sup>2</sup> Paved shoulders identified within the Cycling Master Plan may also serve for pedestrian use.

<sup>3</sup> High pedestrian generators include but are not limited to schools, hospitals, commercial districts (e.g. BIAs, downtown), major employers etc.

**Appendix 17:  
Routine Accommodation and  
Toolbox Solutions, as of Fall 2011**

---

## **1. Introduction**

The Step Forward Pedestrian Mobility Plan systematically explores, from a Provincial policy level down to Municipal level, methods to increase walking and make safe, interesting pedestrian environments.

This Appendix, **Routine Accommodation and Toolbox Solutions**, is intended to work as a stand-alone document to assist staff in decision making and objectively, select a range of solutions for each project application.

The sections are as follows:

2. Routine Accommodation
3. Urban Transect and Pedestrian Context Areas
4. Checklist and Toolbox Selection Evaluation
5. Toolbox Solutions
6. Toolbox Solutions Selection

It is intended that this Routine Accommodation document, systematically step staff through an objective, traceable and defensible analysis to select appropriate solutions across the City. In this regard, the principle is to balance many competing needs to meet the objectives outlined in Step Forward, Hamilton Pedestrian Mobility Plan.



## 2. Routine Accommodation

“Routine Accommodation”, is a process where changes to improve pedestrian streetscapes utilizing toolbox solutions, are regularly employed on each and every project as a matter of course. The decision making process is designed to implement changes during reconstruction, ongoing maintenance, streetscape enhancements or other capital projects. The decision making process includes a screening, scoring and selection tool which is employed to recognize the nine (9) context areas within the City, applicable site conditions and considerations to implement appropriate toolbox solutions to make walking safer and more interesting. This tool will enable staff to make appropriate, objective, traceable, and defensible decisions.

The Pedestrian Mobility Plan embeds an evidence based design approach to pedestrian decision making in the City, in order to improve the pedestrian environment. Some adjustments can be made to address the magnitude and character of individual infrastructure projects. However, the basic approach applies and is named “**Routine Accommodation**”. “Routine accommodation” is to be added to City decision making, when the City designs and implements: road and street infrastructure reconstruction or maintenance; capital works projects, asset management such as the downtown mobility streets, rapid transit and other Civic projects such as the reconstruction of Gore Park.

Routine accommodation, conceived in this Pedestrian Mobility Plan, provides a menu of various designs (toolbox solutions) that can be applied systematically across the municipality within the context areas, in a manner that achieves the need to innovate consistently across the municipality. Traffic standards will also apply to address the vision and mission the City has, including the many goals and objectives it strives to achieve. Routine accommodation can be undertaken in a manner that enables neighbourhood preferences and previous walkability studies to be addressed and considered, as well as many varied and evolving municipal policy considerations.

The process involves a systematic consideration of each streetscape type considering the context area from the perspective of the pedestrian. The staff team will be led by one key staff member who is responsible for pedestrian mobility. Depending on the scale and magnitude of the project, advice may be sought from a Pedestrian Mobility Advisory Committee (P.M.A.C.) appointed by Council and comprised of stakeholder representatives, who have an interest in pedestrian mobility. The staff team will evaluate each project by applying a checklist to capture baseline information on the street design and pedestrian capability, as well as local, known issues to be resolved.



The evaluation will consider in general terms, the five “E’s”: Engineering; Equity; Encouragement; Education; Enforcement. Messaging will be an important element in managing a transition towards a balancing of the pedestrian environment in each street with the requirements of cycling, vehicular and goods movement. The first “E” is **Engineering**. A consistent set of engineering design standards are required to be applied throughout the City. The “toolbox solutions” developed in this Pedestrian Mobility Plan represent the new pedestrian designs needed to be considered, if policy and aspirational commitments to pedestrian mobility are to be achieved.

**Equity**, refers to City initiatives to address community issues such as the mobility requirements of its citizens between the ages of 8 and 80 and the neighbourhood initiatives being undertaken to address poverty. Encouragement, Education and Enforcement need to be addressed because the transition being undertaken isn’t just a design challenge. The transition also involves messaging in terms of **Encouragement**: walk to school and transportation demand management; **Education**: educating street users, cyclists and motorists, of needs and challenges increased pedestrian mobility poses; and **Enforcement**: the proliferation of different mobility devices that use the sidewalk and street as well as conflicts inherent in increased numbers of cyclists and pedestrian, especially where cyclists use sidewalks will need to be addressed.

Using the Five “E’s” and a series of policy prompts set out in the form of toolbox solution evaluation tables, the design team will select the applicable toolbox solutions to be applied, together with any special equity concerns and programming needed to address encouragement, education and enforcement considerations. Official Plan and Provincial policy will also be addressed during the application of the evaluation tables and adjustments will be made to address conformity issues, if applicable, at this time. Monitoring and measurement of pedestrian traffic will be essential and is an important element of an evidence based design approach. Monitoring of pedestrian uptake of implemented toolbox solutions is essential to the implementation of this Pedestrian Mobility Plan.

From available information, we expect the implementation of an evidence based approach to pedestrian infrastructure planning will add between 5 and 10% to the costs of each streetscape project and will have an incremental increase in ongoing operational costs. Over a 20 year period, significant pedestrian improvements will have occurred on most streets throughout the City. For reasons we cannot foresee presently, it may be necessary to implement this Pedestrian Mobility Plan more rapidly. In the event this is the case, the planning procedure can be adapted to an advanced capital works implementation and is flexible enough to meet changing needs through a relatively simple process.



The following sections provide detail on routine accommodation. **Urban Transect and Pedestrian Context Areas**, describes the characteristic conditions and areas across the City. **Checklist and Toolbox Solutions Evaluation**, describes how the streetscape checklist developed in this Pedestrian Mobility Plan is to be applied and how the various toolbox solutions described are to be evaluated. **Toolbox Solutions**, provides more detail on how City staff make decisions on which toolbox solutions, policies and programs are to be employed to improve pedestrian safety and interest. **Toolbox Solution Selection** describes the application and provides 36 toolbox solutions for use by staff.

See City Implementation Considerations figure 1.

### 3. Urban Transect and Pedestrian Context Areas

Urban Transect “is a way of locating and understanding a variety of different types of human settlement within a comprehensive web of natural and human habitats.”<sup>1</sup> This Pedestrian Mobility Plan adapts and modifies the urban transect, to characterize pedestrian environments by type of built environment and streetscape throughout the City of Hamilton. See **Figure 7: Development Patterns – Context Areas** and **Figure 8 – Existing Area Maps – Existing Conditions**.

The adaptations include adding an “Industrial” context area to address the heavy industry and port facilities associated with Hamilton Harbour and an “Urban Village” context area to address settlements that were enveloped within the urban area that retain some built environment and streetscape characteristics, often historic in nature, of rural villages.

The transect displays aerial photograph plan views of the street and intersection pattern and the relationship between buildings, streets and sidewalk. In each zone, a photograph of a typical street scene is shown to characterize the pedestrian environment. Context areas were mapped generally in plan view to differentiate pedestrian environments throughout the City. Attention to detail is essential if safe and interesting pedestrian environments are to be created. The Context Areas provide this necessary level of detail.

The context areas are not intended to be used as planning designations or zones, such as those in the City Official Plan and Zoning Bylaw. Rather, this transect is an instrument providing greater detail and clarity so that toolbox solutions, policies and programs can be developed to create and maintain interesting and safe pedestrian environments throughout the City. This allows for more refined implementation of appropriate toolbox solutions and the context to be considered for these solutions.

Beginning from the left and working to the right of **Figure 7: Development Patterns, Context Zones**, the context area descriptions follow:

#### **Context Area: Natural**

Natural heritage features comprise the natural context area. These include stream and creek valleys such as the Spencer and Chippewa Creeks, the Beverley Swamp and the Niagara Escarpment. Extensive recreations trails exist within these features or

---

<sup>1</sup> Bohl, Charles C., and Elizabeth Plater Zyberk., “Building Community across the Rural to Urban Transect” in Places, Forum of Design for the Public Realm, Volume 18, Number 1, Spring 2006, pg. 4.

rail trails connect them. This trail development represents a significant pedestrian resource for all inhabitants in the City of Hamilton.

### **Context Area: Rural**

Scattered rural residential lots created by severance and a regular pattern of active and inactive farms associated with farm clusters exists in the Rural Context Area. Farms are organized around the original township surveys that also made provision for township and county roads. While farm amalgamation and consolidation has rearranged this pattern somewhat, generally the pattern holds, except where natural features, such as Beverly Swamp, exist. Recreational Trails, where these exist and paved shoulder widening represents opportunities for pedestrian facilities.

### **Context Area: Village/Hamlets**

These villages and hamlets comprise older, agricultural service centres. Historically, community facilities like township municipal buildings and churches were situated in these settlements together with services for the local rural agricultural community. Often retiring farmers moved to these villages.

These Villages generally contained collections of historic and newer residences. The service functions they performed in the past have declined, while residential accommodations serve commuters primarily. Sidewalks may or may not exist. Generally development is focused on an intersection with little interior or residential development.

Examples include Millgrove, Jerseyville, Rockton, Freelon and Carlisle.

### **Context Area: Urban-Village**

The Urban Village Context Area generally comprises former rural settlements and villages around which urban growth has occurred, thereby engulfing these communities within the urban fabric. However, the streetscape and buildings within their core areas remain and are often historic in character with buildings with older uses. These represent unique and distinctive potential pedestrian environments.

Street widths and lengths between blocks are variable with underground services in trenches, except in older streets.

The urban core of Dundas is an older community, in many respects older than the former City of Hamilton. The core constitutes a unique collection of residential and commercial buildings and streetscape that is a unique pedestrian environment. The Niagara Escarpment and Spencer Creek frame this core. Both these natural features represent unique trail and pedestrian possibilities.



Ancaster is also an older, historic community, with a mixture of heritage buildings along Wilson Street and older residential neighbourhoods to the east. Balancing the needs of arterial traffic through the village core and the pedestrian and heritage potential of the former village will be a challenge.

Stoney Creek and Waterdown also represent older communities with a mixture of natural features, Stoney and Grindstone Creeks, and historic buildings and sites, Stoney Creek Battleground and streetscapes. Binbrook and Mt. Hope represent more recent developments where planned growth has occurred around their village cores.

One exception exists. Westdale Village is a planned community characterized by an oval street pattern around a commercial core. A park once existed in the commercial village centre together with a rail connection to downtown Hamilton. Commercial parking and Main Street have replaced the rail connection and park.

### **Context Area: Suburban**

Suburban residential neighbourhoods are those neighbourhoods built after 1949. Generally, residential neighbourhoods have been built within a framework of arterials with curvilinear interior street patterns. While sidewalks exist, street and pedestrian connectivity are poor. Street/lane widths are generally greater than downtown and signalized intersections are further apart.

In the former City of Hamilton, a standard neighbourhood template was developed around which commercial and residential neighbourhoods were planned. Residential uses were situated within the block interiors; while commercial uses fronted onto the exterior arterials. Natural features like the Red Hill and Chedoke Creeks were placed underground in storm sewers and removed the natural landform/pattern.

In the former municipalities of Dundas and Ancaster, street patterns were designed to address natural features associated with the Dundas Valley and the Ancaster and Spencer Creeks. In Stoney Creek, a mixture of natural features and neighbourhood templates focused on vehicular traffic.

The results are neighbourhoods with strong reliance on the automobile, poor ability to be serviced by public transit and while sidewalks exist, poor pedestrian connectivity.

### **Context Area: Urban General**

These neighbourhoods include a mixture of uses along arterials, while the interior neighbourhoods are primarily residential. Built in the latter part of the 19<sup>th</sup> century, the street pattern is characterized by longer interior blocks with shorter blocks

fronting onto arterial streets. Streets are generally wider with some underground utilities in dedicated trenches.

The street patterns are generally rectangular in character. Less connectivity and lower intersections density exists making for less walkable pedestrian environments. Generally, larger residential lots exist with lower lot coverage and more tree cover both within residential lots and streets. Buildings are set back further from the street and street dimensions are larger than those found in earlier residential neighbourhoods.

### **Context Area: Urban Core**

These predominantly residential streets surround the office and commercial downtown. Built prior to 1949, block lengths are regularly and generally equal distance and the intersection densities are high making for excellent street connectivity. Little urban renewal exists.

Street widths are variable, but more consistent with those found downtown. Underground utilities are not as densely placed as the Downtown.

The industrial and residential neighbourhoods closer to the west end of Hamilton Harbour and in Dundas contain the oldest streetscapes in the City. In the residential neighbourhoods, the physical street dimensions, lot sizes and dimensions and setbacks are of a finer scale than older neighbourhoods closer to the Niagara Escarpment in this Zone and elsewhere in the City.

Little or no redevelopment has taken place except where larger lots have been redeveloped for higher density residential development. Mature street trees often line these streets and higher density residential buildings are generally closer to the streets. Mixed uses occur closer to the industrial port.

Eventually, the older industrial areas that line the older port areas will be redeveloped. The Bay Front Park and pedestrian trails to the east and west to Princess Point have re-introduced the public to Hamilton Harbour and are highly valued by pedestrians.

### **Context Area: Downtown**

The downtown consists of significant concentrations of office and commercial development and increasingly, residential development. In Hamilton's downtown, pre-1949 built streets are organized as squares or rectangles with almost equidistant intersections. These short block lengths and dense intersection patterns, provide for efficient pedestrian movement. The exception occurs where urban renewal in the



1950's removed the existing street fabric and replaced it with large block development such as Jackson Square and other public buildings.

A pedestrian plaza was created above Jackson Square together with elevated passageways across Main Street to the Convention Centre, Art Gallery and the Ellen Fairclough building. These innovations didn't have the intended effect and are now being replaced by street level pedestrian facilities.

Gore Park serves as a pedestrian plaza, while the MacNab Street terminal acts as a transit hub for the Hamilton Street Railway. Together with the GO Station rail and bus terminal, the downtown is well served by public transit.

Streets are served with sidewalks and some street furniture. Street widths are variable from narrow 2-3 lanes, with larger 4-5 lane roads. Signalized intersections are frequent and follow a grid like pattern with relatively short distances between each signal.

There are combinations of one and two way streets. A number of key streets have been targeted for, or converted to 2-way traffic. This greatly assists pedestrian mobility

Underground utilities in the street are tightly placed given the narrow right of way. Shade trees exist on some streets with new plantings in some other areas. The entrance into International Village and the adjoining streets and sidewalks are well equipped for pedestrian movement.

### **Context Area: Industrial**

The heavy industrial area adjoining Hamilton Harbour is the City's heavy industrial and port area and along Burlington Street. Pedestrian environments exist to a limited extent where streets have sidewalks. Goods movement and heavy industrial activities characterize this zone. Aside from public transit facilities, little opportunity exists to enhance this pedestrian environment except in peripheral areas like Windemere Basin where reclamation to environmental and open space is occurring.

## 4. Checklist and Toolbox Solutions Evaluation

An adapted version of Seattle’s Complete Streets Checklist was created for the City of Hamilton. The Toolbox Solutions Checklists are to be used in the analysis for application during routine accommodation. The checklists, when completed, provide basic data on the existing pedestrian street environment and provides an important foundation on which candidate toolbox solutions, policies and programs can be evaluated and selected for implementation.

The Checklist templates itemize basic pedestrian infrastructure information which should be collected in advance of infrastructure renewal, maintenance, or capital works streetscape projects. This information to be collected includes details on controlled intersections and roadway sections together with intersections details and design. With basic information on topics such as pavement markings, signalization, sidewalks, known issues to be resolved, public input, etc., together with background information on the context area(s) in which the street is situated, the analysis and selection of appropriate toolbox solutions can proceed. The checklist will also focus design team and Pedestrian Mobility Advisory Committee (P.M.A.C.) attention onto the pedestrian streetscape.

The evaluation charts are provided to help the staff team by prompting attention to potential generic impacts, positive or negative, to the principles intended to be addressed by the International Walking Charter and to other related strategic goals and objectives the City needs to achieve while implementing this Pedestrian Mobility Plan (see **Figures 9-12**).

The toolbox solutions consists of a “menu” of pedestrian design solutions to improve pedestrian mobility problems in each of Hamilton’s context areas. Individual toolbox solutions, policies and programs are listed as rows, on the left and side, whereas columns across the top prompt attention to general categories of considerations within context areas and evaluation criteria.

The rows are grouped in three broad categories: “*toolbox solutions to be applied walking along the street*”; “*toolbox solutions to be applied crossing the street*”; and “*toolbox solutions to be applied to policies*”. “*Programs*” and “*Policies*” are addressed separately and complete the rows. Within these broad categories, individual toolbox solutions are prescribed for items such as “*driveways*”, “*channelization*”, “*curbside management*”, “*signals*”, “*lighting*”, “*intersection geometry*,” and “*regulatory signs*”. Policies and programs address encouragement, education and enforcement programs that support implementation of the toolbox solutions.



The “do nothing” alternative is maintained as a separate optional outcome because, depending upon the circumstances, and pedestrian infrastructure do nothing may be appropriate on some streets.

The columns address four basic considerations to be addressed where they are appropriate in decision making:

- **context areas** which identify where toolbox solutions are intended to apply;
- **evaluation criteria** to be applied when selecting the appropriate toolbox solution(s);
- **policy conformity** such as the appropriate official plan designation; and
- **implementation costs** provide costing orders of magnitude.

The columns addressing context areas provide direction on where toolbox solutions, policies and programs are appropriate and where they are not. Under evaluation criteria, the columns addressing “*administrative, implementation, operations and maintenance*” concerns address City considerations that need to be considered when individual toolbox solutions are applied. Individual toolbox solutions, policies and programs are ranked on a three point scale where:

- **a score of +1** indicates the toolbox solution, policy or program may be expected to have a **positive effect**;
- **a score of -1** indicates the toolbox solution, policy or program may be expected to have a **negative effect**; and
- **a score of 0** indicates where a toolbox solution, policy or program may be expected to have **little or no effect**.

The intent of these charts is to highlight considerations that will help guide staff in the analysis and selection of an appropriate toolbox solution. For, example, generally, property acquisition will not be required in order to implement toolbox solutions. However, application of some toolbox solutions within tight urban areas may require consideration of property acquisition, such as specific toolbox solutions to “*widen, construct and/or reconstruct sidewalks*” or “*street trees*”. Where this may occur, the chart indicates this may be reasonably considered to be a negative effect, unless site specific circumstances differ from this general prompt, and that this potential impact should be given careful consideration. This does not have the effect of removing this as a consideration.

While the chart provides general direction as to effect, specific application of a toolbox solution’s applicability should be confirmed when the toolbox solution, policy or program is considered for application during routine accommodation.





The additional columns within this grouping are intended to address operational and policy concerns of immediate concerns from a municipal infrastructure perspective. These address the **natural environment** in order to deal with natural heritage concerns, if any; **public health** in order to address chronic disease concerns associated with the built environment; **safety** is intended to minimize all collisions (especially pedestrian oriented collisions); **implementation** timing is intended to address timing of the application of toolbox solutions and **supportive policy and programs** intended to address the adequacy of policies and programs needed to support implementation; and the interface between pedestrian mobility and other modes of transportation is intended to help rebalance pedestrian, cycling and vehicular modes while also addressing the increasing use of other mobility devices such as e-bikes and segways.

The columns addressing the “*International Charter for Walking*” address the specific principles the City of Hamilton committed to achieving when the Charter was signed. Taken collectively, the application of these criteria will serve to help optimize pedestrian safety and interest and track objectively a range of solutions to resolve an issue(s).

The columns that address policy conformity are intended to ensure:

- *Municipal Official and Transportation Master Plans designation and transit oriented development policy is implemented, to the extent possible in each situation where a toolbox solution is applied;*
- *other municipal concerns such as energy conservation, local air quality and climate change are addressed, to the extent possible in each situation where a toolbox solution is applied; and*
- *applicable Provincial legislative and policy concerns are addressed, as required where legislation is concerned (i.e., the Access for Ontarians with Disability Act or to the extent possible where policy considerations are concerned (i.e., energy conservation).*

The use of the checklist(s) and scoring provides a consistent, defensive, traceable and systematic approach allowing the staff to evaluate candidate toolbox solutions policies and programs. Good engineering and professional design judgement will refine this objective scoring evaluation tool. Staff from various Departments with pedestrian responsibilities will score the project using the tools provided. The intention is to provide a balanced consensus viewpoint considering a range of considerations and priorities arising from legislative, planning, operational, communications and infrastructure considerations. The context area map, when used in conjunction with the scoring evaluation charts, will guide also help staff decision making by providing

## ***Routine Accommodation and Toolbox Solutions***



Hamilton

important contextual detail on the urban built form and street intersection density and block length.

See Templates – Checklist A,B,C figures

See Evaluation of Alternative Strategies figure



## 5. Toolbox Solutions

Toolbox solutions are a series of design solutions created to resolve a number of specific issues that re-occur throughout the City. Many of the toolbox solutions are combinations or modifications to widely accepted best practices across North America. The background for these solutions are have been widely tested in other major Cities and urban centres as effective solutions.

In Canada, the Transportation Association of Canada's (T.A.C.) Geometric Design Guide acts as a Canadian counterpart to the Green Book. It incorporates a comparable design speed approach. The main report includes sidewalk, boulevard and other dimensions to supplement the design classification system. In Ontario, the Ontario Provincial Standards (O.P.S.), administered by the Ministry of Transportation, applies. Sidewalks and bicycle standards on local streets and roads are generally left to the municipal jurisdiction.

The development of geometric design standards for our streets and highways originates in part, from the American Association of State Highways and Transportation Officials (AASHTO)'s Policy on Geometric Design of Highways and Streets. This is the original Green Book its purpose was (and still is) to provide a series of guidelines for safety and efficient vehicular designs for highways and streets.

The functional classification of roads and streets (arterial, collector and local streets) used in the Regional Transportation and Official Plans. Design speed is always the determining factor in geometric design. Traditionally, municipalities have relied on traffic research and design standards generated by Federal and State officials in the United States because these authorities have historically invested significant resources into research. With the passing of the Complete Streets Act in the United States, most of these recommended policies will be revised in order to accommodate pedestrians, cyclists and others in the circulation element design standards.

Practically, this means that streets have been designed from the centreline outwards to the edges with spaces along the periphery left over that are used for cycling and pedestrian facilities. The AASHTO Guide for the Planning Design and Operations of Bicycle Facilities provides some guidance to planning and design of pedestrian facilities. The Institute of Transportation Engineers partnered with Congress for the New Urbanism to produce "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach" which has been used in part as a reference in the development of this Pedestrian Mobility Plan. This document represents a counterbalance to the vehicular focus in existing standards. However, with the enactment of the Complete Streets Act, these standards are now also under review.



Many cities in North America and elsewhere, have innovated and enacted pedestrian and/or cycling standards within their jurisdictions. The toolbox solutions are intended to reclaim a pedestrian environment that rebalances streetscapes. The toolbox solutions are designed to address:

- **walking along the street;**
- **crossing the street; and**
- **programs and policies.**

Each one contains a brief description and image, graphic/diagram or photograph to explain the intent and illustrate the purpose. When used in combination, these are highly effective tools to resolve identified issues.

## 6. Toolbox Solutions Selection

In order to create safe and interesting pedestrian environments, it is important to pay attention to details that are used on streets.

The **Criteria to evaluate toolbox solutions**, shown on attached Figures 9-12 and **City Implementation Considerations**, Figure 1 , identify the toolbox solution selection process.

While using these tools, it is important to recognize that pedestrian destinations are also important to increase functional, pedestrian trips. The toolbox solutions, policies and programs need to be carefully coordinated between various City departments as more than one group at the City is responsible for public roadways.

Existing baseline conditions need to be carefully reviewed to understand the existing conditions and issues to be solved. When roadways are scheduled for reconstruction, capital works, maintenance or upgrade for other reasons, pedestrian activity levels, routes and destinations need to be clearly understood.

The checklists are applied and evaluated to determine the most suitable range of toolbox solutions, policies and/or programs. These are intended to be utilized in combinations. Input from the Pedestrian Mobility Advisory Committee (P.M.A.C.), as required, and various departments will help confirm the appropriate range of solutions to be utilized.

The toolbox solutions should also address the policies or programs required to supplement the infrastructure improvements required.

The Evaluation Criteria also assists to identify other considerations, such as administrative implementation, operations and maintenance. The specific objectives from the **International Charter for Walking** are also clearly defined which support the overall project initiatives.

See 36 Figures



# 1. Parking Restrictions at Intersections

Parking adjacent to turning and/or through lanes on intersection approaches reduces the visibility of crossings for both motorists and pedestrians. Allowing parking up to the intersection may also cause the blocking of traffic lanes as vehicles move into and out of parking spaces. Restricting and/or eliminating parking on intersection approaches can improve visibility, reduce conflicts and improve intersection performance. Parking restrictions can be implemented through signing, pavement markings, or restrictive channelization. Enforcement of parking restrictions, accompanied by public information, including towing offending vehicles, is a necessary component of this strategy.

**Current Use in the City of Hamilton:** The City of Hamilton On Street Parking By-Law 01-218 indicates that parking is prohibited within 6 meters of an intersection or crosswalk (marked or not).

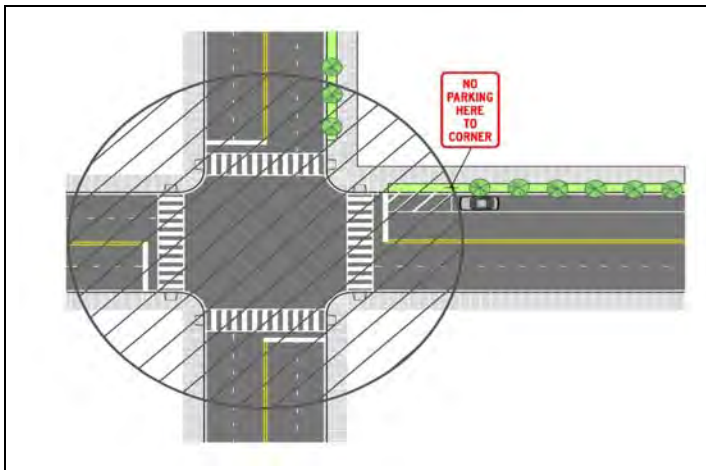
**Recommendations for the City of Hamilton:**

- Consider increasing parking restriction from 6 meters to 9 meters, particularly at uncontrolled crossings and near schools and other locations where there are a high number of vulnerable pedestrians.
- Review implementation of By-Law 01-218 to ensure parking regulation signs or pavement markings are visible and apparent and parking restrictions enforced.
- Involve all stakeholders from the earliest stages of planning, including owners of adjacent properties.

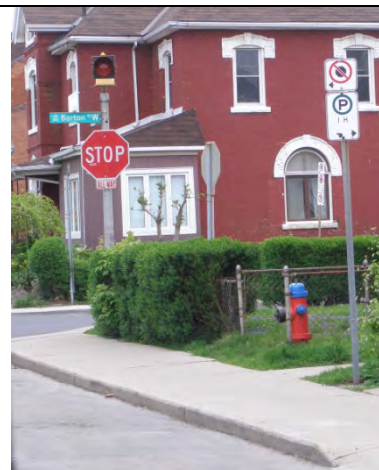
**Crash Reduction Factor:** ITE reports a 49% decrease in all crashes when parking is restricted near an intersection.

**Reference/Guidance**

- NCHRP Report 500, Volume 10, 2004



The City currently restricts parking within 6 m of an intersection.



Restricting vehicles from parking a given distance from intersections improves sight lines and pedestrian safety at crossings.

## 2. Back-in Angle Parking

Back-in angle parking (also known as reverse angle or diagonal parking) is an alternative to parallel or front-in angle parking and has many benefits over these other parking types. It provides motorists with better vision of on-coming bicyclists, cars and trucks as they exit a parking space and enter moving traffic. Back-in angle parking also eliminates the risk associated with parallel parking, where a motorist opens their car door into the path of a bicyclist. Other benefits include increased parking capacity (3.05 m to 3.65 m of lateral curb per vehicle, versus 6.70 m per vehicle for parallel parking), clearer sight lines when pulling out, ease of loading and unloading cargo and helping children in and out of car seats, and protection for children because the open car door now directs young children back to the curb or sidewalk rather than out into the street. Back-in angle parking also can create a traffic calming effect, which can be particularly beneficial around schools and in downtowns or other commercial areas. As a general rule, back-in angle parking should be installed on side streets first. It should also be considered on non-arterial streets where speeding is a problem and increased parking is a need. Over time and with community acceptance, there may be reasons to expand the concept to major streets. Its use on downhill grades should be studied carefully and it may have limited usefulness on single lane, one-way streets.

**Current Use in the City of Hamilton:** The City of Hamilton On Street Parking By-Law 01-218 provide guidelines regarding where perpendicular or angle parking is allowed. However, it does not provide for back-in angle parking.

**Recommendations for the City of Hamilton:** Back-in angle parking, especially in locations with bike lanes, should be considered. Suggest installing back-in angle parking on a trial basis at two or three locations. If successful, back-in angle parking could be routinely installed wherever there is angle parking.

**Crash Reduction Factor:**  
Research incomplete

**Reference/Guidance:**

- WALKINGINFO.ORG - Back-In Angle Parking: What Is It, And When And Where Is It Most Effective?



Salt Lake City sign adapted for use.



Back-in angle parking allows motorists to see bicyclists.

### 3. Clearance (from Obstructions)

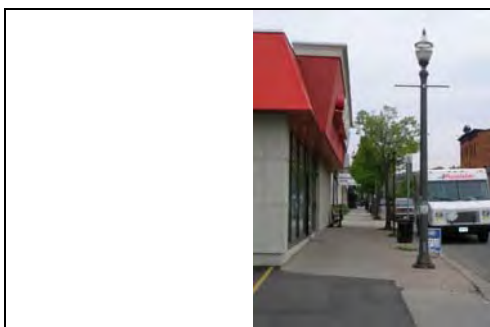
A sidewalk with a clear width of at least 1.5 m and a clear height of at least 2.4 m assures access for all sidewalk travelers. The clear width area of a sidewalk (sometimes referred to as the pedestrian zone) should be clear of obstructions, such as poles, fire hydrants, street furniture, signposts, newspaper racks and other obstacles that could block the path, obscure a driver’s view or pedestrian visibility, or become a tripping hazard. Benches, water fountains, bicycle parking racks, and other street furniture should be carefully placed to create an unobstructed path for pedestrians. Where it is cost prohibitive to remove obstructions at spot locations, such as utility poles, then a minimum standard of 1 m clearance should be provided around the obstruction. Temporary construction and other portable signs should never obstruct a sidewalk. Where sidewalks must be temporarily obstructed due to construction activity or other reasons, a clearly marked alternative route that does not take pedestrians too far out of direction should be established.

**Current Use in the City of Hamilton:** The City of Hamilton Barrier-Free Design Guidelines indicates that all paths, sidewalks and walkways shall be free of protruding obstacles such as overhanging signs, branches, etc.

**Recommendations for the City of Hamilton:** Clearance from obstructions should be a priority for all sidewalks. Policy objectives that should be pursued include the following:

- Systematically review and remove obstructions from locations with high levels of pedestrian use such as downtown and neighbourhood commercial areas
- Enforce rules that prevent temporary construction signs from being placed in the pedestrian zone
- Review all public and private projects to ensure that the pedestrian zone is free of obstructions
- Work with utility companies to ensure that they do not place poles and control boxes in the pedestrian zone and that they do not cause sight obstructions at intersections.

<p><b>Crash Reduction Factor:</b> Research Incomplete</p>	<p><b>Reference/Guidance</b></p> <ul style="list-style-type: none"> <li>• PEDSAFE: Recommended Guidelines/Priorities for Sidewalks and Walkways</li> <li>• FHWA: Sidewalk Design Guidelines and Existing Practices 4.3.8 Obstacles and Protruding Objects</li> </ul>
---	--



In commercial areas, the pedestrian zone should be kept clear of obstructions such as street furniture, temporary signs, etc.



Where there are obstructions within the sidewalk a clear width of at least 1.5 m should be provided.

## 4. Curb Extensions

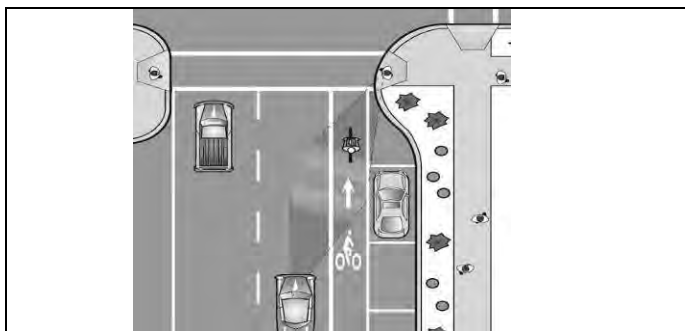
Curb extensions minimize the “exposure time” of pedestrians crossing the street by reducing the total crossing distance. They also increase visibility between roadway users; the waiting pedestrian can better see approaching traffic and drivers can better see pedestrians waiting to cross the road as their view is not obstructed by parked cars. Curb extensions may be installed at intersections as well as at mid-block crossings on roadways with well-utilized on-street parking, and should generally not extend more than 1.83 m from the curb to avoid conflicts with bicycles or motorists. By constricting the roadway and reducing curb radii (at intersections) curb extensions are effective at slowing through and turning vehicles. Installed mid-block, curb extensions can break up the visual continuity and narrow the street. Curb extensions may also provide an opportunity to plant a street tree where the lack of a planting strip between the sidewalk and curb otherwise precludes street trees. Plantings, however, should not obstruct sightlines. Curb extensions are also commonly referred to as curb bulbs or bulb-outs, and when used at a bus stop they are sometimes called “bus bulbs.”

**Current Use in Hamilton:** Curb extensions/bump-outs are included in the Traffic Calming and Neighbourhood Traffic Management Policy as a measure to provide higher visibility of pedestrians and shorter walking distance to cross the roadway.

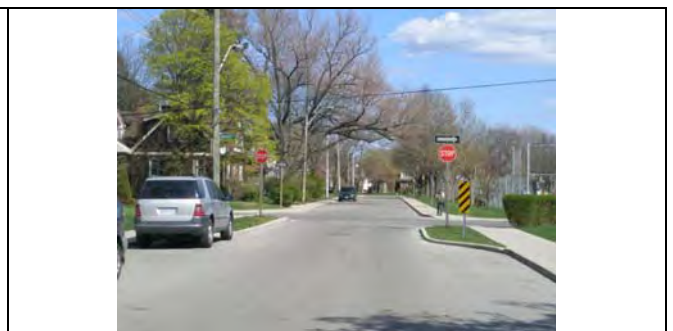
**Recommendations for the City of Hamilton:** Target the following locations for installation of curb extensions:

- Crossings that do not have positive traffic control (no signal or stop sign).
- Residential streets where there is a speeding problem. Install mid-block to break up the visual continuity and narrow the street.
- Downtown streets where on-street parking is present.
- Downtown transit stops where additional sidewalk capacity is needed.

<p><b>Crash Reduction Factor:</b> Research Incomplete</p>	<p><b>Reference/Guidance</b></p> <ul style="list-style-type: none"> <li>• Walkinginfo.org - The Effects of Traffic Calming Measures on Pedestrian and Motorist Behavior</li> <li>• ODOT - Pedestrian Safety Impacts of Curb Extensions: A Case Study</li> </ul>
---	---



Curb extensions (at intersection or mid-block) narrow the roadway, provide effective traffic calming, and shorten crossing distances for pedestrians.



Curb extensions may be planted or hardscape depending on the context.



## 5. Curb Radius

A large corner curb radius typically results in high-speed turning movements by motorists, which may result in increased risk of pedestrians being struck by right-turning vehicles. Reconstructing the curb radius to create a sharper turn reduces turning speeds, shortens the crossing distance for pedestrians, and also improves sight distance between pedestrians and motorists. Other benefits of smaller curb radii include the ability to increase the size of pedestrian waiting areas, greater flexibility in the placement of curb ramps, and improved signal timing by reducing pedestrian crossing distances. The volume of large vehicles such as buses, delivery trucks, and fire trucks needs to be considered since these vehicles may ride over the curb, placing pedestrians in danger if the curb radius is made too small. Where there is a parking and/or a bicycle lane, curb radii can be even tighter because the vehicles will have more room (greater effective radius) to negotiate the turn. A greater effective turning radius may also be achieved by placing the stop bar further back on the opposing lanes on the destination street, thus allowing larger vehicles to swing into the opposing lane during the turning maneuver. An appropriate turning radius in an urban context is 4.6 m to 6.1 m in an urban context, and 7.6 m to 9.1 m for arterial streets with a substantial volume of turning buses and/or trucks.

**Current Use in the City of Hamilton:** Older portions of the City tend to have smaller curb radii.

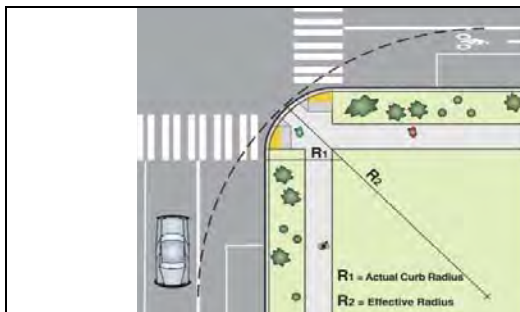
**Recommendations for the City of Hamilton:** Consider the following when constructing new intersections or improving pedestrian safety at high crash intersections:

- Avoid designing curb radii using the largest design vehicle by considering the effective turning radius, which may include parking lane, bicycle lane, and for large vehicles, opposing lanes on the destination street.
- Place stop bar on destination street further back to enable large vehicles to make the turn by swinging into the opposing lane.
- Tighten the curb radius on the obtuse corners of skewed intersections.
- Consider varying the curb return radius over the length of the turn so that the radius is smaller as vehicles approach a crosswalk and larger as they make the turn.

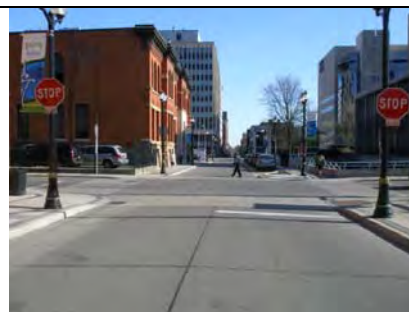
**Crash Reduction Factor:** Research Incomplete

**Reference/Guidance**

- PEDSAFE—Curb Radius Reduction
- FHWA - Signalized Intersections: Informational Guide, 9.1.1, Reduce Curb Radius



The effective radius should include the width of parking lanes and bicycle lanes, where present, on both streets.



Small curb radii, prevalent in the downtown area, slow the movement of turning vehicles.



## 6. Curb Ramps

A curb ramp is a short ramp that provides a smooth transition from the sidewalk to the street at intersections and mid-block crossings, thus facilitating street crossing for people using wheelchairs, strollers, walkers, crutches, handcarts, bicycles, and also for pedestrians with mobility impairments who have trouble stepping up and down high curbs. Proper curb ramp placement and design ensures that pedestrians cross in crosswalks, close to the intersection where drivers can see them, and without undue delay. Poorly placed or oriented ramps may force wheelchair users to travel out of direction outside the crosswalk lines where drivers do not expect them, and may also prevent them from crossing in the allotted time at a signalized intersection. Curb ramps should be aligned with the crosswalk direction of travel; this is typically achieved with two directional ramps at each corner. Ramps (flares not included) should be wholly contained within the marked crosswalk. Curb ramps should have a slope of no more than 1:12 (8.3%), a minimum 0.61 m detectable warning strip and level landings at the top and bottom of the ramp. The landing at the top of the ramp should be a minimum 1.22 m to provide adequate maneuvering space for people using mobility devices to. While curb ramps are needed for use on all types of streets, priority locations are in downtown areas and at crossings near transit stops, schools, parks, medical facilities, shopping areas, and residences with a high number of people using wheelchairs and other mobility devices.

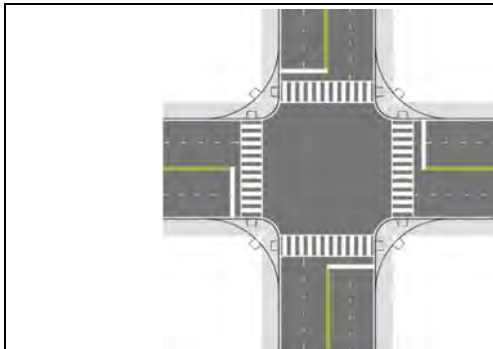
**Current Use in the City of Hamilton:** The City of Hamilton Barrier-Free Design Guidelines provides details for the location, design and maintenance of crosswalks, curb ramps and traffic islands.

**Recommendations for the City of Hamilton:** Install two ramps per corner wherever possible. Replace out of date ramps whenever a roadway is repaved. Proactively install new ramps in locations where there are high numbers of people with disabilities.

Crash Reduction Factor: Research Incomplete

**Reference/Guidance**

- City of Hamilton Barrier-Free Design Guidelines
- FHWA Guidebook, Chapter 7: Curb Ramps
- ADA Best Practices Toolkit, Chapter 6: Curb Ramps and Pedestrian Crossings



Smaller curb radii allow for two directional ramps per corner



Curb ramps should provide adequate level landing space at the top and bottom of ramp

## 7. Driveway Design

The design of a driveway influences driver behavior and pedestrian comfort. Excessively wide and/or sloped driveways, driveways with large turning radii, multiple adjacent driveways, driveways that are not well defined, and driveways where motorist attention is focused on finding a gap in congested traffic may cause safety and access problems for pedestrians. Examples of driveway improvements include narrowing or closing driveways (see driveway consolidation), tightening turning radii, converting driveways to right-in only or right-out only movements, reducing driveway width, and providing median dividers on wide driveways. As a general rule, driveways should be designed to look like driveways, not roadway intersections. The sidewalk zone should be clearly delineated across the driveway (e.g. if the sidewalk is composed of concrete, the concrete surface treatment should be continuous across the driveway), and there should also be a minimum 1.2 m clear width with no more than a 2% cross slope to ensure that those pedestrians in wheelchairs can safely cross the driveway. It is also important to minimize large signs and bushes at driveways to improve the visibility between motorists and pedestrians. In locations where a driveway must function as an intersection, it should be designed with pedestrian safety features such as crosswalks, small corner radii, and pedestrian signal heads if signalized.

**Current Use in the City of Hamilton:** The City of Hamilton Development Engineering Guidelines indicates a maximum width of 4.5 m for a single driveway and 7.0 m for a double driveway.

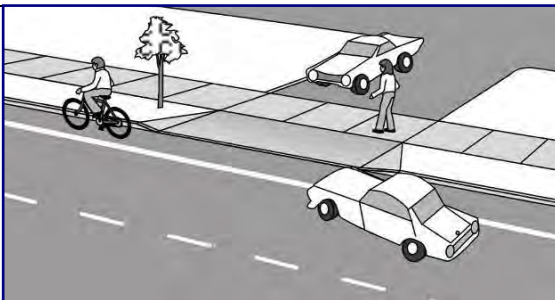
**Recommendations for the City of Hamilton:** Priority should be given to providing driveways that are properly designed. Policy objectives that should be pursued include the following:

- Systematically review and replace driveways at locations with high levels of pedestrian use such as downtown and neighbourhood commercial areas
- As an interim solution in situations where driveway entrances are not well defined by curbs and aprons, use high visibility pavement markings to define driveway aprons and the sidewalk.
- Review public works standards to ensure slope, curb return radii, taper, material are addressed and meet applicable standards.

**Crash Reduction Factor:** Research incomplete

**Reference/Guidance**

- PEDSAFE--Driveways



The sidewalk zone should be clearly delineated across the driveway.

This driveway in Hamilton is a good example extending the sidewalk design through the driveway.

## 8. Driveway Consolidation

Research over the past several decades has consistently shown that crash rates increase as driveway density increases on a roadway (i.e., number of driveways per km). Multi-lane roadways without medians present particular challenges to both pedestrians and motorists as motorists turning left into a driveway are focused on finding gaps in oncoming traffic. While focusing on gaps in traffic, the motorist’s sight lines of potentially conflicting pedestrians are blocked by the approaching vehicles. Motorists often accelerate rapidly to clear a gap on multi-lane roadways which puts the pedestrian at risk when walking along the roadway. Limiting and consolidating vehicle access points (also known as access management) benefits pedestrians and bicyclists, and can also improve traffic operations by redirecting motor vehicles to intersections with appropriate traffic control devices. Access management strategies should be considered where numerous driveways or excessively wide, driveways impede pedestrian travel, or create unnecessary potential conflicts between vehicles, bicycles and pedestrians. Access management strategies include restricting turning movements, particularly left-turns, through median installation, interconnecting parcels with service roads or internal connections, reducing the number and size of driveways, particularly near intersections.

**Current Use in the City of Hamilton:** The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding driveway consolidation.

**Recommendations for the City of Hamilton:** Driveway consolidation should be a priority for all streets since it consistently reduces all types of crashes. Policy objectives that should be pursued include the following:

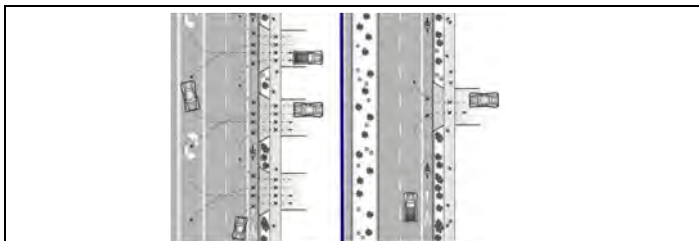
- Review City development regulations to ensure there are minimum distance requirements for driveway spacing.
- Systematically review and consolidate driveways along corridors with high levels of pedestrian use and along corridors with high levels of crashes.

**Crash Reduction Factor:**

Varies depending on access management is achieved, e.g., medians, driveway closure, minimum spacing. CRF= 5%-31%

**Reference/Guidance**

- FHWA--Access Management Publications and Resources
- TRB—Accessmanagement.org, Access Management Manual
- NCHRP Report 548: A Guidebook for Including Access Management in Transportation Planning
- FHWA--Proven Safety Countermeasures: Corridor Access Management



Consolidating driveways can improve conditions for pedestrians.



Access management often involves both median installation and driveway consolidation.

## 9. Driveways Near Intersections

As an access management principle, driveways should be avoided within the functional area of an intersection to reduce the potential for conflicts associated with turning vehicles. Minimum distances between commercial driveways and signalized or un-signalized intersections should be in the realm of 30 m, and residential driveways should be a minimum 12 m from signalized and 6 m from un-signalized intersections. In locations where a driveway functions as part of an intersection, it should be designed with pedestrian safety features such as crosswalks, small corner radii, and pedestrian signal heads if signalized.

**Current Use in the City of Hamilton:** The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding driveway location.

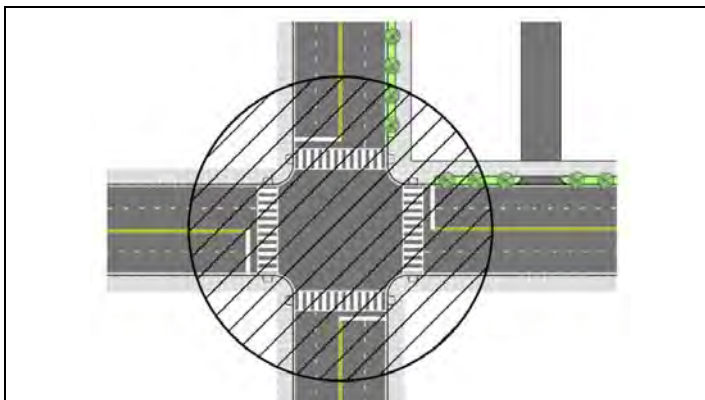
**Recommendations for the City of Hamilton:** Priority should be given to ensuring that driveways are not installed close to intersections. Policy objectives that should be pursued include the following:

- Review design standards for minimum distances from signalized and unsignalized intersections.
- Systematically review and remove redundant driveways at locations with high levels of pedestrian use such as downtown and neighbourhood commercial areas
- Review all public and private projects to ensure that driveways are either removed or relocated from close proximity to intersections.

**Crash Reduction Factor:**  $100(1-EXP(0.046(Nd-3)))$ ;  
Nd=number of driveways on the major road within 250ft of the intersection

**Reference/Guidance**

- FHWA—CRF Desktop Reference



Driveways should not be placed within the functional area of intersections



This driveway was closed to improve pedestrian safety and vehicle flow.



## 10. Half Signal

A half-signal is a pedestrian actuated signal that only stops traffic on the major roadway, leaving the lower volume cross street unsignalized and controlled by Stop signs. This allows pedestrians to cross safely upon demand without unnecessarily creating delays on the major street traffic that a fully signalized intersection might impose. To use a half signal, the pedestrian pushes the call button to activate the WALK indicator. When displayed, it can be tied in with the progression of adjacent signals to minimize traffic delay.

Half-signal sites are often suggested by local schools, hospitals, social service offices, and senior citizen centers. These institutions typically generate a lot of pedestrian trips. If one is located across from a bus stop, for example, numerous daily crossings can be expected.

**Current Use in the City of Hamilton:** Half signals are in use in Hamilton.

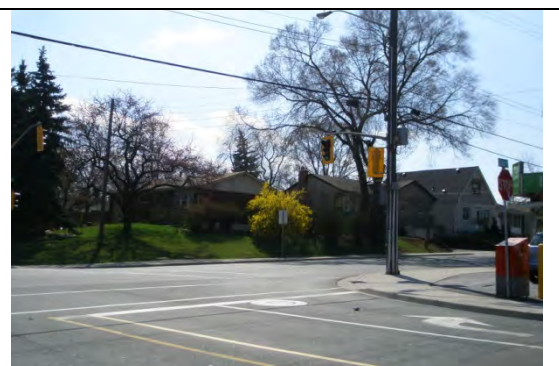
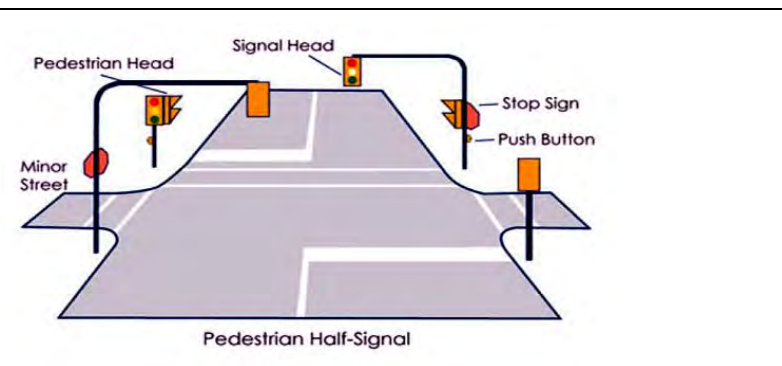
**Recommendations for the City of Hamilton:** Additional half signals should be considered at the following types of locations:

- Locations where there are bus stops on both sides of relatively busy arterial streets
- Higher crash locations where pedestrians are crossing arterial streets at uncontrolled locations
- School crossing locations
- Trail crossing locations

Crash Reduction Factor: TBD Research Incomplete

**Reference/Guidance**

- MUTCD, Chapter 4C. Traffic Control Signal Needs Studies
- FHWA, University Course on Bicycle and Pedestrian Transportation—Lesson 11: Pedestrian Design at Intersections



Half signal diagram. Source: City of Winnipeg/Halifax Regional Municipality via CBS News Canada.

Half signal at Garth St and Sanatorium Rd.



# 11. High Visibility Crosswalk

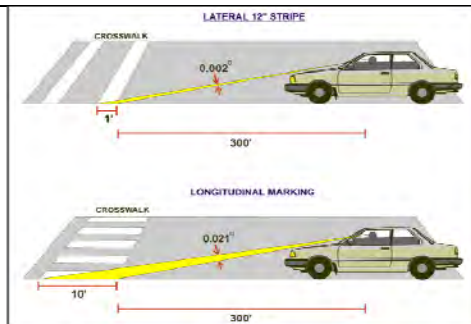
High visibility crosswalk markings aid drivers in seeing the crosswalk, not just the pedestrian. Two parallel lines indicating a marked crosswalk are less visible to the motorist. Ladder style (piano keys or zebra) markings should always be used at locations without positive traffic control and are advised at locations with positive traffic control (signals, stop signs). Crosswalks should not be slippery, create tripping hazards, or be difficult to traverse by those with diminished mobility or visual capabilities. One of the best materials for marking crosswalks is inlay tape, which is installed on new or repaved streets. It is highly reflective, long-lasting, and slip-resistant, and does not require a high level of maintenance. Although initially more costly than paint, both inlay tape and thermoplastic are more cost-effective in the long run. Inlay tape is recommended for new and resurfaced pavement; while thermoplastic may be a better option on rougher pavement surfaces. Both inlay tape and thermoplastic are more visible and less slippery than paint when wet.

**Current Use in the City of Hamilton:** Hamilton does not routinely install high visibility crosswalks markings with the exception of some school crossing locations.

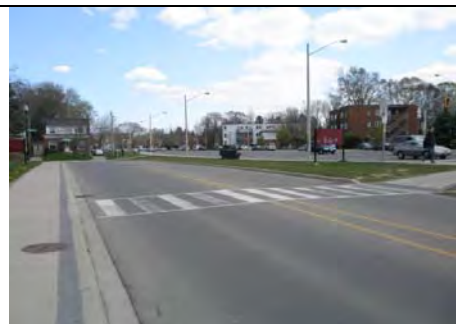
**Recommendations for the City of Hamilton:** While not needed everywhere, high visibility crosswalk markings should be installed at the following types of locations:

- Skewed intersections that allow for higher speed turns
- School crossings
- High crash locations
- Locations with high use by populations over represented in the crash data such as children, seniors and persons with disabilities.

Crash Reduction Factor:	Reference/Guidance
20% to 29%	<ul style="list-style-type: none"> <li>• MUTCD- Section 3B.17 Crosswalk Markings</li> <li>• PEDSAFE -Marked Crosswalks and Enhancements</li> </ul>



Longitudinal lines offer more surface area to be seen by the driver.



High visibility crosswalks at a mid-block crossing near McMaster University.

## 12. Illumination at Pedestrian Crossings

Good quality and placement of street lighting can enhance an environment as well as increase comfort and safety. Pedestrians often assume that motorists can see them at night; they are deceived by their own ability to see the oncoming headlights. Without sufficient overhead lighting, motorists may not be able to see pedestrians in time to stop. Crosswalks at un-signalized, and especially at uncontrolled locations, present special cases where pedestrians may be unexpected and higher levels of lighting are critical. A 2008 research report by FHWA *Information Report on Lighting Design for Midblock Crosswalks* (FHWA-HRT-08-053) recommends that white light be used at intersections to improve pedestrian perception and sense of safety, and that light poles be located on the approach side of the crosswalk to enhance visibility of pedestrians by oncoming vehicles. Lighting should be evenly distributed to avoid alternating bright and shadowed areas. The benefits of lighting can be amplified by reflective material such as yellow paint or reflective markings on the sidewalk that help pedestrians anticipate and avoid obstacles such as curbs.

**Current Use in the City of Hamilton:** A Comprehensive Outdoor Lighting Study is currently being conducted by the City. The intention of this study is to provide a framework for the creation of a comprehensive policy for the lighting of roadways, alleyways, pedestrian walkways with special attention to the Downtown Core and Business Improvement Areas.

**Recommendations for the City of Hamilton:** Priority should be given to providing enhanced pedestrian lighting at intersections. A disproportional number of pedestrian crashes occur during dusk/dawn and at night. With a 42 to 54 percent crash reduction factor, this toolbox solution should be pursued wherever there is a pedestrian crash problem.

- Use state-of-the art technology when appropriate to provide effective, energy efficient lighting that minimizes light trespass and is dark sky compliant.
- Target areas with higher pedestrian crash rates and volumes of pedestrian traffic, e.g. near schools and community facilities, commercial areas, major transit routes and transfer points.

**Crash Reduction Factor:** 54% At intersections, 42% at midblock crossings

**Reference/Guidance**

- FHWA-HRT-08-053 -Information Report on Lighting Design for Midblock Crosswalks
- PEDSAFE –Roadway Lighting Improvements

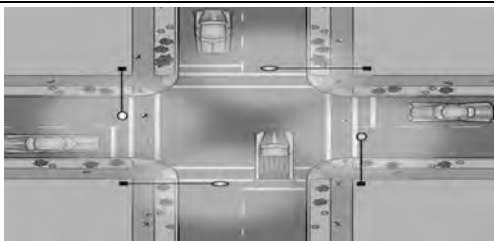


Diagram of pedestrian lighting at intersections.



Crosswalk with adequate illumination.

## 13. Illumination Along Corridors

Pedestrians often assume that motorists can see them at night; they are deceived by their own ability to see the oncoming headlights. Street light illumination greatly increases motorists’ ability to see pedestrians walking along the road at night. Without sufficient overhead lighting, motorists may not be able to see pedestrians in time to stop. Lighting should be evenly distributed to avoid alternating bright and shadowed areas. The best type of lighting for pedestrians focuses on the sidewalk and shines down rather than out. The benefits of lighting can be amplified by reflective material such as yellow paint or reflective markings on the sidewalk that help pedestrians anticipate and avoid obstacles such as curbs. Placing streetlights along both sides of arterial streets provides a consistent level of lighting along a road way, better enabling drivers to see pedestrians along the road, who may decide to cross at mid-block locations. Lights may also be staggered, particularly along narrower roadways. Staggered arrangement of light poles may allow for fewer lights, but provides a less formal look, while paired alignment of light poles across a street provides a formal look that reinforces the direction of travel. In commercial areas, or in downtown areas, specialty pedestrian-level lighting may be placed over the sidewalks to provide added pedestrian comfort, security, and safety.

**Current Use in the City of Hamilton:** A Comprehensive Outdoor Lighting Study is currently conducted by the City. The intention of this study is to provide a framework for the creation of a comprehensive policy for the lighting of roadways, alleyways, pedestrian walkways with special attention to the Downtown Core and Business Improvement Areas.

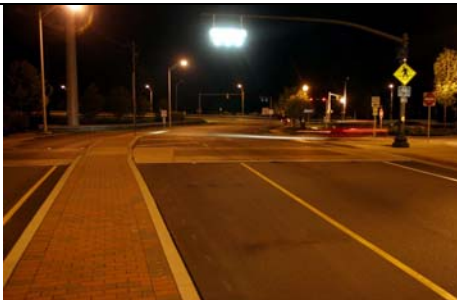
**Recommendations for the City of Hamilton:** It may be desirable to have enhanced lighting in some areas. When used, focus on the following:

- Use state-of-the art technology when appropriate to provide effective, energy efficient lighting that minimizes light trespass and is dark sky compliant.
- Target areas with higher volumes of pedestrian traffic, e.g. near schools and community facilities, commercial areas, major transit routes and transfer points.
- Consider targeting areas where personal security is an issue.

Crash Reduction Factor: Research Incomplete

Reference/Guidance

- FHWA-HRT-08-053 -Information Report on Lighting Design for Midblock Crosswalks
- PEDSAFE—Roadway Lighting Improvements



Illumination along the roadway .



Pedestrian scale lighting along the roadway.

# 14. Intelligent Transportation Systems – Crossing Time

The term Intelligent Transportation Systems refers to the application of information and communications technology to improve transportation outcomes. Passive video detection and microwave sensors can be used to extend the pedestrian signal phase, which benefits pedestrian and lessens motor vehicle delay. The signal controller adds time if a pedestrian hasn't finished crossing. Typically, it can be expected that the walk phase is prolonged in about 20% of crossings, reducing unnecessary traffic delay the other 80% of crossings.

**Current Use in the City of Hamilton:** Not in use.

**Recommendations for the City of Hamilton:** Video and microwave technology should be considered at the following signalized locations:

- Locations with high use by populations over represented in the crash data such as seniors and persons with disabilities
- School crossing locations
- Locations with high levels of citizen complaints about insufficient time to cross the street.

**Crash Reduction Factor:** Research Incomplete

**Reference/Guidance**

- PedSMART—Intelligent Transportation Systems



Signal with microwave sensors at intersection . Source: Designing for Pedestrian Safety.



Microwave sensors are aimed at the crosswalks to track pedestrians. Source: Designing for Pedestrian Safety.



## 15. Land Use (parking location)

Land use patterns have a significant impact on pedestrian comfort and safety. A key land use issue that impacts pedestrian experience and safety is the location of parking. Parking should generally not be placed between the sidewalk and buildings. Rather, buildings should be located adjacent to the sidewalk and off-street parking should be located to the side or rear of buildings. Buildings that are located adjacent sidewalk facilitate pedestrian access and create a sense of enclosure, which both enhances pedestrian comfort and has a traffic calming effect on drivers. Buildings that are set back from the road with large parking lots in front discourage pedestrian access and can give the impression of wide high-speed roads.

**Current Use in the City of Hamilton:** In newer parts of the city, parking tends to be located between the street and building. In the downtown area, buildings tend to be adjacent to the sidewalk.

**Recommendations for the City of Hamilton:** Review development standards to ensure that parking location in relation to the street is addressed. Standards should address minimum building frontages (in the range of 60 to 90 percent-more frontage should be required in commercial areas where there is a high desire to support the pedestrian environment), maximum building setbacks, parking maximums (particularly for areas where there are viable transportation alternatives), and parking design that enhances the pedestrian environment.

**Crash Reduction Factor:**  
TBD Research incomplete

**Reference/Guidance**

- AASHTO—Guide for the Planning, Design, and Operation of Pedestrian Facilities
- FHWA—University Course on Bicycle and Pedestrian Transportation



When buildings are adjacent to the sidewalk, drivers know to expect pedestrians.



Parking is oriented to the rear of building, minimizing conflicts between pedestrians and vehicles accessing the business.



## 16. Lane Diet

The term lane diet refers to reducing vehicle lane widths. Reduced lane widths encourage slower vehicular speeds and reduce crossing widths, improving conditions for pedestrians. Existing vehicle lane widths can be wider than needed. On roadways where vehicle lane widths are greater than needed, a lane diet may be a good solution that results in improved conditions for pedestrians, and may also provide sufficient space for installing a bicycle lane or widening sidewalks. Minimum lane widths vary from 3.05 to 3.65 m depending on the functional classification of the street and local conditions. A width of 3.05 m may be acceptable for local, collector, and even some arterial streets. However, for most urban arterials 3.35 m is an acceptable width. Lane diets may not be achievable on roadways with heavy truck or bus traffic. A minimum preferred width for center turn lanes, where used, should be 3.05 m, and in a neighbourhood context, can be as narrow as 2.74 m. As previously mentioned, lane diets are often implemented to allocate more space for the installation of bicycle lanes, which can act as buffers between the roadway and the sidewalk where planted buffers are not present. On streets where bicycles are intended to share lanes with cars side by side, vehicle travel lanes should not be narrowed to less than 4 m.

**Current Use in the City of Hamilton:** Currently lane widths in Hamilton range from 3 m to 4 m, and center turn lanes are often in the 4 to 4.5 m range. There are no policies or guidelines for reducing lane widths.

**Recommendations for the City of Hamilton:** Lane diets should be considered where there is a need for reduced speeds; a desire shortened pedestrian crossing distances, or planned bike lanes.

**Crash Reduction Factor:** Research Incomplete

**Reference/Guidance**

- PEDSAFE—Roadway Narrowing
- PBIC—The Truth About Lane Widths
- TRB—Relationship of Lane Width to Safety on Urban and Suburban Arterials
- 2011 AASHTO Green Book
- FHWA – Evaluation of Lane Reduction



Travel lanes narrowed to create space for a crossing island and bike lanes



Travel lanes were narrowed to create space for bicycle lanes.

## 17. Leading Pedestrian Interval (LPI)

The Leading Pedestrian Interval (LPI) is a signal phasing strategy to improve pedestrian visibility in locations with heavy volumes of turning traffic and frequent pedestrian crossings. During the LPI, motor vehicles expecting the next green phase are stopped for four to seven seconds while pedestrians are given the WALK signal. This is designed to allow pedestrians to begin crossing in advance of vehicular turning movements, which allows them to clearly establish themselves in the crosswalk in a position that is more visible to the motorist. In many cases, an LPI is a simple, inexpensive treatment because the signal controller can be retimed relatively easily or programmed to operate only during peak pedestrian demand times. LPIs can be complemented by geometric design changes to the intersection that shorten crossing distances and reduce the required duration for the WALK phase.

**Current Use in the City of Hamilton:** The City uses lead pedestrian intervals in some locations.

**Recommendations for the City of Hamilton:** Use Leading Pedestrian Intervals at the following types of signalized locations:

- Locations where there are heavy vehicle turning movements and concurrent heavy pedestrian volumes
- High crash locations where crashes due to right and left turning vehicles
- School crossing locations
- Locations with high use by populations over represented in the crash data such as seniors and persons with disabilities
- Locations with high levels of citizen complaints about aggressive driving.

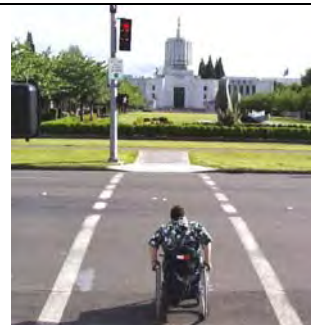
Crash Reduction Factor: 5%

Reference/Guidance

- MUTCD-- 2009 Edition Chapter 4E. Pedestrian Control Features
- PEDSAFE—Pedestrian Signal Timing



Leading pedestrian intervals provide pedestrians a head start. The walk signal initiates when all motorists have a red light.



WALK comes on at least 4 seconds prior to the green signal.

## 18. Marked Crosswalk Location (signalized crossing)

Marked crosswalks indicate optimal or preferred locations for pedestrians to cross and help delineate where vehicles are to stop so as not to interfere with the pedestrian crossing. Crosswalks should provide a direct path of travel as pedestrians are typically reluctant to travel out of their way. Marked crosswalks should only be installed where there is an expectation of a significant (where most people cross may differ on rural, suburban, and rural environments) number of pedestrians such as near a school, park or other generator. It is recommended that a higher priority be placed on the use of marked crosswalks at locations having a minimum of 20 pedestrian crossings per peak hour (or 15 or more elderly and/or child pedestrians per peak hour). In all cases, good engineering judgment must be applied. High visibility (ladder) style crosswalks should be used at more prominent crossings, parallel (two lines) can be used elsewhere.

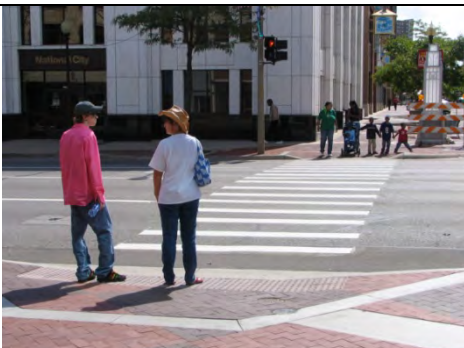
**Current Use in the City of Hamilton:** The City of Hamilton routinely marks crosswalks at controlled locations only using, at a minimum parallel indicator lines.

**Recommendations for the City of Hamilton:** Crosswalks should align with curb ramps, which should generally be aligned with the path of travel, i.e. not offset any considerable distance from the approaching sidewalk. Review high crash intersections to ensure that crosswalk alignment is not encouraging pedestrians to stray out of the crosswalk area, thereby being positioned where motorists are not expecting them.

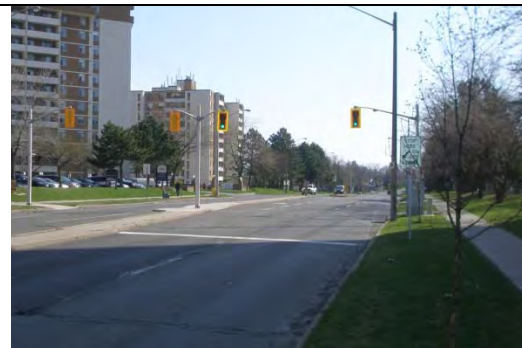
**Crash Reduction Factor:** Research incomplete

**Reference/Guidance**

- MUTCD—Section 3B.17 Crosswalk Markings
- PEDSAFE—Marked Crosswalks and Enhancements
- FHWA—Designing Crosswalks and Trails for Access



Crosswalks should be aligned with curb ramps and provide a direct path of travel.



This mid-block crossing provides pedestrians with a direct path of travel to nearby land uses.

## 19. Medians

Medians are raised barriers in the center portion of the roadway used to manage vehicle access to adjacent land uses and associated parking in order to reduce potential conflicts associated with turning vehicles. Medians can also provide a refuge for pedestrians at crossing locations (see “Crossing Island” counter measure). They can provide space for trees and other landscaping that, in turn, can help change the character of a street and reduce vehicle speeds. Medians also have benefits for motorist safety when they replace center turn lanes. Desired turning movements, however, need to be adequately provided so that motorists are not forced to travel on inappropriate routes, such as residential streets or make unsafe U-turns. Continuous medians may not be the most appropriate treatment in every situation; separating opposing traffic flow and eliminating left-turn friction can increase traffic speeds by decreasing the perceived friction of the roadway. Medians may also take up space that can be better used for wider sidewalks, bicycle lanes, sidewalk buffers, or on-street parking and can cause problems for emergency vehicles. In some environments, medians can be constructed in sections, creating an intermittent rather than continuous median. Signalized intersections with medians should be designed to allow pedestrians to cross the entire roadway during a single signal cycle.

**Current Use in the City of Hamilton:** The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding geometric design of intersection, including medians.

**Recommendations for the City of Hamilton:**

- Consider medians as part of a pedestrian safety and access management strategy for a corridor with high traffic volumes and number of pedestrian crashes.
- Sidewalks should not be reduced in width and bike lanes should not be eliminated or precluded in order to provide space for a median.
- Consider the use of pervious pavement, street trees, and drought resistant plant materials.
- Establishing maintenance responsibilities is essential.

<p><b>Crash Reduction Factor:</b> 25%</p>	<p><b>Reference/Guidance</b></p> <ul style="list-style-type: none"> <li>• PEDSAFE –Raised Medians</li> <li>• FHWA—Designing Sidewalks and Trails for Access, Chapter 8, Section 7</li> <li>• City of Seattle – Tools to Improve Marked Crosswalks</li> </ul>
---	--



Example of a continuous median with spot plantings and pedestrian crossings.



Example of an intermittent median with pedestrian crossing island on a 2-lane road.



## 20. Mid-Block Staggered Signal

A mid-block, staggered (or Z-crossing) two-stage traffic signal at a crossing island helps reduce impacts on motor vehicle flow while helping the pedestrian cross multi-lane roadways. The pedestrian stops one direction of traffic at a time, and the two crossings are separated by a fenced median that provides a walk/wait area. An issue with staggered crosswalks is that they may present a challenge for visually impaired pedestrians who may be disoriented by changes in the direction of the walkway leading to the road. A solution is to provide detectable warnings and/or railings to help realign the pedestrian perpendicularly to the roadway just before the second crossing. A two-stage traffic signal should not be installed without the staggered (Z) crossing since a pedestrian may look at the wrong pedestrian indicator causing them to “WALK” when they should be stopped for traffic.

**Current Use in the City of Hamilton:** In use at some locations.

**Recommendations for the City of Hamilton:** Use this treatment sparingly. When used, focus on the following types of locations:

- Locations with high pedestrian volumes
- High crash locations
- Locations with high use by populations over represented in the crash data such as children, seniors and persons with disabilities.
- Locations that provide a better alternative to nearby intersections that are may be complex, relatively high speed and have a history of pedestrian crashes

<p><b>Crash Reduction Factor:</b> 54%</p>	<p><b>Reference/Guidance</b></p> <ul style="list-style-type: none"> <li>• Safe Routes to School Guide – Tools to Reduce Crossing Distances for Pedestrians</li> <li>• PEDSAFE – Case Study No. 34</li> </ul>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• PEDSAFE – Staggered Median</li> </ul>
---	--	--

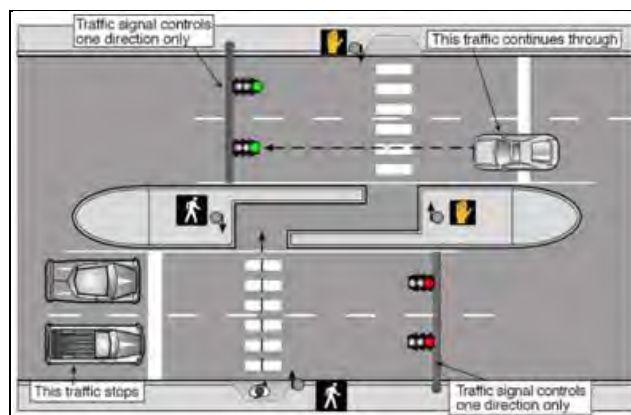
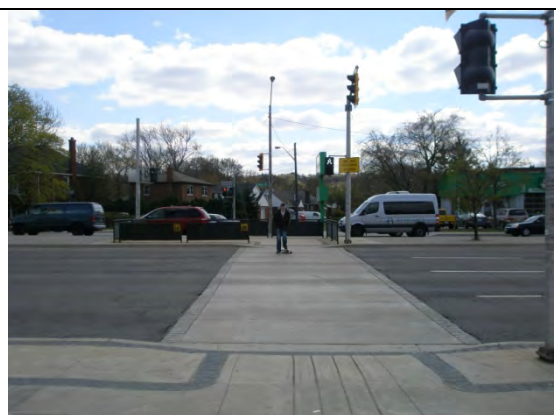


Diagram of mid-block staggered signal.



Mid-block staggered signal on Main St.



## 21. Paved Shoulders

The shoulder is the portion of the roadway to the right of the travel way edge line or edge of the paved area. Having a paved shoulder has safety benefits for all roadway users. For pedestrians and bicyclists, paved shoulders can provide a level and smooth surface for traveling along the roadway. For motorists paved shoulders provide extra room in which to maneuver or for emergency stopping. The width of this paved shoulder area should be a minimum 1 m and 1.6 m is preferred to maximize comfort and safety of pedestrians. Paved shoulders may be accomplished through a lane or road diet or by widening the roadway and striping an edge. Lane diets may also have speed management benefits: reduced lane widths have been shown to reduce vehicle speeds.

**Current Use in the City of Hamilton:** While there are relatively few areas in the City of Hamilton where curbs and sidewalks are not present along the roadway, there are some more rural areas, or areas that were developed without sidewalks.

**Recommendations for the City of Hamilton:** In areas where sidewalks are not present and investment in sidewalk infrastructure may not be appropriate, paved shoulders can greatly increase pedestrian safety. Guidelines should be developed to determine when sidewalks will be required and how they will be funded. Paved shoulders may be implemented in one of two ways: lane/road diet or road widening. Paved shoulders should be considered where:

- Pedestrians are observed or where desire lines, i.e. worn paths, are apparent on the roadside, but where pedestrian volumes are low.
- Where there are preferred bicycle routes.
- Where speed management is desired, i.e. creating a paved shoulder by reducing lane widths.

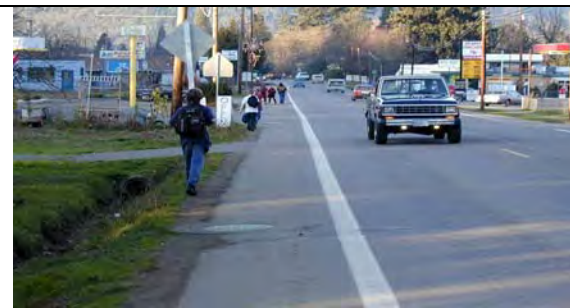
Crash Reduction Factor:  
70%

**References/Guidance**

- Reasons for Highway Shoulders, Oregon Department of Transportation



Paved shoulders provide safety benefits for all roadway users.



Where pedestrian volumes are high, paved shoulders may need to be upgraded to sidewalks.

## 22. Pedestrian Indicator—Countdown Signal and Timing

Pedestrian signal indications ensure pedestrians will know when the signal phasing allows them to cross, and when they should not be crossing. Countdown pedestrian signals inform pedestrians of the amount of time in seconds that is available to safely cross during the flashing DO NOT WALK phase. This device is particularly useful at crosswalks with long crossing distances. The WALK phase should allocate enough time for pedestrians of all abilities to safely cross the roadway. Walk phase timing should accommodate crossing speeds in the range of 0.8 to 1.06 m/s. Where there are high concentrations of children, seniors, or disabled pedestrians, e.g. near schools or hospitals, signals should be timed to accommodate slower pedestrian crossing speeds. Pedestrian indicators are particularly important on one-way roadways where a pedestrian approaching from the opposite direction cannot see the vehicle signal heads and may not realize an intersection is signaled, nor know when it is safe to cross.

**Current Use in the City of Hamilton:** Pedestrian signal timing procedures currently implement in the City of Hamilton allows for installation of Pedestrian Countdown Signals (PCS) under the following conditions:

- Immediately, for all new PCS as installed as part of the Annual Modernization Program
- As PCS are replaced due to failure
- On a retrofit basis, as funds permits, over the next 1-10 years

With respect of pedestrian signal timing, the City of Hamilton recognizes the presence of children and seniors (groups that walk more slowly) at all locations throughout the City using a standardized walking speed of 1.0 metres per second (the lowest speed recognized by the Ontario Traffic Manual Book 12).

**Recommendations for the City of Hamilton:** Pedestrian indicators for pedestrians should be provided at all signalized intersections. Plans for installing countdown signals should be continued.

Crash Reduction Factor: 25% (countdown signals)

**Reference/Guidance**

- PEDSAFE – Pedestrian Signals



Pedestrian countdown signal.



Pedestrian countdown signals should allocate enough time for pedestrians of all abilities to safely cross the roadway.

## 23. Protected Left Turn Phase

Turning movements at signals, particularly left turning movements, account for a high percentage of pedestrian crashes. A protected left-turn phase (red signal arrow followed by a green signal arrow followed by a red signal arrow) provides a dedicated left turn and eliminates the need for motorists to wait for gaps in on-coming traffic. Protected left-turn phases also allow pedestrians to cross during the red arrow signal phase without the potential for conflict with left-turning vehicles. Pedestrians will get a DON'T WALK indication during the green arrow, protected left-turn phase. Sometimes a protected left-turn phase is followed by a permissive green or flashing yellow (i.e. protected/permissive left-turn). The permissive left-turn phase is concurrent with the Walk phase and often results in a higher number of pedestrian crashes. Right-turns are virtually always permissive but typically do not result in higher crash rates. However in locations where pedestrian collisions involving right-turning vehicles are reported, toolbox solutions such as protected right-turn phases, RIGHT-TURN-ON-RED restrictions, or leading pedestrian intervals should be considered.

**Current Use in the City of Hamilton:** The City uses protected left turn phase in a limited capacity. Fully protected left turns are only used for intersections with dual left turn lanes. Protected permissive signals are used where there is a single left turn lane.

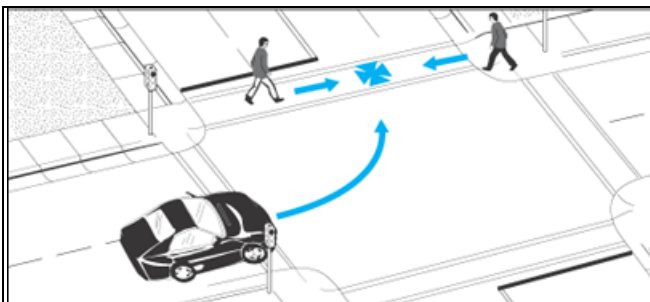
**Recommendations for the City of Hamilton:** Protected left turns should be considered wherever there is a protected left turn arrow. The high crash reduction factor makes this treatment especially appealing. Existing locations should be prioritized using the following criteria:

- School crossings
- High crash locations
- Skewed intersections that allow for high-speed turns
- Locations with high use by populations over represented in the crash data such as children, seniors and persons with disabilities.

**Crash Reduction Factor:**  
70% to 80% for left turning vehicles

**Reference/Guidance**

- MUTCD - Section 4D.06 Application of Steady Signal Indications for Left Turns
- FHWA-HRT-04-091: 4.2.2 "Protected-Only" Left-Turn phasing



Conflict between pedestrian and left-turning vehicle.



Protected left turn phase – pedestrians get a 'walk' signal while motorists get a red left-turn arrow.

## 24. Push Button

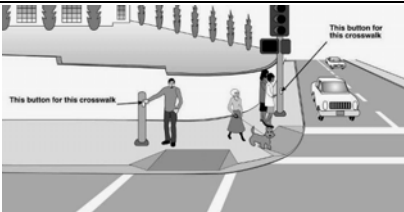

Pedestrian signal phases can be programmed to automatically recall during an intersection signal phasing cycle or be actuated using push buttons. Pedestrian push buttons are electronic buttons used by pedestrians to change traffic signal timing and receive a pedestrian crossing phase. The installation of push buttons improves pedestrian travel time and compliance. Push buttons can also reduce delay to vehicular traffic when pedestrians are not present. Pedestrian push buttons are typically installed at locations where pedestrians are expected intermittently. Automatic pedestrian phases (no push button) are preferred and used in high pedestrian volume areas such as downtown/central business districts where the pedestrian phase is needed during nearly every signal cycle due to high pedestrian volumes. A signal may have both automatic and actuated pedestrian phases depending on time of day. For example, signals can be put in automatic pedestrian “recall” for key time periods of day such as school dismissal times, but return to an actuated phase during off-peak times. If used, push buttons should be clearly visible and within easy reach for people in wheelchairs. Only about 50 percent of pedestrians actually push the buttons based on a FHWA research project, which indicates that push buttons need to be well signed, easily locatable and within reach of all pedestrians. Push buttons need to be checked periodically to assure that they are working and placing a call into the signal.

**Current Use in the City of Hamilton:** The City’s standard follows the 2008 Transportation Association of Canada (TAC) standard for Accessible Pedestrian Signals (APS)

**Recommendations for the City of Hamilton:** Push buttons are not appropriate at all crossing locations. When installing push buttons the following should be considered:

- Install push buttons at locations where they are needed to aid vehicular flow and pedestrian volumes are relatively low
- Never install push buttons at locations where pedestrians are expected to be present during the majority of signal cycles.
- Ensure that existing and new pushbuttons are well signed, easily locatable, and within reach of all pedestrians, particularly people in wheelchairs.
- Buttons for neighboring crosswalks should be located at least 10 feet from each other.
- Locator tones should be used to assist visually impaired pedestrians to find the pushbutton.

<p><b>Crash Reduction Factor:</b> Research Incomplete</p>	<p><b>Reference/Guidance/Cost Range</b></p> <ul style="list-style-type: none"> <li>• MUTCD - Section 4E.09 Accessible Pedestrian Signal Detectors</li> <li>• NCHRP – Guidelines for Accessible Pedestrian Signals</li> </ul>
---	--

	
<p>Push button location relative to crosswalks.</p>	<p>Clear signage indicating which direction of travel the push button is for.</p>

## 25. Right-In Right Out Driveways (and minor streets)

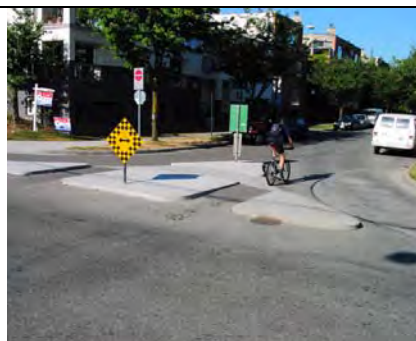
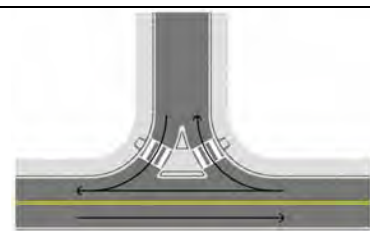
Right-in/right-out (RIRO) is an access management technique that refers to a type of driveway where only right turns are permitted. RIRO restrictions may also be applied to minor roadways. Right-in, right out configurations improve safety by reducing the number of conflict points between all roadway users. Research suggests that approximately 72 percent of crashes at a driveway involve a left-turning vehicle. These crashes are primarily due to outbound vehicles turning left across through traffic and to inbound, left-turning vehicle conflicting with opposite direction through traffic. Reducing or eliminating left turns to or from driveways reduces conflict points and enhances safety. When turn movements are restricted at driveways, consideration must be given to the tradeoffs of possibly blocking access to driveways, and shifting the turning movement to another location along the roadway. RIRO restrictions may be part of a larger access management strategy.

**Current Use in the City of Hamilton:** The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding RIRO access.

**Recommendations for the City of Hamilton:** Use this treatment with caution since it has the potential to divert traffic. RIROs are best used at the following types of locations:

- Locations with high pedestrian volumes
- High crash locations
- Locations along arterial streets with five or more lanes
- Locations with driveways in close proximity to intersections or other driveways

<p>Crash Reduction Factor:</p>  <p>For motor vehicle crashes CRF = 72 %</p>	<p>Reference/Guidance</p> <ul style="list-style-type: none"> <li>• FHWA Access Management Publications and Resources: “Benefits of Access Management” and “Safe Access is Good for Business”</li> <li>• TRB--Accessmanagement.org</li> <li>• NCHRP Report 548: A Guidebook for Including Access Management in Transportation Planning</li> <li>• NCHRP Report 659: Guide for the Geometric Design of Driveways</li> </ul>
---	---



Islands used to restrict left turn movements should accommodate pedestrians.

Right-in, Right-out only with pedestrian and bicycle gap. This treatment may also be applied to driveways after other driveway design considerations



## 26. Right Turn on Red Restrictions

A permissible Right Turn on Red (RTOR) can have detrimental effects on pedestrians. While the law requires motorists to come to a full stop and yield to cross-street traffic and pedestrians prior to turning right on red, many motorists do not fully comply with the regulations, especially at intersections with wide turning radii. Motorists are often so intent on looking for traffic approaching on their left that they may not be alert to pedestrians approaching on their right. In addition, motorists may pull up into the crosswalk to wait for a gap in traffic, blocking pedestrian crossing movements.

Prohibiting RTOR should be considered where and/or when there are high pedestrian volumes, or where there are sight line obstructions. Part-time right turn on red restrictions during the busiest times of the day may be sufficient in some locations. For improved effectiveness, a larger 762-mm by 914-mm (30-in by 36-in) NO TURN ON RED sign can be used. For areas where a right-turn-on-red restriction is needed during certain times, time-of-day restrictions may be appropriate. A variable-message NO TURN ON RED sign may also be used.

**Current Use in the City of Hamilton:** Right turn restrictions are currently in use in the City.

**Recommendations for the City of Hamilton:** Use this treatment sparingly. When used, focus on the following types of locations:

- Intersections with high pedestrian volumes.
- High crash locations where cause is due to vehicles turning right on red.
- Locations with high use by populations over represented in the crash data such as children, seniors and persons with disabilities.
- Consider combining right turn on red prohibitions with a Leading Pedestrian Indicator (LPI) at extremely problematic intersections.

Crash Reduction Factor: 10%	Reference/Guidance	Examples:
	<ul style="list-style-type: none"> <li>• PEDSAFE—Right Turn on Red Restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• PEDSAFE, Leading Pedestrian Interval</li> </ul> 
<p>No turn on red sign – option to activate only during selected times.</p>	<p>No turn on red sign Downtown Hamilton.</p>	

## 27. Right Turn Slip Lane with Directional Island

Directional (pork chop) islands for right-turns can shorten crossing distances, reduce pedestrian exposure, and can improve overall signal timing of the intersection. The island enables pedestrians and drivers to negotiate one conflict point separately from others. The island should have the longer tail pointing upstream to the approaching right-turn driver, and be designed so drivers approach the pedestrian crossing at nearly 90°. The crosswalk is placed one car length back from the intersecting roadway so the driver can move forward and wait for a gap in oncoming traffic once the pedestrian conflict has been resolved. This design puts the crosswalk in an area where the driver is still looking ahead. Older designs place the crosswalk too far down stream, where the driver is already looking left for a gap in the traffic. Since traffic signals are timed based the shorter crossing, the pedestrian crossing phase has a much smaller influence on the overall timing of the signal.

**Current Use in the City of Hamilton:** The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding geometric design of intersection, including refuge or pedestrian islands.

**Recommendations for the City of Hamilton:** Use this treatment sparingly. When used, focus on the following types of locations:

- Intersections with high volumes of right turning buses and trucks (e.g. bus and/or truck route)
- Intersections that require a curb radius of more than 10 m and have high pedestrian volumes
- Obtuse corners of skewed intersections

**Crash Reduction Factor:** Research Incomplete

**Reference/Guidance**

- PEDSAFE — Improved Right Turn Slip Lane Design

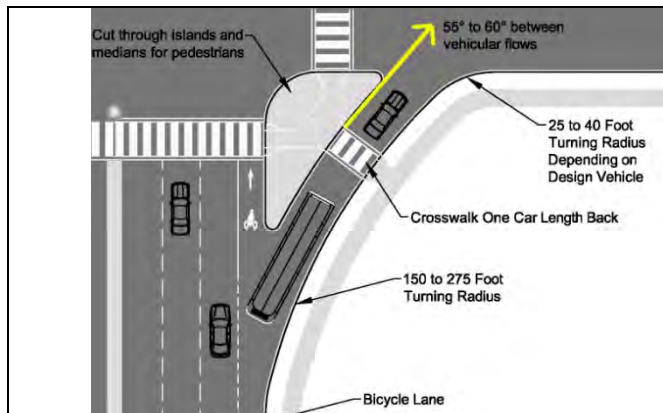


Diagram of a pedestrian slip lane with directional island.



An example of a directional island that provides adequate space for crossing pedestrians, and accommodates wheelchairs.

## 28. Road Diet

The term road diet refers to reducing the number of lanes on a multi-lane roadway. Numerous studies of road diets have shown that they provide safety benefits for all roadway users by reducing motor vehicle speeds and creating room for other amenities and safety features. The most common road diet is the 4- to 3-lane reduction, which results in two travel lanes and a center turn lane/median. Depending on roadway width, such a conversion may allow for bike lanes, the addition of on-street parking (where there is demand), and other features that improve the pedestrian environment such as curb extensions, sidewalks, and sidewalk buffers. When the number of vehicle lanes is reduced and features such as curb extensions and crossing islands are installed, the time pedestrians are exposed to traffic while crossing the street is greatly reduced. Road diets also reduce the multiple lane threat risk. A multiple-threat pedestrian crash is a crash type that occurs when a motor vehicle in one lane stops and provides a visual screen to the motorist in the adjacent lane. The motorist in the adjacent lane continues to move and hits the pedestrian. There are a number of factors to weigh in determining the appropriateness of a road diet, including number of driveways, roadway width, sight distance, and the volume and type of traffic. Successful road diets include an analysis of the entire affected area in order to identify and mitigate potential traffic spill over into other areas.

**Current Use in the City of Hamilton:** The City has implemented road diets in several locations.

**Recommendations for the City of Hamilton:**

- Conduct a level-of-service analysis to determine whether the number of lanes on a roadway is appropriate and how alternative routes will be impacted by a road diet.
- Consider other factors besides LOS, and be willing to accept a lower LOS in exchange for other benefits. Other factors may include the importance a particular street plays in the pedestrian or bicycle network, and the relationship between creating more livable streets and economic development.

<p><b>Crash Reduction Factor:</b> 29% for all types of crashes. Unknown specifically for pedestrians.</p>	<p><b>Reference/Guidance</b></p> <ul style="list-style-type: none"> <li>• FHWA—Proven Safety Countermeasures: Road Diet</li> <li>• FHWA—Evaluation of Lane Reduction “Road Diet” Measures and Their Effects on Crashes and Injuries</li> <li>• Walkable Communities—Road Diets: Fixing the Big Roads</li> <li>• ITE—Road Diet Handbook: Setting Trends for Livable Streets</li> </ul>
---	---



## 29. Sidewalk Buffers

Buffers between pedestrians and motor vehicle traffic are important to provide greater levels of comfort, security, and safety to pedestrians. A buffer zone of 1.2 to 1.8 m is desirable and should be provided to separate pedestrians from the street. The buffer zone will vary according to the street type. In downtown or commercial districts, a street furniture zone (street signs, trees, newspaper boxes, trash receptacles etc.) is usually appropriate. In more suburban or rural areas, a landscape strip is generally most suitable. Where sidewalk buffers cannot be provided due to right-of-way constraints, parked cars and/or bicycle lanes can provide an acceptable buffer zone. In addition to buffering pedestrians from traffic, sidewalk buffers provide a space for poles, signs, and other objects that may otherwise be obstructions within the sidewalk; they serve as a snow storage area; and they protect pedestrians from splashing caused by moving vehicles. Buffers also provide the added space to help make curb ramps and landings accessible. With a landscaped buffer between the sidewalk and the street, care must be taken to ensure that bus stops are fully accessible to wheelchair users and have connections to the sidewalk.

**Current Use in the City of Hamilton:** The City of Hamilton Development Engineering Guidelines indicates an area between the sidewalk and the back of the curb: 3.0m wide for arterial roads where there is direct access onto the arterial road from individual residential lots; 1.75 m for Minor and Major Collector; and 1.75m for Local Urban Roads

**Recommendations for the City of Hamilton:** Providing buffers should be a priority for all sidewalks. Lane diets, road diets, bicycle lanes and sidewalk widening are strategies that can be used to provide greater separation between the sidewalk and traffic lanes.

**Crash Reduction Factor:**  
Research incomplete. See sidewalk toolbox solution

**Reference/Guidance:**

- PEDSAFE -- Recommended Guidelines/Priorities for Sidewalks and Walkways
- FHWA -- Designing Sidewalks and Trails for Access



Bicycle lane and parked cars can provide a buffer between sidewalk and vehicle lanes.



A buffer zone provides space for street trees and other features that enhance the pedestrian environment.



## 30. Sidewalk Connections to Transit Stops

Bus stops should be highly visible locations that pedestrians can reach easily by means of accessible sidewalk connections. Access to the bus stop via sidewalk connections from an adjacent intersection, sidewalk, or nearest land use should be as direct as possible. To accommodate wheelchairs, sidewalk connections should be a minimum of 1.2 m wide (preferably 1.5 to 1.8 m wide) and equipped with wheelchair ramps at all street crossings. Other improvements within the vicinity of transit stops include marked crosswalks and signals at intersections. When possible, sidewalks and bus stops should be coordinated with existing street lights to provide an adequate level of lighting and improve security. Installation of a continuous sidewalk from the adjacent intersection to the bus stop is one way to achieve greater patron access to the bus stop in areas with limited or no sidewalk coverage.

**Recommendations for the City of Hamilton:**

- Identify transit stops that are not connected to the sidewalk network and work with Hamilton Street Railway to develop a funding strategy for installing connections to improve pedestrian safety and better serve bus patrons.
- Target areas with high transit use and/or areas with high occurrence of vulnerable users, e.g. schools, hospitals, senior facilities, and community facilities.
- Review development regulations, and modify where needed, to ensure new development is providing sidewalk connections to adjacent transit stops.

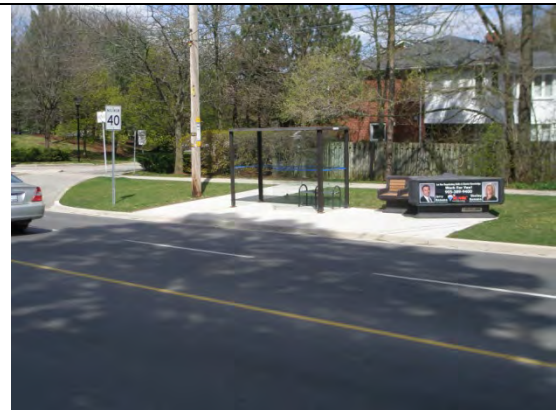
**Crash Reduction Factor:** Research Incomplete

**Reference/Guidance**

- How Far, By Which Route, and Why? Pedestrian Safety Guide for Transit Agencies
- PEDSAFE - Transit Stop Treatments
- Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions



Example of where a short sidewalk connection can improve accessibility, and the safety and comfort of transit riders.



A short sidewalk segment connects this bus shelter to the sidewalk network.



## 31. Sidewalks

Sidewalks and walkways provide people with space to travel within the public right-of-way that is separated from roadway vehicles. Sidewalks are associated with significant reductions in pedestrian collisions with motor vehicles. The recommend minimum width is 1.5 m) for a sidewalk or walkway, which allows two people to pass comfortably or to walk side-by-side. Wider sidewalks should be installed near schools, at transit stops, in downtown areas, or anywhere high concentrations of pedestrians exist. Sidewalks should be continuous along both sides of a street and sidewalks should be fully accessible to all pedestrians, including those in wheelchairs. A buffer zone of 1.2 to 1.8 m is desirable and should be provided to separate pedestrians from the street. The buffer zone will vary according to the street type. In downtown or commercial districts, a street furniture zone is usually appropriate. Parked cars and/or bicycle lanes can provide an acceptable buffer zone. In more suburban or rural areas, a landscape strip is generally most suitable.

**Current Use in the City of Hamilton:** The City of Hamilton has a fairly complete sidewalk network, however in many areas sidewalks are narrow, are not buffered from traffic, have obstructions, or are in disrepair.

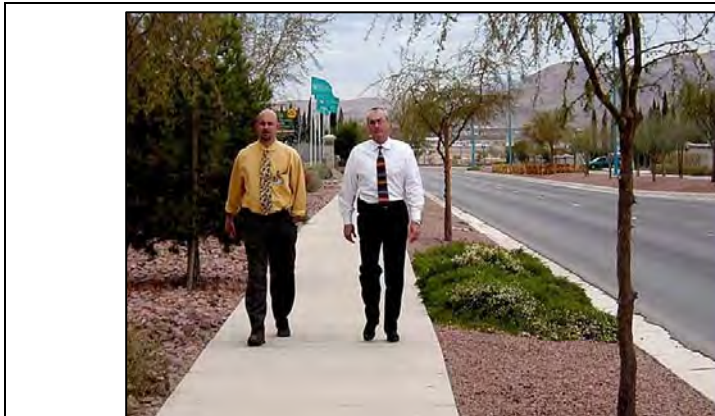
**Recommendations for the City of Hamilton:** The following should be focus areas for expanding/repairing the sidewalk network:

- Create annual program that enables a systematic approach to retrofitting deficient sidewalk locations. Prioritization should be given to filling gaps connecting transit stops, schools, parks, and other key destinations.
- Remove or provide access (adequate sidewalk width) around sidewalk obstructions such as utility poles.
- Establish minimum sidewalk widths that are proportional to the demand for pedestrian activity. Areas with higher levels of pedestrian activity, e.g. transit stops, commercial areas, should have wider sidewalks.
- Ensure that development codes contain street frontage improvement requirements that are tied to the type and character of development. For example, frontage improvements for developments in commercial districts should include wider sidewalks and landscaped/hardscape buffers, street trees and potentially other streetscape elements depending on the character and vision for the area.

Crash Reduction Factor 88% ,  
FHWA RD-01-101

### References/Guidance

- PEDSAFE—Sidewalks and Walkways
- AASHTO—Guide for the Planning, Design, and Operation of Pedestrian Facilities, Section 3.2
-



A minimum width of 1.5 meters is necessary for two people to walk comfortably side by side.



The pedestrian zone should be clear of obstacles.

## 32. Skewed Intersection

Skewed intersections occur when streets cross at angles other than 90 degrees and can create complicated scenarios for both pedestrians and drivers. Skewed intersections should be avoided whenever possible during the planning stages of a project development process. When skewed intersections are unavoidable, the intersection should be designed so that the angle between intersecting streets is as close to 90 degrees as possible. In addition, if major alterations are being done to an existing skewed intersection, transportation agencies should consider whether it is possible to reconfigure the intersection so that the crossings are more perpendicular. Strategies for improving pedestrian safety at skewed intersection crossings include installing curb ramps perpendicular to the curb, providing longer crossing times, providing marked crosswalks, tightening curb radii, adding medians or channelization islands to reduce crossing distance, and in some cases, intersection guide strips for pedestrians with vision impairments. Moving crosswalks back from the intersection to shorten crossing distances is generally not a preferred strategy because it is counter to pedestrian or motorist expectations, and it can create problems for visually impaired pedestrians.

**Current Use in the City of Hamilton:** The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding geometric design of intersection, including intersection angles.

**Recommendations for the City of Hamilton:** Straightening skewed approaches should be a priority for all streets since it consistently reduces all types of crashes. However, it is also recognized that this can be very expensive. Policy objectives that should be pursued include the following:

- Systematically identify and review skewed intersections. Prioritize which ones should be straightened based on pedestrian use and crash levels.
- Review all public and private projects for opportunities to straighten skewed intersections.

<b>Crash Reduction Factor:</b> Research Incomplete	<b>Reference/Guidance</b> <ul style="list-style-type: none"> <li>• FHWA, Designing Sidewalks and Trails for Access</li> </ul>
---	---



This intersection was designed so that the two roads meet at a 90 degree rather than a skewed angle.



Aerial view of same intersection.

### 33. Street Trees

Street trees enhance the pedestrian environment by providing shade, creating a sense of enclosure and human scale, dampening traffic noise, and when placed between the sidewalk and street, a buffer from traffic. Street trees also help to calm traffic by narrowing the visual width of the roadway. Street trees should be considered in every street design project. The pattern and spacing of trees may vary depending on the type of street, available space (above and below ground), and aesthetic goals. Street tree planting policies and guidelines should address appropriate tree size taking into consideration constraints such as overhead utilities and available planting area.

**Current Use in the City of Hamilton:** The City of Hamilton Street Tree Planting Policy provides guidance regarding location, arrangement and spacing of street trees.

**Recommendations for the City of Hamilton:** Providing street trees should be a priority for all streets in Hamilton. Policy objectives that should be pursued include the following:

- Consider street trees as part of all street design projects including annual repaving projects.
- Require all new private development to provide streets trees as a component of street frontage improvements.
- Target streets with no sidewalk buffers and low parking utilization and/or excess vehicle capacity to create bulb outs with tree wells between travel lanes and the sidewalk.
- Review the City of Hamilton tree planting and maintenance policies to ensure that it addresses sight lines affecting pedestrian safety.

**Crash Reduction Factor:** Research Incomplete

**Reference/Guidance**

- ITE Journal on the Web—The Street Tree Effect on Driver Safety
- TRB, NCHRP 612: Safe and Aesthetic Design of Urban Roadside Treatments



Bulb out with tree well.



Street trees provide both a physical and visual barrier between the sidewalk and street.



## 34. Sidewalk Capacity at Transit Stops

Sidewalks at transit stops should extend to the curb so that passengers may access the sidewalk directly from the bus doors. It is desirable to provide a continuous 2.4 m wide area (either a dedicated pad attached to sidewalk or a continuous sidewalk) the length of a bus, or at least the distance between the front and rear bus doors. In areas with higher pedestrian volumes on the sidewalk and high transit use, a greater pad area or sidewalk capacity should be considered. Where it is not possible to provide a pad or sidewalk of sufficient width, curb extensions can provide additional space for passengers to board and alight without interfering with sidewalk flow. The width of the curb extension is generally 1.8 m to 2.4 m, but should not be wider than the adjacent parking lane. The curb extension should be long enough to allow passengers to board and alight at all doors of the bus.

**Current Use in the City of Hamilton:** The City of Hamilton “accessible bus stop design” guideline provides for a concrete pad extending a minimum of 9 m long, the width between the front and centre doors of buses.

**Recommendations for the City of Hamilton:**

- Ensure that existing guidelines also address width of sidewalk or transit stop pad area, and that the minimum width of stop area (sidewalk and pad) is 2.4 m wide.

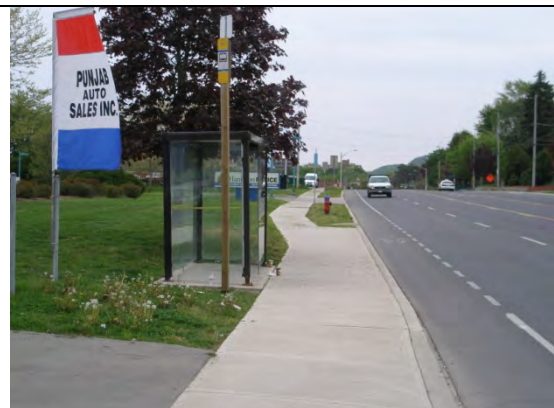
**Crash Reduction Factor:**  
Research Incomplete

**Reference/Guidance**

- FHWA Pedestrian Safety Guide for Transit Stations



Additional sidewalk on the back side of transit stop allows pedestrians to bypass area where bus boarding/alighting occurs.



Bus shelter is placed out of the path of travel.



## 35. Transit Stops Near Controlled Intersections

It is often necessary for pedestrians to cross roadways when traveling to and from transit stops. Locate bus stops at stop or signal controlled intersections in order to increase the visibility of transit-riding pedestrians that are likely to cross the street. Where a bus stop is not close to a signal, pedestrian crossings near transit stops should incorporate other treatments such as crossing islands, rapid flash beacons, and warning signage. Far side placement of transit stops at intersections allows pedestrians to cross behind the bus where they are more visible to passing traffic. This placement also enables the bus driver to pull away without endangering pedestrians. Bus stops should be setback a minimum of 5' from crosswalks. Where feasible, a 10' setback is preferred.

**Current Use in the City of Hamilton:** The City of Hamilton marks crosswalks at controlled locations only.

**Recommendations for the City of Hamilton:** Identify transit stops that are not located near crossings and develop a strategy in cooperation HSR for either moving the transit stops or installing new crossings at the stop location. Focus on:

- High crash corridors and intersections
- Where a high number of transit users are crossing the street such as near employment uses, schools, and community facilities.
- Install crosswalks behind where the bus stops.
- Utilize additional treatments such as raised crossing islands; curb extensions, enhanced overhead lighting, etc. on multi-lane roads.

**Crash Reduction Factor:**  
Research Incomplete  
Far side bus stop: CRF=1%

**Reference/Guidance**

- FHWA Pedestrian Safety Guide for Transit Stations



Crossing is placed behind the bus stop and provides a pedestrian refuge for a multi-lane roadway.



Marked crosswalk located behind bus stop.

## 36. Transit Stop Location

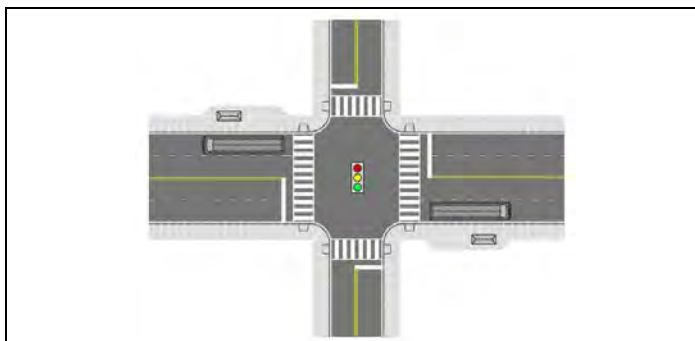
All bus stop locations should be safe, convenient, well-lit, clearly visible, and accessible. Bus stops should be located at intersections wherever possible because intersections are generally more convenient for passengers intercepting other transit connections, accessing crosswalks, and connecting to pedestrian routes and building entrances. Selecting a bus stop site depends on a variety of factors, such as the available curbside space, conditions of sidewalks, width of sidewalks, wheelchair accessibility, the number and width of travel lanes, turning movements, sight distances, and the presence of parking, bicycle facilities, and crosswalks. At signalized intersections, far-side placement is generally recommended, however location selection should be done on a site-by-site basis. Advantages of locating stops on the far-side of intersection include reduced delay for buses, encouraging pedestrians to cross street behind the bus where they are more visible to passing traffic, minimizing conflicts between buses and right turning vehicles, and allowing buses to take advantage of gaps in traffic flow (especially with signal prioritization).

**Current Use in the City of Hamilton:** Bus stop locations are selected by Hamilton Street Railway planning staff in consultation with Traffic Engineering Section. Hamilton Street Railway generally follows a “near side” (before the intersection) policy for stop placement.

**Recommendations for the City of Hamilton:** Modify existing stop placement policy/process to encourage “near side” stops versus “far side” stops where conditions are favorable, and:

- Review stop locations along high crash corridors and intersections, and consider moving stops where:
  - Transit user street crossing movements are high
  - Bus operations can be improved
  - Traffic operations can be improved
- Consider moving stops located at mid-block locations on multi-lane roads to signalized locations (or installing additional crossing treatments at these locations) where it is possible to still meet minimum stop spacing requirements.

Crash Reduction Factor: Research Incomplete	Reference/Guidance <ul style="list-style-type: none"> <li>• PEDSAFE—Transit Stop Treatment</li> </ul>	Examples <ul style="list-style-type: none"> <li>• See PEDSAFE Case Studies</li> </ul>
---	---	---



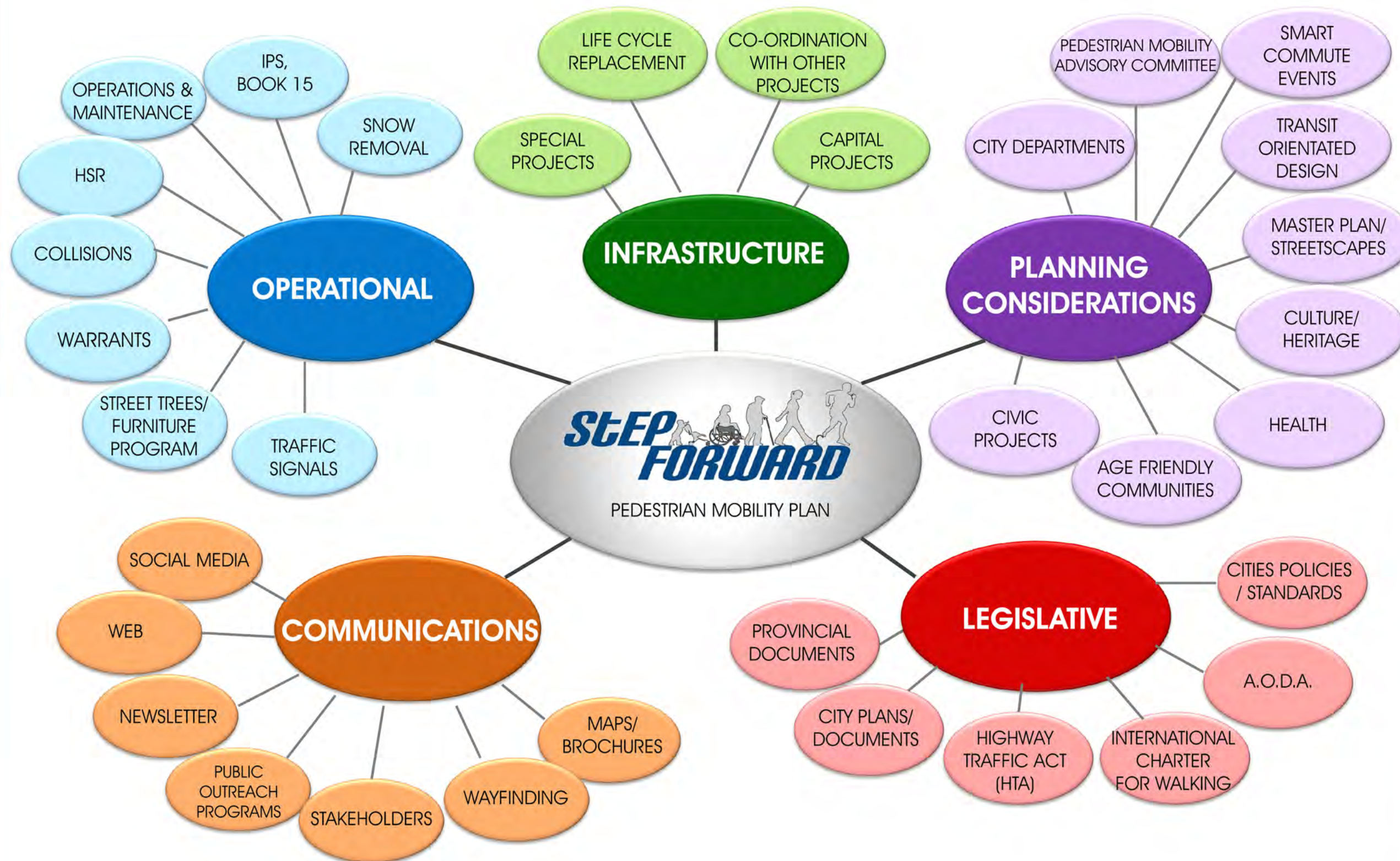
Far-side transit stop location at signalized intersections is preferred in most cases.

Bus stop on far side of intersection.





Hamilton



City Implementation Considerations

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 2810 South Service Road Suite 205  
 Burlington, Ontario  
 Tel: (905) 681-7504  
 ■ Environmental Planning Fax: (905) 681-2944  
 e-mail: gono@oconnor-consultants.com  
 ■ Resource Analysis website: www.oconnor-consultants.com

FIGURE 1

# HAMILTON COUNTERMEASURES: SHORT DESCRIPTIONS

## CONTENTS

Signals .....	3
Pedestrian Indicator- Countdown Signal & Timing .....	3
Push Button (when to use; location) .....	3
Pedestrian Interval (LPI) .....	3
Protected Left Turn Phase .....	4
Half Signal .....	4
Mid-block signal .....	4
Mid-block staggered signal .....	4
Intelligent Transportation Systems (ITS) .....	5
Crossing .....	5
High visibility crosswalk (ladder or piano keys) & advanced crossbar (signalized) .....	5
Marked crosswalk location (signalized) .....	5
Lighting .....	5
Illumination at pedestrian crossings (controlled intersection) .....	6
Illumination along street corridors .....	6
Intersection Geometry .....	7
Curb ramp design .....	7
Curb Extension/bulb out .....	7
Curb radius .....	7
Design for skewed intersection .....	7
Right-turn slip-lane design (pork chop island) .....	8

Along the Roadway.....	9
Sidewalks (why and where) .....	9
Sidewalk buffers (including widths).....	9
Clearance (from obstructions).....	9
Street trees .....	10
Medians .....	10
Regulatory Signs .....	11
No turn on red .....	11
Transit.....	11
Transit stop location .....	11
Sidewalk connection (from stop to nearest crossing) .....	11
Crossing near stop .....	11
Sidewalk capacity at transit stop .....	12
Driveways .....	12
Sidewalk design across driveway.....	12
Driveway width.....	12
Driveway location (in relation to intersection).....	12
Driveway consolidation .....	13
Right-in, right-out only .....	13
Channelization .....	13
Road diet.....	13
Lane diet .....	14
Curbside Management .....	14
Parking restrictions at intersections .....	14
Back-in angle parking.....	14



## SIGNALS

### PEDESTRIAN INDICATOR- COUNTDOWN SIGNAL & TIMING

Pedestrian signal indications ensure pedestrians will know when the signal phasing allows them to cross, and when they should not be crossing. On one-way roadways a pedestrian approaching from the opposite direction cannot see the vehicle signal heads and may not realize an intersection is signalized, nor know when it is safe to cross. Left turn arrows are not visible to the pedestrian. Countdown pedestrian signals inform pedestrians of the amount of time in seconds that is available to safely cross during the flashing DO NOT WALK phase. The WALK phase should allocate enough time for pedestrians of all abilities to safely cross the roadway.

#### **Current Use in the City of Hamilton:**

Pedestrian signal timing procedures currently implement in the City of Hamilton allows for installation of Pedestrian Countdown Signals (PCS) under the following conditions:

- Immediately, for all new PCS as installed as part of the Annual Modernization Program
- As PCS are replaced due to failure
- On a retrofit basis, as funds permits, over the next 1-10 years

With respect of pedestrian signal timing, the City of Hamilton recognizes the presence of children and seniors (groups that walk more slowly) at all locations throughout the City using a standardized walking speed of 1.0 metres per second (the lowest speed recognized by the Ontario Traffic Manual Book 12).

### PUSH BUTTON (WHEN TO USE; LOCATION)

This refers to push buttons to actuate a pedestrian signal. Push buttons should be located where a pedestrian who is in a wheelchair or is visually impaired can easily reach them. Push buttons should also clearly indicate which crosswalk the button regulates. Where a preset cycle operates, push buttons are not needed. Pedestrian pushbuttons may be installed at locations where pedestrians are expected intermittently. Automatic pedestrian phases are preferred in high pedestrian volume areas where the pedestrian phase is needed during every intersection cycle.

#### **Current Use in the City of Hamilton:**

The City's standard follows the 2008 Transportation Association of Canada (TAC) standard for Accessible Pedestrian Signals (APS)

### PEDESTRIAN INTERVAL (LPI)

The Leading Pedestrian Interval (LPI) is a signal phasing strategy to improve pedestrian visibility to motorists in locations with heavy volumes of turning traffic and frequent pedestrian crossings. During the LPI, all motor vehicle flows are stopped for two to four seconds while pedestrians are given the WALK signal. This is designed to allow pedestrians to begin crossing in advance of vehicular turning movements which allows them to clearly establish themselves in the crosswalk in a location that is more visible to the motorist.

**Current Use in the City of Hamilton:**

The City’s pedestrian signal timing standard does not provide for Leading Pedestrian Interval (LPI)

**PROTECTED LEFT TURN PHASE**

Protected left-turn phases allow pedestrians to cross without interference from left-turning drivers.

**Current Use in the City of Hamilton:**

The City’s pedestrian signal timing standard does not provide for protected left-turn phases; however, the amber interval and all-red clearance interval are defined as part of the pedestrian clearance.

**HALF SIGNAL**

A half-signal is a pedestrian actuated light that stops arterial traffic only, leaving lower volume cross streets unsignalized and controlled by Stop signs only. This allows pedestrians to cross safely on demand without unnecessarily arterial traffic.

**Current Use in the City of Hamilton:**

Not in use.

**MID-BLOCK SIGNAL**

Traffic signals may be necessary at mid-block pedestrian crossing locations where there are high volumes of crossing pedestrians and insufficient gaps for crossing. Caution is required when timing these signals. The best signal setup for a midblock crossing is a hot (nearly immediate) response. As soon as the pedestrian call actuator button is pushed, the clearance interval should be activated.

**Current Use in the City of Hamilton:**

The current installation criteria for intersection and mid-block pedestrian signals provides details regarding the process followed by the City to determining when it is appropriate to install traffic signals which are exclusively to assist pedestrians crossing the roadway; however, the policy does not include operational details.

**MID-BLOCK STAGGERED SIGNAL**

A mid-block, two-stage traffic signal at a crossing island helps reduce impacts on motor vehicle flow while helping the pedestrian cross multi-lane roadways. The pedestrian stops one direction of traffic at a time, and the two crossings are separated with a fenced-in median island.

**Current Use in the City of Hamilton:**

Not in use.

**INTELLIGENT TRANSPORTATION SYSTEMS (ITS)**

The term Intelligent Transportation Systems refers to the application of information and communications technology to improve transportation outcomes. For example, passive video detection can be used to actuate pedestrian signals or extend/truncate the pedestrian signal phase, which benefits pedestrian and lessens motor vehicle delay.

**Current Use in the City of Hamilton:**

Not in use.

**CROSSING**

**HIGH VISIBILITY CROSSWALK (LADDER OR PIANO KEYS) & ADVANCED CROSSBAR (SIGNALIZED)**

High visibility crosswalk markings (ladder style or piano keys) ensure that drivers see the crosswalk, not just the pedestrian. Traditional marked crosswalks--two parallel lines-- can be almost invisible to the motorist.

The use of stop bars at signalized locations helps drivers understand where they should stop relative to the crosswalk.

**Current Use in the City of Hamilton:**

Crosswalk lines are not painted unless the pedestrian has the right-of-way, as provided by a traffic control device. Indicator lines are only used when the pedestrian has the right-of-way, with or without crosswalk lines.

**MARKED CROSSWALK LOCATION (SIGNALIZED)**

A marked crosswalk can benefit pedestrians by directing them to cross at locations where there is appropriate traffic control, including traffic signals, and where there are good site lines between pedestrians and drivers.

**Current Use in the City of Hamilton:**

Not in use.

**LIGHTING**

## ILLUMINATION AT PEDESTRIAN CROSSINGS (CONTROLLED INTERSECTION)

Providing adequate illumination at controlled intersections is an important safety consideration, since the light level at the intersection is directly related to visibility, and thus the responding time of motorists. Pedestrians often assume that drivers can see them clearly at night on their own ability to see oncoming vehicles' headlamps. However, drivers often do not see pedestrians at night until they are within the safe stopping sight distance.

### **Current Use in the City of Hamilton:**

A Comprehensive Outdoor Lighting Study is currently conducted by the City. The intention of this study is to provide a framework for the creation of a comprehensive policy for the lighting of roadways, alleyways, pedestrian walkways with special attention to the Downtown Core and Business Improvement Areas.

## ILLUMINATION ALONG STREET CORRIDORS

Illumination greatly increases the driver's ability to see pedestrians walking along the road at night. Double-sided lighting should be provided along wide arterial roadways; this enables drivers to see pedestrians along the road, who may decide to cross anywhere, anytime.

### **Current Use in the City of Hamilton:**

A Comprehensive Outdoor Lighting Study is currently conducted by the City. The intention of this study is to provide a framework for the creation of a comprehensive policy for the lighting of roadways, alleyways, pedestrian walkways with special attention to the Downtown Core and Business Improvement Areas.

## INTERSECTION GEOMETRY

### CURB RAMP DESIGN

Proper curb ramp placement and design ensures that pedestrians cross in crosswalks, close to the intersection, where drivers can see them, and without undue delay. Curb ramps should be aligned with the crosswalk direction of travel which can only be achieved with two ramps at a corner. Ramps (wings not included) must be wholly contained within the marked crosswalk. Poorly placed or oriented ramps force wheelchair users to make long detours and they may not cross in the allotted time at a signalized intersection or they may be crossing outside the crosswalk lines where drivers don't expect them.

#### **Current Use in the City of Hamilton:**

The City of Hamilton Barrier-Free Design Guidelines provides details for the location, design and maintenance of crosswalks, curb ramps and traffic islands.

### CURB EXTENSION/BUMP-OUT

Curb extensions reduce the total crossing distance on roadways with on-roadway parking and increase visibility: the waiting pedestrian can better see approaching traffic and drivers can better see pedestrians' waiting to cross the road, as their view is no longer blocked by parked cars.

#### **Current Use in the City of Hamilton:**

Curb extension/Bump-out are included in the Traffic Calming and Neighbourhood Traffic Management Policy as a measure to provide higher visibility of pedestrians and shorter walking distance to cross the roadway.

### CURB RADIUS

Small curb return radii benefit pedestrians by increasing the size of pedestrian waiting areas, allowing greater flexibility in the placement of curb ramps, and reducing pedestrian crossing distances. Small effective radii also benefit pedestrians by creating a sharper turn for vehicles and requiring them to slow down, but are more difficult for large vehicles to negotiate and may be inappropriate in cases where maintaining speed through corners is important for safety reasons. Curb return radius refers to the curve that the curb line makes at the corner; effective radius refers to the curve that vehicles must follow when turning, which may be affected by on-street parking, bicycle lanes, medians, and other roadway features.

#### **Current Use in the City of Hamilton:**

Not in use

### DESIGN FOR SKEWED INTERSECTION



Skewed intersections are intersections where the intersection legs do not meet at an approximate 90 degree angle. Skewed intersections can impair sight distances between pedestrians and drivers , encourage high speed motor vehicle turns, and increase pedestrian crossing distances. Redesigning these intersections to reduce skew can ameliorate these problems.

**Current Use in the City of Hamilton:**

The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding geometric design of intersection, including intersection angles.

**RIGHT-TURN SLIP-LANE DESIGN (PORK CHOP ISLAND)**

While right-turn slip lanes are generally a negative facility from the pedestrian perspective due to the emphasis on easy and fast motor vehicle travel, they can be designed to be less problematic. At many arterial street intersections, pedestrians have difficulty crossing due to right-turn movements and wide crossing distances. Well-designed right-turn slip lanes provide pedestrian crossing islands within the intersection and a right-turn lane that is designed to optimize the right-turning motorist’s view of the pedestrian and of vehicles to his or her left. Pedestrians are able to cross the right-turn lane and wait on the refuge island for their walk signal.

**Current Use in the City of Hamilton:**

The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding geometric design of intersection, including refuge or pedestrian islands.

## ALONG THE ROADWAY

### SIDEWALKS (WHY AND WHERE)

Sidewalks provide people with space to travel within the public right-of-way that is separated from roadway vehicles. Sidewalks are associated with significant reductions in pedestrian collisions with motor vehicles. Wider sidewalks should be installed near schools, at transit stops, in downtown areas, or anywhere high concentrations of pedestrians exist. Sidewalks should be continuous along both sides of a street and sidewalks should be fully accessible to all pedestrians, including those in wheelchairs.

#### **Current Use in the City of Hamilton:**

The City of Hamilton Development Engineering Guidelines indicates that concrete sidewalks, 1.5m wide, shall be installed as follows:

- Arterial Roads: both sides of the road,
- Minor and Major Collectors: both sides of the street, and
- Local Urban Roads: one side of the street

### SIDEWALK BUFFERS (INCLUDING WIDTHS)

Buffers between pedestrians and motor vehicle traffic are important to improve pedestrian comfort, security, and safety. Landscaped buffers provide a space for poles, signs, and other obstructions; they serve as a snow storage area; and they protect pedestrians from splash. Buffers also provide the added space to make curb ramps and landings accessible.

#### **Current Use in the City of Hamilton:**

The City of Hamilton Development Engineering Guidelines indicates an area between the sidewalk and the back of the curb:

- 3.0m wide for arterial roads where there is direct access onto the arterial road from individual residential lots,
- 1.75m for Minor and Major Collector, and
- 1.75m for Local Urban Roads

### CLEARANCE (FROM OBSTRUCTIONS)

It is important to provide a pedestrian pathway that is wide enough to accommodate people in wheelchairs and clear of obstructions, such as poles, fire hydrants, street furniture. A pathway with a clear width of at least 1.5 meters and a clear height of at least 2 meters assures access for all sidewalk travelers, from those who use wheelchairs to those who push strollers to those who find their way with a cane. Relocation of existing utilities may be required to meet clearance requirements.

**Current Use in the City of Hamilton:**

The City of Hamilton Barrier-Free Design Guidelines indicates that all paths, sidewalks and walkways shall be free of protruding obstacles such as overhanging signs, branches, etc.

**STREET TREES**

Street trees can be used to serve a variety of urban design functions. Based on their location, arrangement and spacing, trees can:

- Frame, define, and accentuate spaces
- Emphasize linearity and long views
- Create a ceiling and sense of enclosure
- Provide needed shade and filtered light
- Reinforce the rhythm of a streetwall
- Add texture, delight, and human scale

**Current Use in the City of Hamilton:**

The City of Hamilton Street Tree Planting Policy provides guidance regarding location, arrangement and spacing of street trees.

**MEDIANS**

Medians help pedestrians cross intersections by reducing the crossing distance from the curb to a protected area. This allows pedestrians to cross during smaller gaps in traffic. For this reason, medians are especially helpful for pedestrians who are unable to judge distances accurately. In addition, medians also help people with slow walking speeds to cross wide intersections during a short signal cycle. Medians are also useful at irregularly-shaped intersections, such as sites where two roads converge into one. In commercial districts, medians provide pedestrians with valuable protection from oncoming traffic. In residential areas, they serve as traffic calming devices and green space.

**Current Use in the City of Hamilton:**

The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding geometric design of intersection, including medians.

## REGULATORY SIGNS

### NO TURN ON RED

A permissive Right Turn on Red (RTOR) sometimes has detrimental effects on pedestrians. While the law requires motorists to come to a full stop and yield to cross-street traffic and pedestrians prior to turning right on red, many motorists do not fully comply with the regulations, especially at intersections with wide turning radii. Motorists are so intent on looking for traffic approaching on their left that they may not be alert to pedestrians approaching on their right. In addition, motorists usually pull up into the crosswalk to wait for a gap in traffic, blocking pedestrian crossing movements. In some instances, motorists simply do not come to a full stop.

#### **Current Use in the City of Hamilton:**

Not in use

## TRANSIT

### TRANSIT STOP LOCATION

Bus stop location is critical for safety and accessibility. Bus stops should be easily accessible, e.g., a stop should not be moved to a far side location if this location requires a lot of out-of-direction travel for users. They should be located where the driver can easily stop and move back into traffic. Finally, bus stops should be located where passengers with disabilities can board the bus.

#### **Current Use in the City of Hamilton:**

Bus stop locations are selected by Hamilton Street Railway planning staff in consultation with Traffic Engineering Section.

### SIDEWALK CONNECTION (FROM STOP TO NEAREST CROSSING)

A sidewalk connection should be provided from the transit stop to the nearest pedestrian crossing.

#### **Current Use in the City of Hamilton:**

Not in use.

### CROSSING NEAR STOP

Crosswalks at mid-block transit stops should be placed behind the bus stop so pedestrians cross behind the bus, where they can see oncoming traffic. This placement also enables the bus driver to pull away without endangering pedestrians.

**Current Use in the City of Hamilton:**

Hamilton Street Railway generally follows a “near side” (before the intersection) policy for stop placement

**SIDEWALK CAPACITY AT TRANSIT STOP**

It is desirable to provide a a continuous 2.4 m pad or sidewalk the length of a bus stop, or at least to the front of the rear bus doors.

**Current Use in the City of Hamilton:**

The City of Hamilton “accessible bus stop design” guideline provides for a concrete pad extending a minimum of 9 metres long, the width between the front and centre doors of buses.

**DRIVEWAYS**

**SIDEWALK DESIGN ACROSS DRIVEWAY**

Driveways should be designed to look like driveways, not roadway intersections. Sidewalks should continue through the driveway, the level of the sidewalk should be maintained, and the driveway should be sloped so that the driver goes up and over the sidewalk.

**Current Use in the City of Hamilton:**

The City of Hamilton Development Engineering Guidelines provides guidance regarding driveway design

**DRIVEWAY WIDTH**

Driveway width should be minimized to reduce pedestrian exposure and slow vehicular speeds.

**Current Use in the City of Hamilton:**

The City of Hamilton Development Engineering Guidelines indicates a maximum width of 4.5 m for a single driveway and 7.0m for a double driveway.

**DRIVEWAY LOCATION (IN RELATION TO INTERSECTION)**

Driveways should be avoided within the functional area of an intersection to reduce the potential for conflict.



### **Current Use in the City of Hamilton:**

The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding driveway location.

## **DRIVEWAY CONSOLIDATION**

Limiting and consolidating vehicle access points benefits pedestrians in several ways. One important improvement is the reduction in the number of conflict points created by consolidating driveway access areas. Access management can also assist by redirecting motor vehicles to intersections with appropriate control devices.

### **Current Use in the City of Hamilton:**

The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding driveway consolidation.

## **RIGHT-IN, RIGHT-OUT ONLY**

Right-in/right-out (RIRO) refers to a type of intersection where only right turns are permitted. Right-in, right out configurations improve safety by reducing the number of conflict points between vehicles and between vehicles and pedestrians.

### **Current Use in the City of Hamilton:**

The Geometric Design Standards Manual published by the Ministry of Transportation and the Geometric Design Guide for Canadian Roads published by the Transportation Association of Canada provide guidance to the City regarding RIRO access.

## **CHANNELIZATION**

### **ROAD DIET**

Road diets reduce the number of motor vehicle travel lanes in the roadway. A well-documented technique takes a 4-lane undivided roadway (2 lanes in each direction) and reconfigures it to 2 travel lanes, a center-turn lane and 2 bike lanes (without changing the curb lines). The benefits for pedestrians include fewer lanes to cross and slower traffic speeds. The center-turn lane also creates space for pedestrian crossing islands. The bike lanes add a buffer for pedestrians as well as a place for bicyclists to ride. Variations include reducing a multi-lane one-way roadway by one lane; narrowing the travel lanes to slow traffic and create space for bike lanes; or moving the curbs in to narrow the roadway.

**Current Use in the City of Hamilton:**

Not in use.

## LANE DIET

The term lane diet refers to reduced lane widths. Reduced lane widths encourage slower vehicular speeds and reduced crossing widths, improving conditions for pedestrians.

**Current Use in the City of Hamilton:**

Not in use.

## CURBSIDE MANAGEMENT

### PARKING RESTRICTIONS AT INTERSECTIONS

Parking restrictions at intersections improve the visibility of a crossing for both drivers and pedestrians.

**Current Use in the City of Hamilton:**

The City of Hamilton On Street Parking By-Law 01-218 indicates that parking is prohibited within 6 metres of an intersection or crosswalk (marked or not).

### BACK-IN ANGLE PARKING

Back-in angle parking provides motorists with better vision of bicyclists, pedestrians, cars and trucks as they exit a parking space and enter moving traffic. Back-in angle parking also eliminates the risk that is present in parallel parking situations, of a motorist may open the car door into the path of a bicyclist. Back-in angle parking also removes the difficulty that drivers, particularly older drivers, have when backing into moving traffic.

**Current Use in the City of Hamilton:**

The City of Hamilton On Street Parking By-Law 01-218 provide guidelines regarding where perpendicular or angle parking is allowed.



Hamilton



CONTEXT AREA: NATURAL	CONTEXT AREA: RURAL	CONTEXT AREA: VILLAGE-HAMLET	CONTEXT AREA: URBAN-VILLAGE	CONTEXT AREA: SUBURBAN	CONTEXT AREA: URBAN GENERAL	CONTEXT AREA: URBAN CORE	CONTEXT AREA: DOWNTOWN	CONTEXT AREA: INDUSTRIAL
PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• MULTI-USE RECREATIONAL TRAILS</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• MULTI-USE RECREATIONAL TRAILS</li> <li>• PAVED SHOULDERS</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• MULTI-USE RECREATIONAL TRAILS</li> <li>• PAVED SHOULDERS</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• RECREATIONAL TRAILS</li> <li>• SIDEWALKS</li> <li>• STREET TREES</li> <li>• STREET FURNITURE</li> <li>• CROSSWALK</li> <li>• ILLUMINATION</li> <li>• BIKE LANES</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• RECREATIONAL TRAILS</li> <li>• SIDEWALKS</li> <li>• STREET TREES</li> <li>• ILLUMINATION</li> <li>• BIKE LANES</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• SIDEWALKS</li> <li>• STREET TREES</li> <li>• ILLUMINATION</li> <li>• BIKE LANES</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• SIDEWALKS</li> <li>• STREET TREES</li> <li>• STREET FURNITURE</li> <li>• ILLUMINATION</li> <li>• CROSSWALKS</li> <li>• BIKE LANES</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• SIDEWALKS</li> <li>• PEDESTRIAN MALLS</li> <li>• STREET TREES</li> <li>• PEDESTRIAN PLAZAS</li> <li>• ILLUMINATION</li> <li>• STREET FURNITURE</li> <li>• CROSSWALKS</li> <li>• BIKE LANES</li> </ul>	PEDESTRIAN MOBILITY INFRASTRUCTURE SUCH AS: <ul style="list-style-type: none"> <li>• LIMITED SIDEWALKS</li> <li>• ILLUMINATION</li> </ul>

←  
RURAL

→  
URBAN

Development Patterns  
Context Areas

G. O'CONNOR CONSULTANTS INC.

■ Landscape Architecture 2310 South Service Road Suite 205  
 Burlington, Ontario  
 ■ Environmental Planning Tel: (905) 681-7504  
 ■ Resource Analysis Fax: (905) 681-2944  
 e-mail: [info@oconnor-consultants.com](mailto:info@oconnor-consultants.com)  
 website: [www.oconnor-consultants.com](http://www.oconnor-consultants.com)

FIGURE 7









Hamilton



Routine Accommodation

SITE INVENTORY

REVIEW

EVALUATION

IMPLEMENTATION

**STREET PROJECT**

- Road reconstruction
- Maintenance
- Downtown Mobility Streets
- Rapid Transit
- Civic Project
- Other City Initiatives

**APPLY CHECKLIST / CONTEXT AREAS**

**DEPARTMENTS**

- Planning
- Public Works
- Public Health
- Police
- Stakeholders

**PEDESTRIAN MOBILITY ADVISORY COMMITTEE**

**THE FIVE "E'S"**

Engineering    Equity    Encouragement    Education    Enforcement

**EVALUATE COUNTERMEASURES**

- Consider site conditions
- Consider site issues
- Consider pedestrian issues
- Apply countermeasures

**SELECT APPLICABLE POLICIES PROGRAM**

**IMPLEMENT SOLUTIONS**

**G. O'CONNOR CONSULTANTS INC.**

■ Landscape Architecture    2210 South Service Road South, 300  
 Burlington, Ontario  
 Tel: (905) 331-7554  
 ■ Environmental Planning    Fax: (905) 331-5944  
 ■ Resource Analysis    e-mail: [info@oconnor-consultants.com](mailto:info@oconnor-consultants.com)  
 website: [www.oconnor-consultants.com](http://www.oconnor-consultants.com)

**FIGURE 14**



# TEMPLATE - EVALUATION OF TOOLBOX SOLUTIONS – A

TOOLBOX SOLUTIONS	CONTEXT AREAS									EVALUATION CRITERIA											POLICY CONFORMITY		IMPLEMENTATION			
										Administrative Implementation, Operations & Maintenance					International Charter for Walking								COST			
Walking Along The Street	Natural	Rural	Village Hamlet	Urban Village Hamlet	Suburban	Urban General	Urban Core	Downtown	Industrial	Property Requirements	Natural Environment	Public Health	Safety	Implementation Timing	Interface: Other Modes of Transportation	Inclusive Mobility	Well Designed Spaces	Supportive Land Use Planning	Reduce Road Danger	Less Crime and Fear of Crime	Supportive Authorities	Create Culture of Walking	Municipal	Provincial		
<i>Do Nothing</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	0	-1	-1	0	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	N/A	
<i>Along the roadway</i>																										
Wayfinding	✓	✓	✓	✓	✓	✓	✓	✓	✓																	
Widen, Construct, and/or Reconstruct Sidewalks			✓	✓	✓	✓	✓	✓	✓																	
Provide Sidewalk Buffers			✓	✓	✓	✓	✓	✓	✓																	
Provide Clearance for All Mobility Levels			✓	✓	✓	✓	✓	✓	✓																	
Paved Shoulders	✓	✓							✓																	
Street Trees	✓	✓	✓	✓	✓	✓	✓	✓	✓																	
<i>Driveways *</i>																										
Modify Design of Sidewalk across Driveway				✓	✓	✓	✓	✓	✓																	
Minimize Driveway Width				✓	✓	✓	✓	✓	✓																	
Prohibit Driveways at Intersections				✓	✓	✓	✓	✓	✓																	
Consolidate Driveways, where possible				✓	✓	✓	✓	✓	✓																	
Provide Right-In, right out access only				✓	✓	✓	✓	✓	✓																	
<i>Channelization</i>																										
Road Diets (Reduce No. of Lanes)				✓	✓	✓	✓	✓	✓																	
Lane Diets (Reduce Width of Lanes)				✓		✓	✓	✓	✓																	
<i>Curbside management</i>																										
Parking Restrictions at Intersections			✓	✓	✓	✓	✓	✓	✓																	
Back Angle Parking			✓	✓	✓	✓	✓	✓	✓																	

Scoring Criteria		Implementation	
		Cost Comparison	
+1	Possible Positive Effect	Low	\$
0	No Effect	Medium	\$\$
-1	Possible Negative Effect	High	\$\$\$
N/A	Criteria not applicable (note: Natural, Cultural and Socio-Economic Environment criteria were considered in all cases to meet the intent of the Class EA process)		

\* Includes private and public costs

# TEMPLATE - EVALUATION OF TOOLBOX SOLUTIONS - B

TOOLBOX SOLUTIONS	CONTEXT AREAS									EVALUATION CRITERIA											POLICY CONFORMITY		IMPLEMENTATION			
										Administrative Implementation, Operations & Maintenance					International Charter for Walking								COST			
Crossing The Street	Natural	Rural	Village Hamlet	Urban Village Hamlet	Suburban	Urban General	Urban Core	Downtown	Industrial	Property Requirements	Natural Environment	Public Health	Safety	Implementation Timing	Interface: Other Modes of Transportation	Inclusive Mobility	Well Designed Spaces	Supportive Land Use Planning	Reduce Road Danger	Less Crime & Fear of Crime	Supportive Authorities	Create Culture of Walking	Municipal	Provincial		
<i>Signals</i>																										
Pedestrian indicator (count down signal)				✓		✓	✓	✓	✓																	
Push button (location)				✓		✓	✓	✓	✓																	
Pedestrian interval (timing crossing)				✓		✓	✓	✓	✓																	
Protected left turn phase				✓		✓	✓	✓	✓																	
Audible Signals				✓	✓	✓	✓	✓	✓																	
Half signals I.P.S. (Integrated Pedestrian Signal)			✓	✓	✓	✓	✓	✓																		
Mid-block signals I.P.S.				✓		✓	✓	✓																		
Mid-block staggered signals I.P.S.				✓		✓	✓	✓																		
Automatic pedestrian detection				✓		✓	✓	✓																		
Grade Separation		✓	✓	✓	✓	✓																				
<i>Crossing</i>																										
High visibility crosswalks				✓		✓	✓	✓																		
Marked crosswalk locations				✓		✓	✓	✓																		
Provide Medians				✓	✓	✓	✓	✓																		
<i>Lighting</i>																										
Illumination at pedestrian crossings			✓	✓	✓	✓	✓	✓																		
Illumination along street			✓	✓	✓	✓	✓	✓																		
<i>Intersection geometry</i>																										
Modify design of curb side				✓	✓	✓	✓	✓	✓																	
Modify design of curb extension/bump out				✓		✓	✓	✓	✓																	
Modify design of curb radius			✓	✓	✓	✓	✓	✓	✓																	
Design for skewed intersection		✓	✓	✓	✓	✓	✓	✓	✓																	
Right turn slip-lane design		✓	✓	✓	✓	✓	✓	✓	✓																	
<i>Regulatory signs</i>																										
No turn on red						✓	✓	✓																		

Scoring Criteria		Implementation Cost Comparison	
+1	Possible Positive Effect	Low	\$
0	No Effect	Medium	\$\$
-1	Possible Negative Effect	High	\$\$\$
N/A	Criteria not applicable (note Natural, Cultural and Socio-Economic Environment criteria were considered in all cases to meet the intent of the Class EA process)		

# TEMPLATE - EVALUATION OF TOOLBOX SOLUTIONS - C

TOOLBOX SOLUTIONS	CONTEXT AREAS									EVALUATION CRITERIA											POLICY CONFORMITY		IMPLEMENTATION		
										Administrative Implementation, Operations & Maintenance					International Charter for Walking								COST		
Policies	Natural	Rural	Village Hamlet	Urban Village Hamlet	Suburban	Urban General	Urban Core	Downtown	Industrial	Property Requirements	Natural Environment	Public Health	Safety	Implementation Timing	Interface: Other Modes of Transportation	Inclusive Mobility	Well Designed Spaces	Supportive Land Use Planning	Reduce Road Danger	Less Crime & Fear of Crime	Supportive Authorities	Create Culture of Walking	Municipal	Provincial	
<i>Transit</i>																									
Transit stop location				✓	✓	✓	✓	✓	✓																
Sidewalk connection				✓	✓	✓	✓	✓	✓																
Crossing near stop				✓	✓	✓	✓	✓	✓																
Sidewalk capacity at transit stop				✓	✓	✓	✓	✓	✓																
<i>Other Policies</i>																									
Increased winter maintenance				✓	✓	✓	✓	✓																	
Road classification		✓	✓	✓	✓	✓	✓	✓																	
On-street parking				✓	✓	✓	✓	✓																	
Site plan guidelines – commercial				✓	✓	✓	✓	✓																	
Site plan guidelines – residential			✓	✓	✓	✓	✓	✓																	
Vehicular speed management		✓	✓	✓	✓	✓	✓	✓																	
Transit Oriented Design (T.O.D.)			✓	✓	✓	✓	✓	✓	✓																
Urban design			✓	✓	✓	✓	✓	✓	✓																
Street furniture			✓	✓	✓	✓	✓	✓																	
Urban braille						✓	✓	✓																	
City of Hamilton lighting study			✓	✓	✓	✓	✓	✓																	
Enforcement			✓	✓	✓	✓	✓	✓																	
<i>Program</i>																									
Public education and engagement		✓	✓	✓	✓	✓	✓	✓																	
Safe routes to school				✓		✓	✓	✓																	

Scoring Criteria		Implementation Cost Comparison	
+1	Possible Positive Effect	High	\$\$\$
0	No Effect	Medium	\$\$
-1	Possible Negative Effect	Low	\$
N/A	Criteria not applicable (note Natural, Cultural and Socio-Economic Environment criteria were considered in all cases to meet the intent of the Class EA process)		