Ottawa Pedestrian Plan

November 2013

Building a Liveable Ottawa 2031

Stage / Étape 2

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Executive Summary

The 2013 *Ottawa Pedestrian Plan* (OPP 2013) is part of Building a Liveable Ottawa, which is a comprehensive review of City policy with respect to land use, transportation and infrastructure as embodied in the *Official Plan* (OP), *Transportation Master Plan* (TMP), *Infrastructure Master Plan* (IMP) *and the 2013 Ottawa Cycling Plan* (OCP 2013). The OPP 2013 has been developed to recognize the crucial role that walking plays in creating an attractive, accessible, liveable, safe and healthy city. It provides detailed direction on how, within an affordability framework, the City can become more pedestrian-friendly through proposed enhancements to the pedestrian network, planning and design, safety and promotion, and maintenance and rehabilitation.

Ottawa's Pedestrian Vision:

Transform Ottawa into a world-class pedestrian city where an equally vibrant and functional pedestrian realm encourages people to walk all year-round.

A new Pedestrian Vision (Chapter 1) has guided development of the OPP 2013. This vision will support the continued development of Ottawa as a vibrant, beautiful, equitable, healthy, sustainable, safe and integrated capital city. Based on a recommendation from the previous version of the *Ottawa Pedestrian Plan*, approved in 2009 (OPP 2009), a new Pedestrian Charter is proposed as part of the OPP 2013. It builds on the Pedestrian Vision through a series of guiding principles to help create an urban environment where walking is attractive, safe and accessible. These principles are further reflected in the policies, programs and infrastructure improvements recommended in this Plan. They have also contributed to setting targets for increased levels of pedestrian activity in 2031, notably an increase in the city-wide walking mode share during the morning peak period, from 9.5% in 2011 to 10.0% in 2031, and similar or higher targets for internal walking trips within various sub-areas of Ottawa (see Exhibit E.1 and Exhibit E.2).

Exhibit E.1 Modal Share and Person-Trip Volumes: 2011 Observations and 2031 Targets (Morning Peak Period)

Travel mode	Modal share		Person-trips		Growth
	2011	2031	2011	2031	
Walking	9.5%	10.0%	43,200	60,100	39%

Exhibit E.2 Walking Modal Shares for Internal Trips: 2011Observations and 2031 Targets

	Inner Area	Inner Suburbs	Orléans	Riverside South/ Leitrim	Barhaven	Kanata/ Stittsville
2011	51%	14%	19%	18%	23%	22%
2031	52%	16%	20%	21%	24%	23%

Planning concepts that can be used to design and develop pedestrian-friendly communities throughout Ottawa are introduced in this Plan (Chapter 2). The concepts include community development and urban form planning techniques, pedestrian-friendly design guidelines, the introduction of a new planning tool called a Walkability Map, and the development of a new indicator for quantifying Pedestrian Exposure to Traffic at Signalized Intersections (PETSI).

The Plan includes the development and definition of proposed projects to expand Ottawa's pedestrian network (Chapter 3) by completing high-priority missing links, providing pedestrian linkages in Transit Oriented Development areas, and adding new multi-use pathways to our network. This pedestrian network expansion is based on a refined prioritization methodology, and integrates a new affordability lens that has led to a three-phase investment plan. In addition, new multi-use bridges and structures are identified and prioritized, and the recommendations of the recent Downtown Moves study are integrated.

The OPP 2013 outlines policies for providing pedestrian infrastructure (sidewalks and pathways) when communities are developed and streets are built (Chapter 4). These policies reflect a desire to ensure new communities are walkable, to maximize opportunities for better walking facilities through road construction and reconstruction projects, and to implement prioritized retrofit projects to complete discontinuities in existing pedestrian facilities.

Walkability requires effective year-round maintenance of pedestrian facilities (Chapter 5). The OPP 2013 outlines existing maintenance standards for both summer and winter months, and the approach for winter-maintained multi-use pathways. The potential to

reprioritize winter maintenance of pedestrian routes serving transit and schools is explored.

The City encourages walking through a number of promotional and safety programs (Chapter 6). The OPP 2013 reviews existing programs that promote walking for utilitarian trips, build awareness of walking's benefits for healthy and active lifestyles, improve safety for pedestrians and other road users, enable pedestrian-supportive neighbourhoods, facilitate Safe Routes to School, and facilitate walking in other ways.

The City of Ottawa shares the goal of a pedestrian-friendly city with other government agencies (Chapter 7). These partners include the federal government, which owns five interprovincial bridges and is responsible for the National Capital Commission, the Province of Ontario and the City of Gatineau.

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1.0 Introduction

A community that is designed to support walking is more liveable, attractive and sustainable. Walking in communities promotes opportunities for healthy living, contributes to a cleaner environment, supports social cohesion and equality, and represents a positive force for an even greater sense of local pride. Recognizing the crucial role that walking plays in creating an attractive, accessible, safe and healthy city, the City has developed this *Ottawa Pedestrian Plan* (OPP 2013) to firmly place walking at the core of a sustainable transportation system.

1.1 Background

The *Ottawa Pedestrian Plan* was originally released in 2009 (OPP 2009) as one of Canada's first pedestrian master plans, defining Ottawa as one of North America's most pedestrian supportive cities. It proposed a "pedestrian-first" philosophy in its recommendations for specific changes in infrastructure, policies and programs that aimed to encourage more people to walk more often. It illustrated how streets could be transformed through high quality design to contribute to the quality of the public realm and create more sustainable communities.

The OPP 2009's overall focus was on establishing a culture of walking and improving overall walkability, including the quality of sidewalks and pathways, access to buildings, land use patterns and land use planning, proximity of destinations, community support, programs, safety, and security and comfort for walking. In order to respond to Ottawa's changing conditions over recent years, as well as the progress that has been made and the challenges recognized in the implementation of the OPP 2009, there is a need to update the Plan. This updated OPP 2013 examines Ottawa's achievements in improving walkability since 2009 and identifies areas to be targeted for further improvement. **Annex A** presents a summary of the status of the recommendations from the OPP 2009.

The OPP 2009's vision, goals and objectives were largely based on pedestrian considerations within the City's previously released *Transportation Master Plan* and *Official Plan*. Because this update of the Plan coincided with updates to the City's *Official Plan*, *Infrastructure Master Plan*, *Transportation Master Plan* and *Ottawa Cycling Plan*, it allowed for the development of coordinated and integrated policies. The OPP

2013 acts to inform and strengthen relevant policies and help achieve the City's growth management objectives.

1.2 Pedestrian Vision and Charter

1.2.1 Pedestrian Vision

Ottawa's Pedestrian Vision is to:

Transform Ottawa into a world-class pedestrian city where an equally vibrant and functional pedestrian realm encourages people to walk all year-round.

The realization of this Vision will create several important dimensions of a more liveable Ottawa.

A vibrant and beautiful city: A walkable urban environment encourages social interaction and local economic vitality. The City will emphasize the aesthetics of pedestrian space in the physical design of infrastructure. An organization of land uses that creates a varied and exciting mix of experiences will be encouraged, making walking more interesting and attractive.

An equitable city: Walking is the only form of transportation that is universally affordable, and allows children, the elderly and people of all abilities to travel independently. The City strives to make walking a viable option for all citizens. Unnecessary interruptions such as physical obstructions and unfavourable vehicle-oriented policies will be minimized to the greatest extent possible, and sufficient resources will continue to be allocated to maintain safe and accessible pedestrian spaces year-round.

A healthy city: Walking is a proven method of promoting personal health and well-being. It is the most popular form of leisure time physical activity, with one third of adults reporting walking four or more times per week. Walking can reduce the overall risk of a host of chronic conditions. Pedestrian routes that link popular destinations such as transit, schools, employment areas and local services

contribute to increases in utilitarian walking, which promotes healthy, active lifestyles for all ages.

A sustainable city: Pedestrian-oriented land use patterns reduce automobile dependency, land consumption and emissions. The City recognizes that the pedestrian environment is valued space that encourages sustainable modes of transportation and should be protected when designing for other users. Pedestrian facilities will be continuously enhanced to reflect the intensity of pedestrian use.

A safe city: An environment in which people feel safe and comfortable walking increases community safety for all. Through creating vibrant, well-lit and highly visible public spaces throughout the city, safety will be enhanced for all pedestrians.

An integrated city: Walking is a part of most trips. Through integrating an attractive pedestrian environment with cycling and transit networks, walking and other modes become a viable alternative to automobile travel. The City will work to establish a well-connected network of sustainable modes of transportation, providing residents with alternatives to the automobile.

1.2.2 Pedestrian Charter

With increasing development pressure and competition for land, the City needs to ensure that the pedestrian environment is valued space that should be protected when designing for other uses. The OPP 2009 identified the need to adopt a Pedestrian Charter representing a commitment at the highest level to create a culture where people choose to walk, acknowledging the needs of pedestrians and providing a common framework to help the City focus its policies, activities and relationships to create this culture.

An International Charter for Walking was developed in 2006 for the Walk21 conference series through extensive discussions with experts throughout the world. Walk21 evolved in response to a growing demand for partnership between the world's policy makers, researchers, practitioners and promoters who were all working to create walkable, liveable communities. Municipalities are invited to adopt the International Charter in support of developing a healthy, efficient and sustainable walking community. Ontario

municipalities that have signed the Charter include Waterloo, Ajax, Clarington and Oshawa. Other municipalities, such as Toronto, have adopted their own Pedestrian Charters. Ottawa signed the International Charter in 2011.

The International Charter is based on the following principles:

- 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 authorities
- A culture of walking

As part of the OPP 2013 update, a City of Ottawa Pedestrian Charter has been developed to define the vision, goals and objectives of the OPP and guide its focus (**Annex B)**. The Pedestrian Charter articulates a commitment to creating a city where people walk not because they have to, but because they want to.

The Charter outlines Ottawa's Pedestrian Vision and defines a series of guiding principles that aim to create an urban environment where walking is a fundamental mode of travel. These principles will be achieved through the implementation of the policies, programs, and infrastructure improvements recommended in this Plan.

OPP Recommendation 1.1:

The City will adopt the Pedestrian Charter that outlines guiding principles to create an environment in which walking is a more attractive, accessible, safe and popular mode of travel. [PGM]

1.3 About Walking and its Benefits

Walking is a part of every trip, and every resident of Ottawa is a pedestrian. People walk to numerous destinations, to all forms of public transportation, to bicycle storage facilities, and to vehicle parking. Walking differs from other modes of travel modes, being unique in several ways:

- Walking trips are typically less than 2.5 km long. In Ottawa, about 21% of all person-trips are shorter than 2 km, but only about 40% of those trips are made by walking. Because a significant number of automobile trips are also short, there is a very real opportunity to replace short automobile trips with pedestrian trips.
- Pedestrian travel is flexible in terms of route to destination, and is often unaffected by roadway congestion.
- Pedestrian travel tends to be more localized and concentrated around attractive land use destinations such as transit stops, schools and parks.
- Pedestrians often seek the most direct routes, and may be easily discouraged by barriers and perceptions of unsafe walking conditions.
- Pedestrian travel is organic, and fluid routes often incorporate shortcuts through private and public lands, buildings or plaza spaces.

Walking receives broad public support, and the desire of Ottawa residents for dedicated walking facilities was revealed during the 2013 Commuter Attitude Survey.[1] The Survey found that 99% of residents believe that sidewalks should be required on busy roads (arterial and collector) with the overwhelming majority indicating a preference for sidewalks on both sides (88%) of those roads. Additionally, 88% believe sidewalks should be required on local residential roads.

An enhanced pedestrian environment contributes to wide-ranging health, environmental, social and economic benefits to the community. The walking-supportive policies, programs, and infrastructure improvements recommended in the OPP 2013 work to maximize the following benefits enjoyed by all residents of Ottawa.

1.3.1 Health Benefits

Physical Activity

The physical design of our streets and communities has a substantial impact on overall health and well-being. Designing walkable, pedestrian friendly environments can provide important health benefits. The automobile, which has become a primary form of transportation in many communities, has had a profound influence on the built environment of North American cities and suburbs. This has contributed to decreases in physical activity levels.[2] In Ottawa only 22% of youth meet recommended daily physical activity targets, and only 30% of adults average 10,000 steps or more per day, the target for health benefits based on best practice literature.[3]

Physical inactivity can contribute to a host of chronic conditions and reduced psychological well-being, negatively impacting overall quality of life. Walking as a form of active transportation has vast potential to improve population health, as it is physical activity with a practical purpose. It is easier to reach recommended physical activity targets through routine (utilitarian), rather than recreational activities. However, only 10% of adults and 20% of youth in Ottawa use active forms of transportation to travel to work or school each day.[4]

Land use patterns and street design influence how likely people are to walk for transportation and be physically active in daily life. Creating environments that encourage walking can help reduce the reliance on travelling by car. Active transportation to school can make up a significant portion of daily physical activity requirements, and can contribute to a culture of healthy, active living. Walking (or cycling) to school has many other benefits, including increased academic achievement, expanded social opportunities, enhanced exposure to nature, learning traffic and life skills, reduced stress, and improved air quality around school settings.

There is extensive evidence confirming the direct correlation between the provision of pedestrian facilities and the advancement of walking as a preferred transportation choice. Residents are 65% more likely to walk in a neighbourhood with sidewalks[5] and, increasing facilities for on-foot travel relative to facilities for in-vehicle travel increases

the likelihood that people will walk more and drive less.[6] In areas that do not include adequate pedestrian facilities (sidewalks and crosswalks) people are more hesitant to travel by foot.[7]

Safety and Perception of Safety

Vibrant communities that incorporate complete streets to meet the needs of users, including pedestrians, are critical for improving the perception of safety and encouraging active transportation. Infrastructure and street characteristics play an important role in promoting or inhibiting the safety of active transportation; 64% of Ottawa residents report that access to safe streets and other public spaces is the most significant infrastructure barrier to walking that they face.[8] Developing complete streets by introducing measures such as traffic calming, a reduction of speed limits, and increased safety at intersections has a significant impact on both actual and perceived safety, and increases the viability of walking as a means of transportation.[9]

The extent to which a street is pedestrian-friendly affects the risk of injury. In recent years, Ottawa has seen an average of seven pedestrian deaths and more than 341 pedestrian injuries annually.[10] The dangers of walking are not shared equally. Elderly walkers are much more likely to be involved in a fatal collision than others.[11] Pedestrian injuries and deaths can be reduced by improving the walkability and safety of streets.[12]

Developing safe routes to school provides an important opportunity to improve pedestrian safety. Children benefit when active transportation becomes the healthy and easy choice and the rest of the community benefits through improved overall walkability and safety for all residents.

The design of a community can also influence local levels of crimes and affect perceptions of safety. Neighbourhoods without a mix of uses, such as commercial areas, are often abandoned in the evenings. Without the “eyes on the street” that results from high pedestrian activity, these areas can become more susceptible to crime.[13] Urban design strategies such as Crime Prevention through Environmental Design (CPTED) can promote safety and reduce neighbourhood susceptibility to crime, and can

also positively affect physical activity and social capital. CPTED helps improve natural surveillance and encourages people to take ownership of their environments.[14]

In addition to directly increasing walking travel, sidewalks are also a critical characteristic of safe street design and directly relate to improved pedestrian safety. The presence of sidewalks on neighborhood streets appears to decrease the likelihood of a location becoming a crash site,[15] and sites with no sidewalks or pathways are the most hazardous for pedestrians.[16] The presence of sidewalks has been shown to reduce the incidence of crashes by between 65% and 89%.[17] It has been concluded that in residential and mixed residential areas, pedestrian crashes were more than two times more likely to occur at locations without sidewalks than would be expected on the basis of exposure.[18]

Pedestrians, particularly children, older pedestrians, and those with disabilities, should not have to travel in the street because there is no sidewalk, or because there is no curb ramp to get to the sidewalk.[19] Accessible sidewalks or pathways should be provided and maintained along both sides of arterial and collector streets in urban areas, particularly near school zones and transit locations, and where there is frequent pedestrian activity.[20]

In the recently released *Pedestrian Death Review - A Review of All Accidental Pedestrian Deaths in Ontario from January 1st 2010 to December 31st 2010*, the Chief Coroner for Ontario recommended that the vulnerability of the human body should be the limiting design for the traffic system.[21] This can be carried out by municipalities through the consideration of speed reduction strategies and lowering the speed limit to 30 km/h in residential areas and 40 km/h on other streets.[22] In order to effectively lower speeds to 30 km/h, the roadway design must be altered in addition to changing the speed limit. At vehicle speeds above 50 km/h, the probability of fatal injury to pedestrians who are struck is very high. The Chief Coroner further recommends that municipalities include sidewalks in the development of new communities and build sidewalks in existing communities to create continuous and connected sidewalks along both sides of the street.[23]

Mental health

The benefits of pedestrian-friendly, complete communities where people can live, work, shop and play extend beyond the promotion of physical activity through several

pathways. Although the relationship is complex, an emerging body of research suggests that mental health and well-being is also associated with the built environment.[24] Car-oriented communities characterized by low walkability, low density, and a separation of land uses have been negatively linked to mental health. Built environment characteristics such as higher density, a mix of land uses, availability of greenspace, and access to transportation have been associated with fewer depressive symptoms.[25] Physical activity can mitigate anxiety and feelings of depression, and promote overall mental health.[26]

1.3.2 Environmental Benefits

To the extent that it decreases motor vehicle use, an increase in the modal share of pedestrians reduces air pollution, greenhouse gas emissions, and traffic noise. By switching to active modes of transportation, pollutants and greenhouse gas emissions are reduced. Walking and cycling do not have the environmentally disruptive effects of raising dust and ground vibrations.

Automobile dependency has a variety of detrimental environmental effects across the country. Currently, over 80% of Canada's households have a personal vehicle, with each vehicle contributing to an average of four to five tonnes of emissions each year. Additionally, high rates of car ownership and dependency lead to land consumption through parking requirements as well as wide roadways needed to accommodate high volumes of traffic. This in turn negatively influences the quality of the pedestrian environment, as compact, walkable communities cannot be achieved when communities are designed only for the automobile. High rates of land consumption translate to threats to natural habitats in addition to increased runoff and water pollution due to a high proportion of impermeable surfaces. By enhancing Ottawa's pedestrian environment, automobile dependency will be reduced.

1.3.3 Social Benefits

Environments that support walking and other forms of sustainable transportation promote the ability of vulnerable populations to safely and easily move about their neighbourhoods. An enhanced pedestrian environment that reduces barriers to walking allows a greater number of seniors and people with disabilities to live independently.

Walkable communities with a range of local shops, including grocery stores, can help ensure all residents can integrate walking into their daily activities.

The role of the built environment and the potential for walkable communities to support ageing in place is increasingly being recognized. A senior's mobility and quality of life is significantly driven by his/her ability to interact within the local built and social environments.[27] As such, pedestrian-friendly communities are critical for supporting the independence, health and well-being of an aging population and other vulnerable groups. Higher density neighbourhoods with a range of local services that support the mobility of all users can help people navigate their communities and, reduce inequities and contribute to improved quality of life for vulnerable populations.

1.3.4 Economic Benefits

The diverse environmental, social, and health benefits of walking translate into broader economic benefits. For example, each 10% increase in physical activity rates in Canada has been estimated to save over $150 million annually in direct health care costs.[28] As a result of these enormous cost savings, interventions designed to increase walking for transportation are extremely cost effective: for every dollar spent on interventions to change transportation infrastructure or policy, an average of five dollars are saved in health care costs associated with chronic diseases such as heart disease. Walkable environments also improve access to social services, places of employment and educational institutions, allowing a greater number of people to join the workforce. Finally, the environmental costs of transportation in Canada are estimated to fall between $14 billion and $36 billion each year; walkable environments avoid the detrimental environmental impacts that lead to these costs.

Investments in pedestrian infrastructure reduce the need to invest in vehicle infrastructure, such as roadway widening, parking requirements, road bridges, and maintenance. There is also an economic benefit to compact, pedestrian-oriented communities, which lead to more property tax revenue and improved cost efficiency for infrastructure and servicing. Vibrant places where walking is a first choice mode of transportation can translate to thriving local retail and restaurant business.

Walking is the most cost effective, sustainable, and widely used, universally accessible mode of transportation. The OPP 2013 recognizes this and adopting the recommendations contained in the plan will help to create vibrant, safe, and accessible pedestrian spaces.

1.4 Trend Analysis and Targets

1.4.1 Trend Analysis

A comparison between the results obtained in the 2005 and 2011 Origin-Destination (OD) survey helps to understand the evolution of walking in Ottawa and to better plan for encouraging walking within the city. A more detailed version of this information is presented in **Annex C**.

Overall volume of walking trips. There was a slight decrease in walking trips between the 2005 and 2011 surveys. As a result, walking trips now represent 9.5% of all trips in the morning peak period (see Exhibit 1.1) and 11% of all trips, down from 12% in 2005. This could indicate a shift of some walking trips to cycling, due in part to the City's increased investment in cycling infrastructure over the past several years. Walking held a constant 10% share of all trips in the afternoon peak and evening-overnight periods in both OD surveys.

Walking trip lengths. The vast majority of walking trips are short – in 2011, 93% of walking trips made in the morning peak period were shorter than 2 kilometres (see Exhibit 1.1). The 2011 OD Survey also indicated that among all trips shorter than 1 km, almost half (47%) were made by walking trips; among all trips between 1 and 2 km, 23% were made by walking. Walking's share of all trips less than 2 km is about 35%.

Walking by time of day. From 2005 to 2011 there was an increase in walking trips during the midday and afternoon peak periods, but a decrease in the morning peak and evening-overnight periods (see Exhibit 1.2). The share of walking trips during the midday period is above the daily average, with 15% in 2005 and 14% in 2011.

Exhibit 1.1 Walking Mode Share and Trip Length (2011 morning peak period)

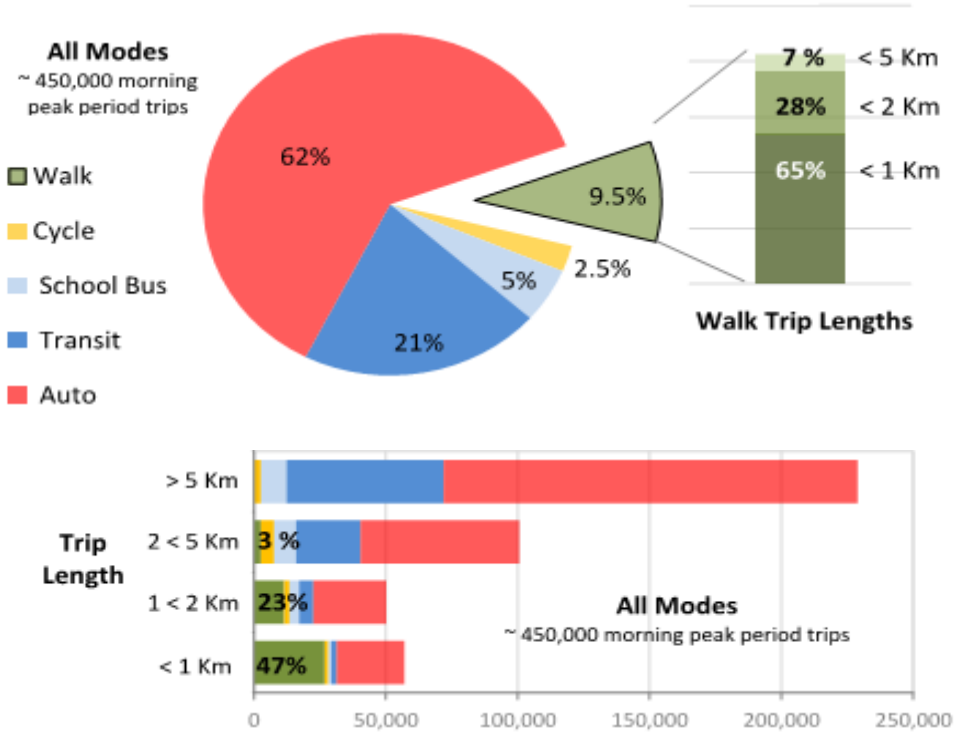
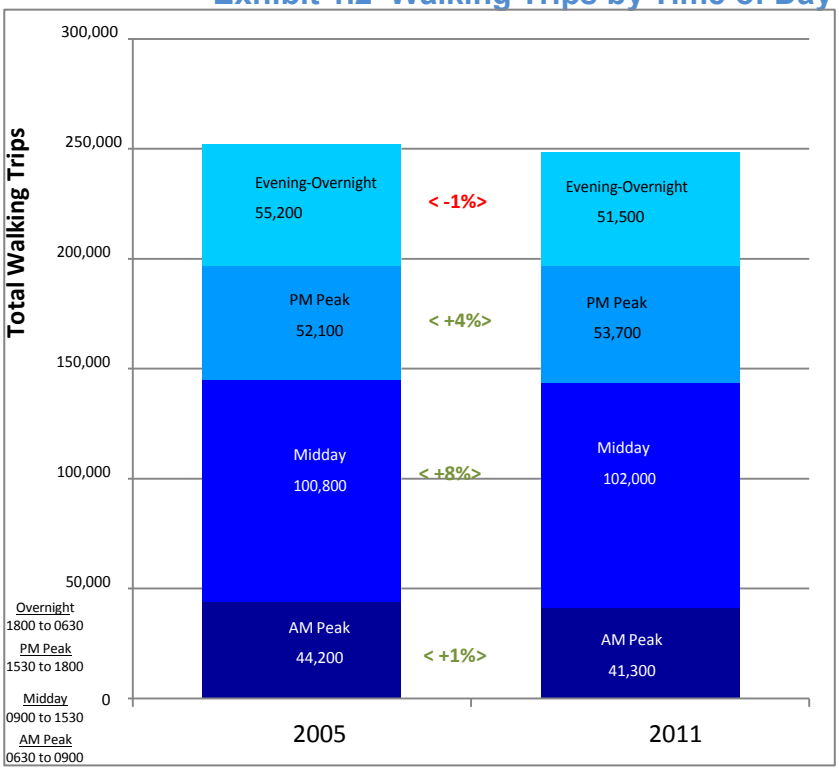


Exhibit 1.2 Walking Trips by Time of Day



Purpose of walking trips. Commuting to work and school accounted for 69% of all walking trips in the morning peak period in 2011, down from 77% in 2005 (see Exhibit 1.3). School trips account for a higher proportion of walking trips (44% and 34% in 2005 and 2011, respectively) than trips by all other modes (24% and 21% during the same years). Exhibit 1.4 illustrates the proportions of daily walking trips that were made for each trip purpose surveyed in 2005 and 2011. Walking trips are more prominent than average for school trips and discretionary personal trips, and slightly less prominent for work trips and picking up or dropping off passengers (e.g. escorting children).

Exhibit 1.3 Morning Peak Period Walking Trips by Trip Purpose (2011)

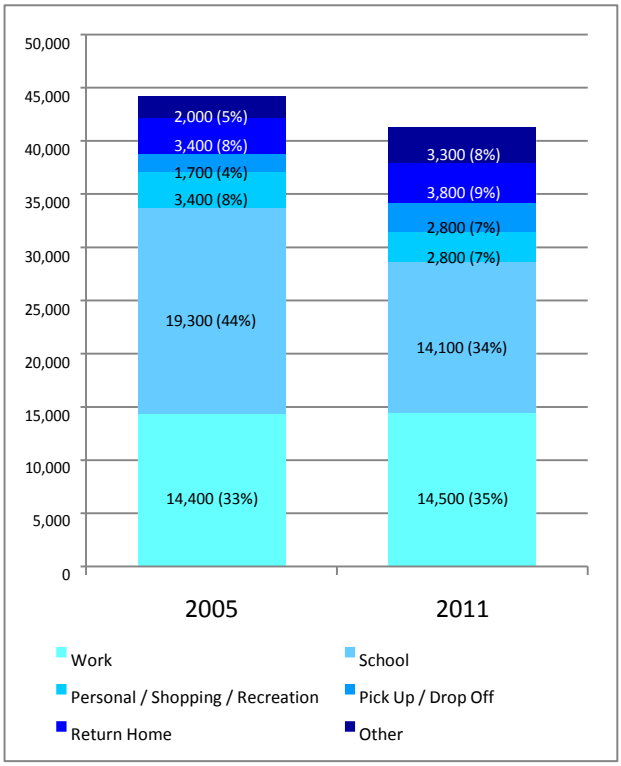
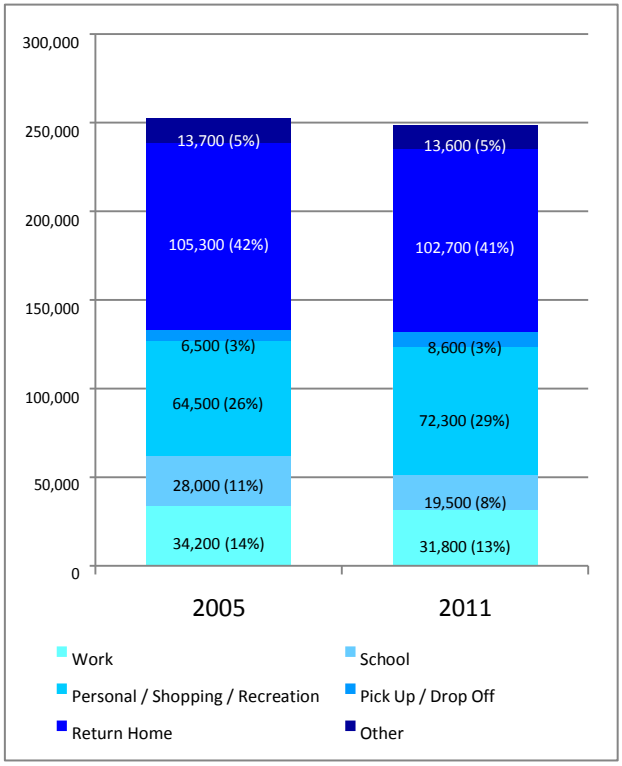


Exhibit 1.4 Daily Walking Trips by Trip Purpose (2011)



Geographic variation in rates of walking. Ottawa's central area reported the highest walking share of trips (41%) during the morning peak period in 2011, up from 29% in 2005. This is the only area of the city where automobile use is exceeded by another mode, and this fact reflects the extensive walking infrastructure in the downtown area and the abundance of work, shopping and personal trip destinations within a short distance of most residences.

Among all trips shorter than 2 km, almost 70% are made by walking in the core area. The same share is 56% in the inner area (Centretown, Glebe, Old Ottawa South, Old Ottawa East, Sandy Hill and Byward Market), 30% in other communities inside the Greenbelt, 29% in the five urban communities outside the Greenbelt, and 16% in the rural area.

1.4.2 Targets

City-wide targets

In 2011, nearly 9.5% of all morning peak period trips were made by walking. The TMP has set a target of 10% for 2031 (see Exhibit 1.5). This can best be achieved through a focus on shorter trips, trips to school, trips to transit and trips inside smaller geographic areas (such as inside the Greenbelt and inside suburban areas).

Exhibit 1.5 Modal Shares and Person-Trip Volumes: 2011 Observations and 2031 Targets Established in TMP (morning peak period)

Travel mode	Modal share		Person-trips		
	2011	2031	2011	2031	Growth
Walking	9.5%	10.0%	43,200	60,100	39%

Sub-area targets

While the OPP 2009 had targets for city-wide walking mode share in the morning peak period, it is helpful to also provide targets for smaller sub-areas within the city. Targets for specific areas, as shown in Exhibit 1.6, are more aggressive than the city-wide target. The highest sub-area target has been set for the inner area.

Exhibit 1.6 Walking Mode Shares for Internal Trips: 2011 Observations and 2031 Targets Established in TMP (morning peak period)

		Modal shares for 2011 and 2031					
		Inner Area	Inner Suburbs	Orléans	Riverside South/ Leitrim	Barrhaven	Kanata/ Stittsville
Walking	2011	51%	14%	19%	18%	23%	22%
	2031	52%	16%	20%	21%	24%	23%

2.0 Towards Pedestrian-Friendly Communities

2.1 Community Development and Urban Form

A key strategic direction of the *Official Plan* is towards compact, sustainable and affordable growth. This is important to the promotion of walking and walkability as there is a strong connection between the walkability of a community and the land use policies and practices established by a municipality.

Walking is much more prevalent in urban areas, largely due to higher population and employment densities and shorter commuting distances, as well as a mix of land uses that place housing, entertainment, services and shopping destinations within easy walking distance of one another. Outside of the urban core, where distances are longer and uses more segregated, walking can be a convenient modal choice for internal community trips, such as traveling to transit stations, journeys to schools, and travel to shopping and community destinations.

New roads, whether they are located in the urban core, suburban areas or rural villages, should be built to accommodate pedestrian activity. Grid patterns, with their more direct routes are more pedestrian-friendly than curvilinear street patterns. Where cul-de-sacs and curvilinear street patterns exist, the construction of pathways can increase walkability within these communities.

As the benefits of a pedestrian-friendly community become more apparent, the demand for new developments that contribute to walkability is increasing. In areas where new developments are being planned it is important to ensure that high quality pedestrian facilities and their connectivity are included. This not only relates to creating pedestrian facilities and connecting them to the surrounding network, but

also the location and siting of community facilities and schools to better promote active travel as well as creating communities with a sense of place and a focus on people. This can be developed through planning exercises such as Secondary Plans and Community Design Plans.

2.2 Pedestrian-oriented Design Guidelines

Two key factors that contribute to making communities walkable are:

- Direct walking routes that connect to services (e.g. public transit, schools, community centres, and libraries) and key destinations (e.g. work, home and shopping) that residents need to walk to on a regular basis
- Walking facilities that are safe, attractive, accessible and comfortable

The City has developed a number of guideline documents that highlight the need for quality pedestrian facilities, and approaches to developing them:

- Regional Road Corridor Design Guidelines
- Right-of-Way Lighting Policy
- Road Corridor Planning and Design Guidelines
- Urban Design Guidelines for Development along Arterial Mainstreets
- Urban Design Guidelines for Development along Traditional Mainstreets
- Urban Design Guidelines for Greenfield Neighbourhoods
- Transit-Oriented Development Guidelines

To complement the policies set forth in this plan, staff will develop a set of design guidelines for the development of pedestrian-friendly infrastructure, which will be used by staff to help identify the key aspects of pedestrian-oriented design and incorporate these concepts into new construction and reconstruction projects.

These guidelines would be designed to be considered in conjunction with the *Official Plan* and all other applicable regulations (i.e. Zoning By-law, Private Approach By-law, Signs-bylaw, Community Design Plans) and other related design guidelines that have been developed by the City. These guidelines will also be intended to assist in the preparation of new Community Design Plans or Secondary Plans for communities and complement design considerations for approved plans.

Specifically, these guidelines will provide direction on:

- The design and review of new infrastructure
- The design and review of roadway reconstruction and rehabilitation projects
- The design and review of development applications with regard to pedestrian facilities

OPP Recommendation 2.1:

City Staff will develop a set of detailed design guidelines for the development of pedestrian-friendly infrastructure. The General Manager of the Planning and Growth Management Department will be given delegated authority to approve these design guidelines and any subsequent revisions to these guidelines.

Achieving walkability for all residents of Ottawa includes providing quality pedestrian facilities that are both safe and accessible. The City of Ottawa has made significant progress in ensuring its facilities are accessible to all residents, including persons with disabilities. The City's accessibility Design Standards as well as the *Accessibility for Ontarians with Disabilities Act,* latest edition (AODA), provide guidance for the design of accessible pedestrian facilities. Creating accessible roads and pathways results in a high quality pedestrian environment which benefits all users.

2.3 Mapping Walkability

The walkability of a community is a function of both tangible factors such as layout, available infrastructure and available destinations, and the intangible elements of the community such as aesthetic appeal and the perception of safety. Given the variety of factors, a tool that measures walkability must bring in and assign relative weights to a large number of elements of an area in order to display the variation in walkability between areas.

Walkability reflects overall walking conditions in an area. A walkable community is one where pedestrians have safe, convenient access to buildings, pedestrian routes, public transit, neighbourhood parks, services, and other amenities.

Many municipalities have developed tools to quantify walkability to provide information on the use and demand of existing pedestrian infrastructure and identify locations that would benefit from new infrastructure or other changes to the walking environment. These tools sometimes take the form of "heat maps". A heat map illustrates the variation in walkability across a community or a whole city using a colour gradient overlay with colours corresponding to varying levels of walkability. These maps can identify "hotspots" of high walkability, as well as areas with lower walkability that would benefit from improvements to the walking environment.

2.3.1 The Walkability Map

The OPP 2013 includes a heat map that provides a measure of walkability of all areas within the city's urban boundary. This tool is based on currently available data; it is expected that the tool can continue to be refined as additional data becomes available over the lifetime of the Plan and will be maintained to provide a measurement of walkability across the city based on both existing and proposed infrastructure.

The resulting Walkability Map is shown for the whole city area in Exhibit 2.1 and the Urban and Suburban areas in Exhibit 2.2.

The Walkability Map shows hotspots of high walkability in the downtown core and Byward Market, reflecting these areas' high concentration of walking infrastructure, population and employment density, commercial, service and recreation destinations as well as pedestrian amenities. Sections of Bank Street in the Glebe and Wellington Street through Hintonburg are shown to have similarly high walkability. Walkability in the rest of the urban and suburban areas is shown to be in the middle range of the walkability scale, with some more walkable hotspots appearing around major commercial areas. Similarly, the cores of most of the city's outlying rural villages appear as small hotspots, reflecting the concentrations of the village stores and services in these areas. The rural areas of the city show no colour at all, being located away from key destinations and in many cases not being supported by any pedestrian infrastructure.

Given its comprehensive scale, the Walkability Map can act as a tool for guiding the focus for improvements to the walking realm. At a basic level, the Walkability Map provides an overview of areas in the city that have high and low walkability, indicating the communities that have features that are effective in promoting walkability that can

be used as examples to inspire development elsewhere. Areas with low walkability could be candidates for improvements to community infrastructure or improvements to the mix of land uses. As the walkability of an area responds to the features input, the Walkability Map can also be used as a modelling tool to generate forecasts of the walkability expected with changes in infrastructure, land use, or pedestrian-supportive features in an area.

Exhibit 2.1 Walkability Map (Full City)

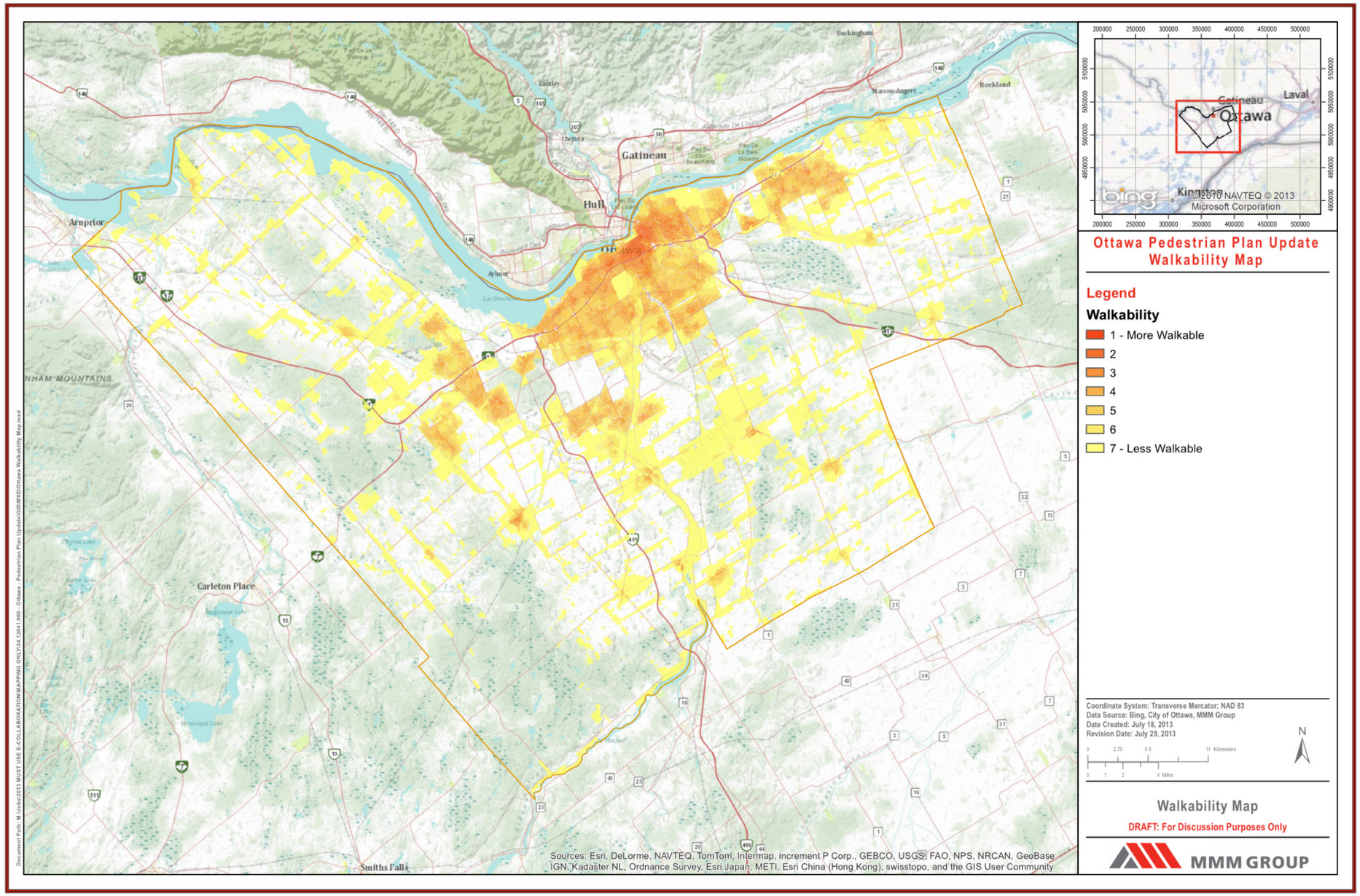
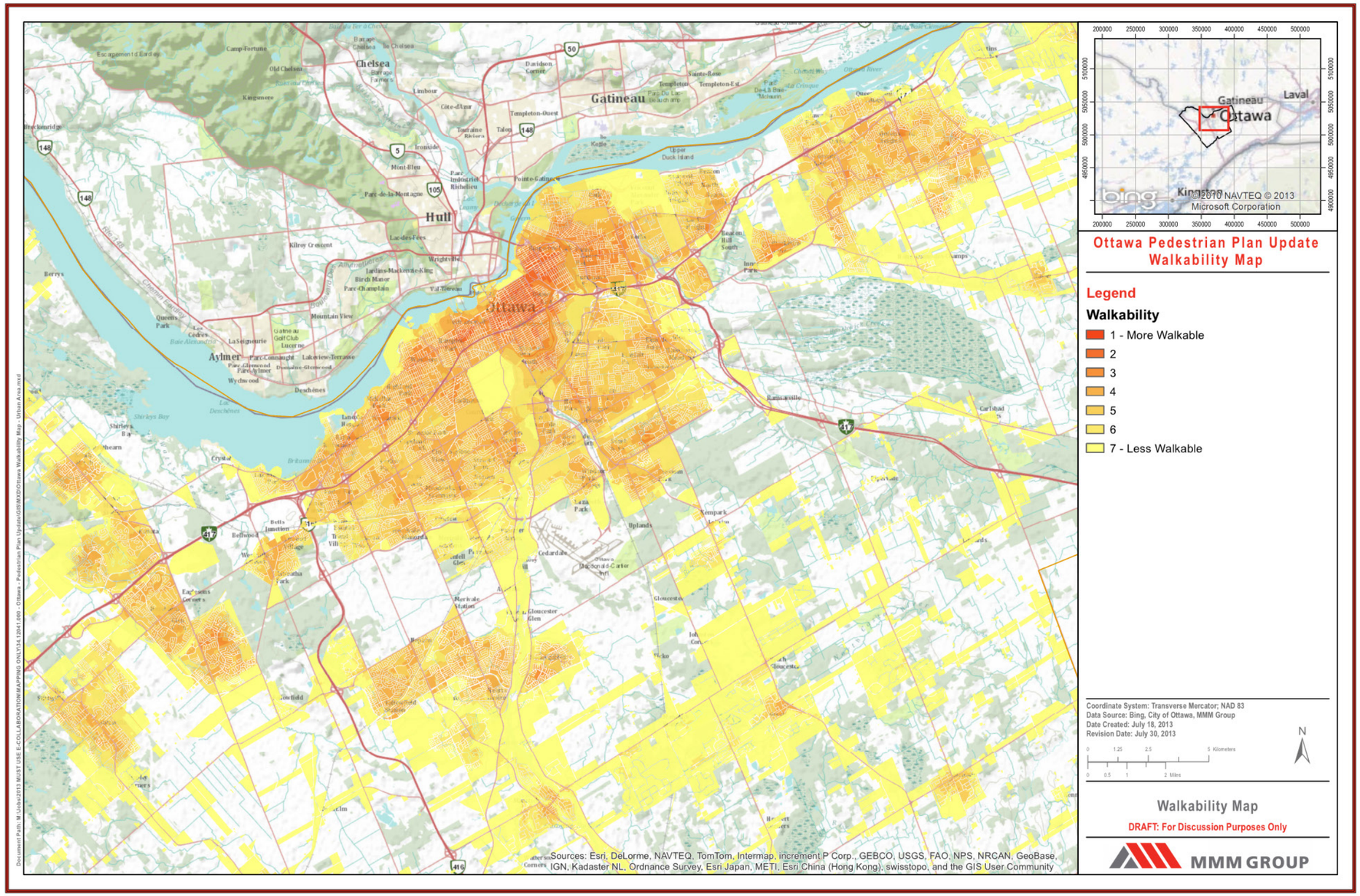


Exhibit 2.2 Walkability Map (Urban and Suburban)



2.3.2 Development of the Walkability Map

The Walkability Map was created using spatial data to create a fine grid across the full area of the city; the walkability from each individual grid cell in the city can then be measured based on how many features that promote walkability are within walking distance of that cell. This approach ensures that the map provides a comprehensive measurement of walkability from every possible destination in the city, and is able to show the variation in walkability from area to area.

The City maintains a variety of mapping layers showing the layout and distribution of various spatial elements of the city, from infrastructure features such as roads and sidewalks to natural features such as trees and water bodies. From this data, the factors which influence walkability are then weighted and added together to create a map that illustrates walkability.

The development of a Walkability Map for Ottawa defined walkability as a combination of five broad themes:

- Ease of street crossings
- Presence of sidewalks and their characteristics
- Integration with transit
- Street scale and streetscape quality
- Land use

A total of 14 mapping layers were used as measurements of walkability corresponding to these themes. As some community elements are likely to influence walkability more than others, individual weights were applied to each of the measurement layers to reflect their relative importance as walkability measures. Exhibit 2.3 below summarizes the 14 layers used and the weights assigned to each for the calculation of walkability.

Annex D contains a more detailed explanation of the structure of the data and the methodology used to convert spatial data provided by the City into layers for use in the calculation of walkability.

The final Walkability Map is the result of a weighted sum of all of the layers described above. The range of points resulting from this calculation was split into seven equal segments to illustrate the progression between low walkability and high walkability areas.

Exhibit 2.3 Geographic Data Used in Walkability Map Generation

Theme	Data Layer	Weight
Ease of Street Crossings	Intersection Density (A higher density of intersections indicates a higher number of intersecting streets, which results in a larger number of potential pedestrian routes)	10
	The number of pedestrian countdown signals	10
	The number of audible pedestrian signals	2
Presence of sidewalk and their characteristics	Year-round facilities	5
Integration with Transit	Transit Stops	5
Street Scale and Streetscape Quality	Public Art	1
	Street Trees	5
	Street Furniture	2
	Nearby Parks	5
Land Use	Population Density	10
	Employment Density	10
	Community Facilities within Walking Distance	10
	Commercial Destinations within Walking Distance	10
	Schools within Walking Distance	10

OPP Recommendation 2.2:

The City will include appropriate data in the GIS database to be used in future versions of the Walkability Map and to further evaluate the walkability of Ottawa neighbourhoods. [PGM / PW / ISD]

2.3.3 Future Improvements

The current iteration of the Walkability Map is limited by the availability of datasets captured in a Geographic Information System (GIS) format. There is a wide array of infrastructure, community, natural, and intangible features that could be used as supplementary measurements of walkability and that could be incorporated into the mapping tool, were they available in GIS. Therefore, the Walkability Map should be treated as an evolving tool that could respond to the availability of new data to refine the measurement of walkability across the city. The Walkability Map could be updated periodically to reflect the infrastructure as it is built, and calibrated to ensure that the

weightings of the component data layers are updated as additional data sources are included.

2.4 Pedestrian Level of Service Measures

Facilities for pedestrians on City streets are generally provided in two ways:

- Along roadways, in the form of sidewalks and multi-use pathways
- At intersections, with features such as crosswalks, traffic control signals, stop signs and pedestrian signals including countdown displays

Along roadways, the need to provide for pedestrians is defined by City policies as well as various design standards or guidelines.

At intersections, precise technical guidance for balancing the trade-offs between different road users (cars, transit, cyclists, and pedestrians) has been lacking. To fill that gap, the City will work towards establishing a multi-modal level of service measure, and appropriate performance measures for all modes will have to be developed first. There are a number of performance measures that describe the operation of the intersection from the vehicular travel perspective and there is a need to develop performance measures that describe intersection operation from the pedestrians' perspective as well. To address this issue, the OPP 2013 defines a quantitative method to measure the quality of service for pedestrians by evaluating Pedestrian Exposure to Traffic at Signalized Intersections (PETSI).

Recognizing that the primary impediments to comfort and safety for pedestrians crossing at signalized intersections are crossing distance, conflicts with turning vehicles, and crossing delays, the PETSI considers two primary measures:

1. *Intersection crossing exposure*, which is evaluated based on five criteria:

    a) **Crossing distance** – Representing the primary crossing component or obstacle for pedestrians traveling across intersections, this includes the number of lanes a pedestrian has to cross, and also considers the presence of refuge islands and right-turn channels.

    b) **Signal phasing and timing features** – These factors determine the type and level of crossing information provided to the pedestrian and whether the signal phasing minimizes, eliminates or exacerbates conflicts between

pedestrians and turning vehicles. The signal control for conflicting left- and right-turn vehicle movements, the presence of countdown displays and leading pedestrian interval, and the walking speed assumed to calculate pedestrian clearance time are considered.

c) **Corner radius** – Intersection corner radii affect right-turning vehicle speeds and pedestrian crossing distance.

d) **Right turns on red** – Whether right turns on red are permitted or not, influences the potential for conflict between vehicles and pedestrians.

e) **Crosswalk treatment** – The presence and design features of crosswalks can help raise awareness to motorists of the possibility of pedestrians crossing the street.

2. *Average and/or maximum delay to cross*, which is calculated based on the traffic signal timing.

The proposed method will be further evaluated and modified as required. The proposed methodology is to be used as the pedestrian performance measure at signalized intersections only; further work is required to expand the methodology to other types of intersections and pedestrian facilities.

OPP Recommendation 2.3:

The City will continue to develop appropriate performance measures that quantify the impact of various roadway designs on pedestrians and will lead to the adoption of level of service measures for pedestrians. [PGM]

3.0 The Pedestrian Network

This chapter outlines the development and definition of the proposed pedestrian network. Mapping of the proposed network is included in this section as well as the prioritization process that was undertaken to determine the links (that are deemed affordable) that would be built during the planning horizon of the OPP 2013. The section also includes discussions on the *Downtown Moves* plan and the Transit Oriented Development plans and how they relate to the development of the OPP 2013 pedestrian network.

3.1 Review of Current Status

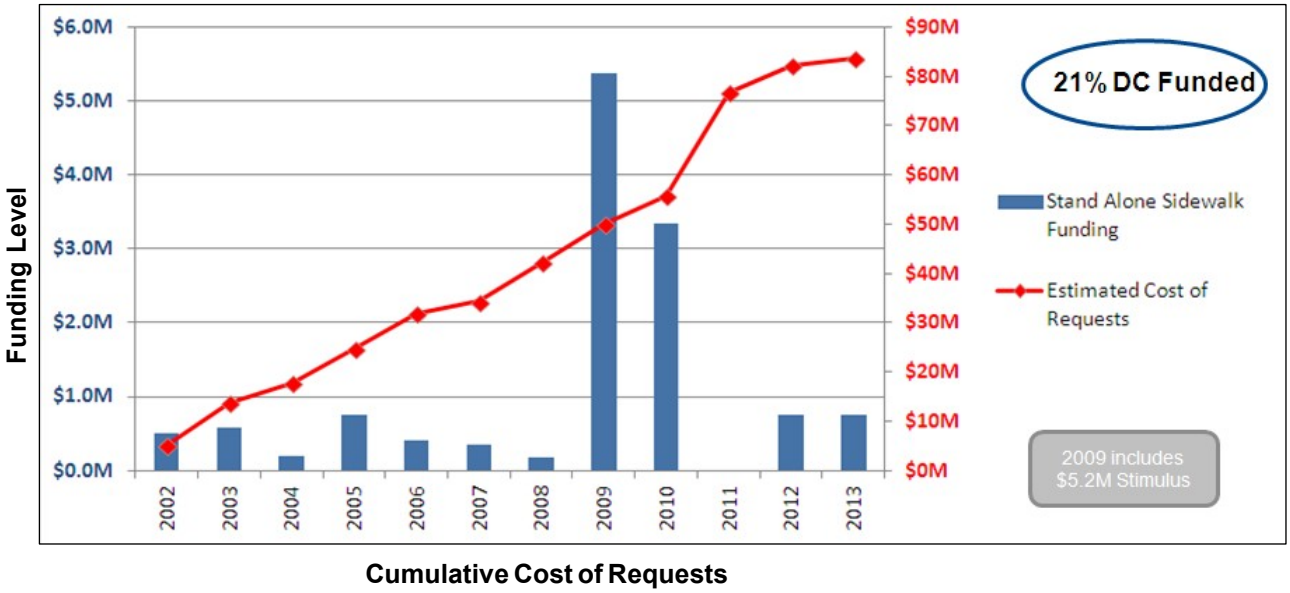
Current sidewalk and pathway network. The City currently maintains a comprehensive network of sidewalks that service the more densely populated areas within the city boundary. These existing sidewalks were provided historically based on former municipality's requirements such that today sidewalks are generally located on both sides of major urban arterial and collector roads, and perhaps on one or both sides of minor collector roads. In neighbourhoods near the downtown core, local residential streets typically have existing sidewalks on both sides, while residential streets outside the core generally have no sidewalks or sidewalks on only one side of the street. Suburban developments generally followed the past trend of adding sidewalks on one side of local collector roads and no sidewalks on either local residential streets or on bus routes.

The City's sidewalk network is supplemented by multi-use pathways (City-owned and NCC-owned), connecting through local parks and major green spaces and serving as active transportation connections through neighbourhoods. Many pathways are popular recreational routes for both pedestrians and cyclists.

Recent method for prioritizing requests. Based on the OPP 2009, the pedestrian infrastructure program responded to ongoing community requests for new sidewalks and pathways with an emphasis on completing missing links to transit, schools, parks, public/recreational facilities, churches, public buildings, retail/commercial/employment centers and other key community destinations. The process was managed by ranking the requests relative to each other, applying a methodology whereby each candidate site was scored and prioritized. This process was intended to allocate funds for construction of new pedestrian facilities to those segments of greatest priority. The

process identified a significant need for pedestrian facilities and historically, funding typically provided for the construction of only the top few priority segments each year. An inherent flaw in the process is that the database only included segments where the community requested an assessment, and it was not a comprehensive network review. The pedestrian database was a living document subject to ongoing reprioritization as new requests were assessed and added. This continuous cycle of updates resulted in lists of pedestrian infrastructure projects being produced on a year-by-year basis, and was not conducive to long-term planning. The existing deficiencies in the pedestrian network are too numerous (and retrofits too costly) for the City to possibly complete all the gaps. Exhibit 3.1 demonstrates the funding history of this program contrasted with the funding need generated by ongoing demand for review.

Exhibit 3.1 Pedestrian Facilities Program Funding



3.2 Proposed New Sidewalks and Pathways

The most direct approach to increase opportunities for walking is to expand or improve pedestrian infrastructure, including sidewalks and pathways.[29] One study found that every 1% increase in the proportion of routes with sidewalks can increase walking mode choice for commute trips by 1.23%.[30] Another study concluded that for each 10 km increase in sidewalk length, neighbourhood-based walking for transportation increased by 5.38 min/week per person.[31]

The OPP 2013 presents an opportunity to review and refine the pedestrian network and the method of prioritizing requests for new links. Project prioritization has been refocused to more effectively influence modal share while supporting stronger integration with transit and routes to schools to promote and facilitate walking as a viable daily transportation choice.

A multi-year planning scenario for the identification and implementation of priority pedestrian infrastructure projects is included in the refined approach, permitting better opportunity for integration with other capital works projects, improved budgeting and forecasting, and to facilitate resource and capacity levelling, and also providing opportunity for broader public awareness and notification.

3.2.1 Proposed Pedestrian Network

Exhibit 3.2 illustrates the locations and implementation phasing of the priority pedestrian projects to be included within the phased OPP implementation budgets. A list of those projects is provided in Exhibit 3.3. A more detailed list of these projects, identifying the Ward and length is provided in **Annex E**.

Exhibit 3.2 Proposed OPP 2013 Pedestrian Network Projects

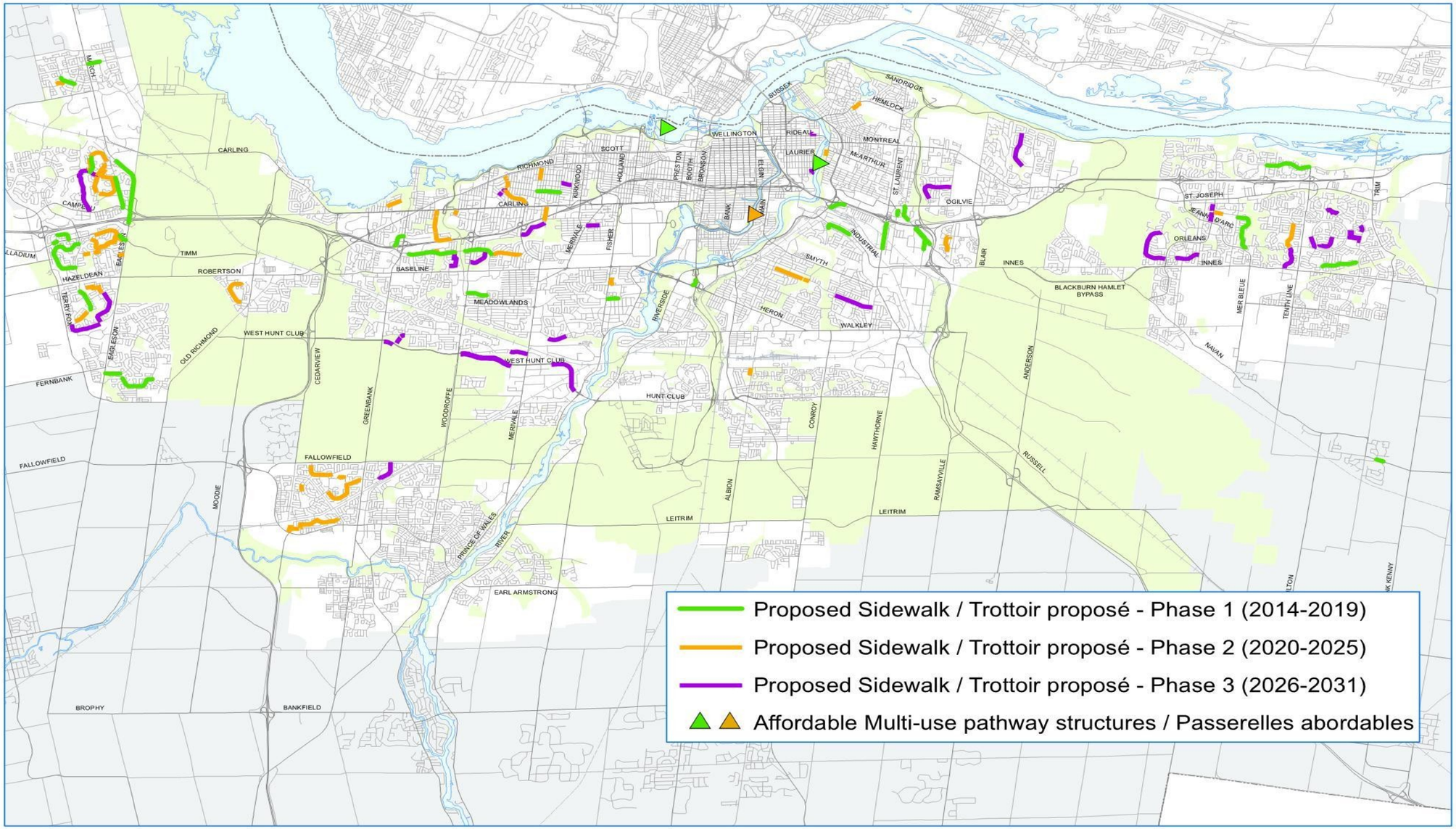


Exhibit 3.3 2031 Affordable Pedestrian Network – Projects by Implementation Phase

Phase 1 (2014-2019)

Bridgestone (north side) - Grassy Plains to Eagleson
Bronson off-Ramp for Heron (west side) - Transit Link Station to Heron
Castlefrank - Torcastle to Winchester
Colonial Road - Henn to Delson
Cummings - Cyrville to Ogilvie
Cyrville Road, north side between Cummings and Transit Linkway
Cyrville Road, north side Startop Top to Labrie
Cyrville Road, south side between 250m east of Startop and 200m east of Transit Linkway
Dovercourt - Churchill to Broadview
Dumaurier - Ramsey to Pinecrest
Gardenway - Thicket to Portobello
Grassy Plains - Stonehaven to Bridgestone
Halton - Flamborough to Newcastle
Industrial (south side) - just east of Trainyards to Neighbourhood
Iris - Pinecrest to Navaho
Jeanne d'Arc - Champlain to Tenth Line
Katimavik - Davis (north side) to MUP
Katimavik (north side) - Eagleson to Hearst
Klondike - north side, March to Sandhill
March (south side) - Teron to Hwy 417 S Ramp Terminal
McCurdy - Castlefrank (N) to Castlefrank (S)
McGibbon - Katimavik to Davis
Meadowlands - south side, Fisher to Apeldoorn
Michael, east side between Cyrville to 150m s of Cyrville
Parkglen - Woodroffe to Withrow
St Laurent Blvd, east side between Hwy 417 e/b on-ramp at Tremblay
St Laurent Blvd, east side between Tremblay and Belfast
Startop, east side, between Cyrville and Algoma
Sunview - Belcourt to Des Epinettes
Teron - East side, Campeau to existing sidewalk
Teron - East side, Existing sidewalk to Beaverbrook
Tremblay, north side between Riverside and Transit Linkway
Varley Drive (inside) - Beaverbrook to Carr (N)

Phase 2 (2020-2025)

Ahearn - Farrow to Scrivens
Albion - Brenda to Johnston
Arnot (east side) - Dynes to Fisher
Banning-Abbotsford-Morrena - Abbeyhill to Morrena
Brady - Newcastle to Halton - Newcastle
Broadview - Byron to Princeton
Carriere - Orleans to Belcourt
Castlefrank - Sheldrake (N) to Sheldrake (S)
Chimo (both sides) - Katimavik to Anik Way and McClure
Clyde - Carling to Woodward
Cobden - Iris to Elmira
Connaught / Roman - Carling to Hindley
Edgeworth - Georgina to Carling
Hemlock/Beechwood - Oakhill-Lansdowne
Kakulu (segments) - Drainie to Eagleson
Katimavik - Eagleson to W of Whitney
Larkin - St Remy to Andrea
Leacock Drive (inside) - Beaverbrook to Beaverbrook - MUP
Leacock Drive (outside) - Beaverbrook to Leacock Way
Malvern - Fable to Greenbank
Meadowbrook - Dondale to Bortolotti
Navaho - Iris to Erindale
North River - McArthur to Stevens
Pleasant Park (north side) - Lynda to Alta Vista
Prestwick - Amiens to Des Epinettes
Seyton - Cymbeline to Seyton
Sherbourne - Byron to Bromley
Sherway - Fable to Malvern
Tartan - Strandherd to Townsend
Varley Drive (inside) - Beaverbrook to Milne (N)
Varley Drive (outside) - Beaverbrook to Carr (N)
Varley Drive (outside) - Beaverbrook to Varley Lane (S)
Varley Drive (outside) - Carr (N) to Varley Lane (N)
Weybridge - Maravista to Delmeade

Phase 3 (2026-2031)

Bottriell - Merkley to Charlemagne
Clare - Churchill to Tweedsmuir
Como - Varennes to Varennes
Deancourt /Briarfield- Princess Louise to Existing Pathway
Field - Woodroffe to Iris
Glamorgan-Rothesay - Castlefrank to Old Colony
Holitman - Foxfield to Fallowfield
Knoxdale - West Hunt Club to Conover
Knudson/Weslock/Beaverbrook - Campeau to Leacock Drive (outside)
LaVerendrye - Quincy to Ogilvie
Matheson - Ogden to Bathgate
Meadowglen - Orleans to Forest Valley
Meadowglen - Summerfields to Boyer
Old Colony - Rothesay to Abbeyhill
Orleans Blvd - Notre Dame to Jeanne d'Arc
Parkway/Fellows/Westbury - Iris to Highgate
Pleasant Park (south side) - Haig to St. Laurent
Range Rd - Mann Ave to South of Templeton St
Saville - Sherbourne to Neepawa
Shillington - Hollington to Merivale
Tormey - Cobourg to Brigadier
Varennes - Watters to Sheenboro N
Viewmount - Overlake to Europa
West Hunt Club (Sections) - Greenbank to Prince of Wales
Wilkie - Merkley to MUP near Chenier
Woodfield - Pathway 70m east of Downsview to Merivale
Woodward - Maitland to Clyde

3.2.1 Proposed Implementation Schedule

Affordability is the key factor in the OPP 2013 with the proposed network representing the highest priority projects that the City is able to achieve within the planning horizon. Based on the scale of each of the identified projects, an affordability lens was applied to generate phasing of projects into one of three time frames within the planning horizon:

- Phase 1 – 2014-2019
- Phase 2 – 2020-2025
- Phase 3 – 2026-2031

3.2.2 Rationale for Proposed Projects

The proposed pedestrian infrastructure projects were prioritized through a refined and updated methodology for project ranking to determine the links that would provide the maximum benefits in terms of increasing walking modal share and providing access. This process was point based, assigning scores corresponding to each facility's role in the transportation network and proximity to transit and schools and parks. Exhibit 3.5 summarizes the main criteria in the screening process, and **Annex F** provides greater detail.

Exhibit 3.5 Criteria for Screening Process

Criteria	Rationale	Evaluation	Points
Population and Employment Density	Areas with higher levels of population and employment have the potential for greater pedestrian activity, and therefore greater demand for pedestrian-supportive infrastructure.	Facility in High Density Area	20
		Facility in Medium-High Density Area	15
		Facility in Medium Density Area	10
		Facility in Medium-Low Density Area	5
		Facility in Low Density Area	0
Distance to Transit	Sidewalks that provide connections to transit facilities are prioritized based on the importance of walking as a mode of accessing transit.	Facility leads to Confederation Line (Bus Rapid Transit or O-Train) Station.	10-15
		Facility leads to an identified transit intensive corridor	6-10
		Facility leads to a local transit stop	4
Distance to Schools	Trips to school are a major segment of walking trips; sidewalks that can increase the safety of school trips have been prioritized.	Facility leads to an elementary school (additional prioritization for schools participating in the school travel planning program)	5-10 (+3)
		Facility leads to a secondary or post-secondary school	4-8

Distance to Parks	Walking trips are conducive to recreational trips, particularly if outdoor recreational facilities are located in the community nearby.	Facility within 400m of a park with amenities (playground, splash pad, ball diamond, etc.)	8
		Facility within 400m of a park with no amenities (green space)	4
Road Classification	The classification road is a reflection of the traffic volumes and speeds along that road. Roads with higher traffic and travel speeds are in greater need of pedestrian facilities to ensure a safe travel environment. Due to the limited affordability scope for pedestrian infrastructure, very minor roads with one existing sidewalk were not considered for future implementation of sidewalks on the opposite side.	Arterial or Major Collector Road with no existing sidewalks	20
		Arterial or Major Collector Road with existing sidewalk on one side	14
		Minor Collector Road with no existing sidewalks	10
		Minor Collector Road with existing sidewalk on one side	7
		Local Road with no existing sidewalks	5
		Local Road with existing sidewalk on one side	Does not pass screening

Identified links that scored the highest priority based on the above criteria were carried forward for further technical screening to remove candidate projects that were technically not feasible for construction (based on road cross-section or other technical constraints), and to identify opportunities for inclusion within the scope of proposed road projects or through development.

Missing Links

During the prioritization of missing links in the pedestrian network, numerous factors were taken into consideration. These included population and employment densities, road characteristics, other facilities along the route and the destinations that were of the highest priority to the City (e.g. schools, parks and transit nodes). Exhibit 3.6 identifies the distance from a key destination that the links had to fall within to be considered as part of the evaluation of the missing pedestrian links.

Exhibit 3.6 Priority Destinations

Destination	Walking Distance Considered for Prioritization
Rapid Transit Stations	600m
Transit Priority Network Stops	200m
Local Transit Stops	200m
Schools	300m
Parks	400m

In the prioritization of the missing links, some neighbourhoods require more links than others. This is in part due to the nature of community planning and policies in place at the time and location of community build-out; in some locations sidewalks were provided along most streets, while in other places fewer sidewalks resulted. Today, there is more awareness in providing safe routes for pedestrians and in neighbourhoods where sidewalks were once not provided, they are now being proposed to ensure safe and direct pedestrian connections to transit and schools.

Transit-Oriented Development Links

The introduction of the Confederation Line offers a key opportunity for shifting travel behaviour. Pedestrian systems provide a critical link in most transit trips, and connections between neighbourhoods and major transit stations are essential to ensuring reliable pedestrian access to transit. Creating and maintaining these key linkages will minimize walking distances and reduce dependency on other modes.

As part of the Confederation Line project, Council established priority areas around light rail stations for which Transit-Oriented Development (TOD) plans would be created. These plans are designed to encourage compact mixed-use neighbourhoods in which transit will be the focus. Included in these plans are pedestrian circulation routes, as priority will be given to these modes during the preparation of the TOD plans. The first TOD plans developed are for Train, St. Laurent and Cyrville Stations. Plans for other stations that are currently (2013) under study are for Hurdman, Lees and Blair stations. The TOD plans have created an 800-metre radius area with 200 to 400 residents per gross hectare. Essential TOD planning elements have been included to give priority to pedestrian and cyclist movements within each TOD plan area and develop improved connections within the surrounding community to each station.

Guiding principles for TOD development have been established within the plan for each station. These include: promoting transportation choices and reprioritizing pedestrians, cyclists and transit users over the use of private vehicles. It is therefore important that facilities to enable walking, cycling and transit use be readily available,

easy to find and use, and appealing. Pedestrian routes need to be well connected to transit to provide walking access to stations. Pedestrian networks will primarily consist of public sidewalks within the right-of-way and City-owned pathways. Sidewalks will be connected to existing or planned infrastructure and will support movement to and from the Confederation Line stations. This underlines the importance of high capacity pedestrian facilities such as standard width sidewalks, easy access to stations, pedestrian friendly intersections with fewer lanes to cross and intersections that focus on pedestrians instead of cars. The finalization of the pedestrian routes will occur in coordination of the final Confederation Line design process.

Links already identified by the City in the Train, St. Laurent and Cyrville TOD Plans for implementation between 2015 and 2017 were included in the review, applying the network screening criteria to determine relative priority on a city-wide basis and based on their relative scoring were prioritized for implementation in this Plan.

Proposed Multi-Use Pathways

Multi-use pathways and structures play a key role in the overall pedestrian network, but form a more critical element within the cycling network. Simultaneous development of the OCP 2013 resulted in the proposal of several new multi-use pathways to be implemented within the planning horizon. As these pathways will supplement and provide improved connectivity throughout the pedestrian network, they have been included in the OPP 2013 for network purposes; however, they were not included in the prioritization process described above, and will be implemented through the OCP 2013.

3.3 Multi-Use Pathway Structures

A well-connected pedestrian network must include connections across major natural and constructed barriers, including the Rideau and Ottawa Rivers, Rideau Canal, Highways 416 and 417, the Transitway, Confederation Line and the numerous rail corridors passing through the city. Multi-use structures, such as the award-winning Corktown Footbridge across the Rideau Canal, provide important

connectivity, comfort and safety for active transportation modes and are essential in transforming travel behaviors in favor of sustainable options. Although several such crossings already exist, there will be a need to consider additional crossings to provide additional connectivity as Ottawa's pedestrian network expands.

Previous planning exercises undertaken by the City, as well as the consultation undertaken in the development of this Plan identified a number of locations with potential for supporting new bridges or tunnels along pedestrian routes.

Since multi-use structures complement both the pedestrian and cycling networks and typically include costs that are significant in comparison to the overall costs of the OPP 2013 and OCP 2013, they have been identified separately for budgeting purposes. Exhibit 3.7 lists the 2031 Affordable Multi-Use Structures that fit within the financial limits of the affordability framework. These projects were identified as part of the OCP 2013 and OPP 2013 planning processes to address network priorities and missing links that best accommodate active transportation needs.

Exhibit 3.7 Multi-Use Pathway Structures

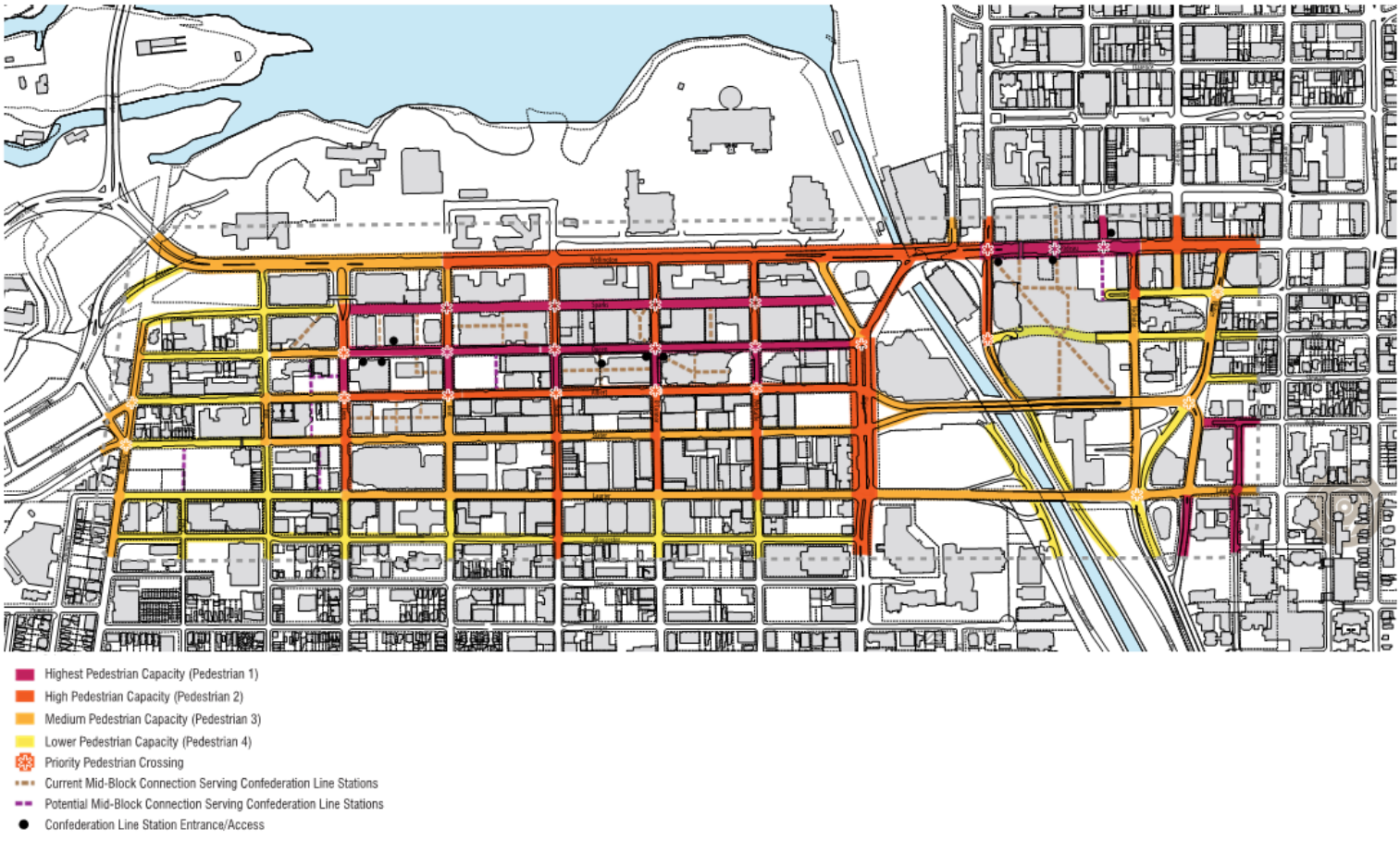
Project	Description
Phase 1 (2014-2019)	
Rideau River Footbridge	New footbridge over Rideau River connecting Donald Street and Somerset Street East
Prince of Wales Bridge	Improvements to the Prince of Wales Bridge to accommodate pedestrians and cyclists
Phase 2 (2020-2025)	
Rideau Canal Footbridge	New footbridge over Rideau Canal connecting Clegg Street and Fifth Avenue
Phase 3 (2026-2031)	To be determined
Other	

3.4 Downtown Moves

Downtown Moves was developed to create safe, vibrant and accessible streets for all users in the downtown core in which walking is to be more comfortable and convenient. This will be accomplished through a number of streetscaping and mobility initiatives that

will provide a balance among all street users and make the downtown more walkable, liveable and sustainable. The plan identifies locations for potential complete street designs, mid-block crossings to improve pedestrian mobility to and from Confederation Line stations, intersections where pedestrian volumes may warrant safety improvements and blocks where pedestrian volumes require wider sidewalks and improved comfort and pedestrian amenities. Exhibit 3.8 shows the proposed network from Downtown Moves and the different types of facilities based upon the capacity proposed. These network elements have not been included in the pedestrian network proposed in this section, due to the need for additional refinement and elaboration of the Downtown Moves recommendations, which would happen as renewal projects are undertaken.

Exhibit 3.8 Downtown Moves: Pedestrian Routes in the Downtown Core



Source: Downtown Moves: Transforming Ottawa's Streets

4.0 Implementing the Pedestrian Plan

4.1 Policy for Pedestrian Facilities

Communities must be permeable and contain a complete and connected pedestrian network for pedestrian travel to be a fundamental transportation mode. The intent of the following policies is to ensure the timely and efficient provision of pedestrian facilities necessary for walking access to key pedestrian destinations within communities.

The City recognizes that the inherent benefits of building sidewalks when communities are developed and when streets are reconstructed make these cost effective means the most advantageous approach to network expansion. Therefore, in considering the most cost-effective and efficient strategy for expanding the pedestrian network, three guiding principles are:

- *Create no new deficiencies* - Build new communities and develop sites with adequate density and quality of pedestrian facilities to create walkable communities.
- *Maximize opportunity through construction* - Build sidewalks when roads are being constructed or reconstructed, as this is most cost-effective, least disruptive and results in a better quality facility.
- *Retrofit by priority* - Undertake stand-alone projects to fill gaps at priority locations that best increase the walking mode share by supporting access to transit, and create connections between key nodes in a community.

As such, the City's policy reflects maximizing these opportunities. To ensure that appropriate pedestrian facilities are provided and community walkability is improved, the City will:

1. During review of development applications and during road construction and reconstruction projects, require the provision of pedestrian facilities on all existing, new and reconstructed roads, as follows:
    a. On both sides of arterial and collector roads in the Urban Area and Villages.
    b. On at least one side of all arterial and collector roads passing through the Greenbelt.
    c. On both sides of all roads that serve transit in the Urban Area and Villages.

d. On local roads that lead directly to transit stations, schools, public parks, recreation centers, public buildings and institutions, neighbourhood and regional commercial/retail/employment centres.

e. Within and between neighbourhoods and from neighbourhood streets (including cul-de-sacs, P streets and crescents) to connect to arterial and collector roads at sufficient intervals to create porous walkable communities.

f. On all new and reconstructed urban local roads where pedestrian facilities are required in accordance with these policies but no dedicated pedestrian facility is provided, require that roads be designed for a speed of 30 km/h or lower (pending development of a new 30 km/h roadway design standard).

g. Consider a multi-use pathway in the right-of-way in lieu of a sidewalk if determined to be appropriate for the urban context. Such multi-use pathways that function in lieu of a sidewalk should be considered as a sidewalk for winter maintenance in accordance with appropriate winter maintenance standards.

h. In other specific circumstances identified either in this Plan, in a Secondary Plan or a Community Design Plan approved by the City.

2. Require the additional provision of pedestrian facilities:

   a. Direct, high-quality pedestrian connections to rapid transit stations, bus stops and other major walking destinations.

   b. In or adjacent to rapid transit corridors, to be constructed simultaneously.

   c. Pedestrian crossings of rapid transit corridors, considering the level of demand and alternative crossing opportunities.

   d. Pedestrian crossings to link neighbourhoods that are separated by roads or other physical barriers, where safety considerations permit.

3. Require that City programs and services support the goals of community walkability as follows:

   a. Require that planning processes such as Community Design Plans, Transit Oriented Design plans, and Environmental Assessments for transportation projects include the prescribed pedestrian facilities.

b. Require Transportation Impact Assessments to undertake analysis and consideration of active transportation and produce a plan depicting prescribed pedestrian facilities.

c. Continue to implement pedestrian countdown signals and audible signals at all new and rebuilt traffic signals, and at other traffic signals as resources allow.

d. Conduct snow clearance, street sweeping and plant, tree and general streetscape maintenance in a manner that supports walking while considering physical, operational and financial constraints.

e. Continue to expand walking supportive service programs.

f. Continue to implement stand-alone retrofit pedestrian facilities in accordance with priority, as resources permit.

Automobiles traveling at high speeds pose a significant risk to pedestrian safety. To keep pedestrians safe, sufficient separation from high-speed traffic can be achieved through the provision of sidewalks. Where sidewalks are not provided, roads should be designed to encourage automobiles to travel at slower speeds. It would be a safety improvement to design local roads for low speeds (30 km/h) where a sidewalk is required in accordance with City policy but cannot be provided and to provide sidewalks on roads with greater speed and volume. This would require the development of a new roadway design standard (30 km/h), as signing alone will not ensure compliance with the lower speed limit.

OPP Recommendation 4.1:

City staff will investigate the feasibility of developing a new roadway design guideline for a 30 km/h speed. [PGM / Public Works]

4.2 Processes for the Provision of Pedestrian Facilities

The pedestrian network proposed in the OPP 2013 was developed by considering the affordability of both building and maintaining pedestrian facilities. The City will ensure that building new infrastructure does not compromise its capacity to maintain, and eventually replace, existing assets over their life cycle. Asset condition is a significant contributor to quality of life and attractiveness and functionality of facilities. Exercising

such financial prudence will also help to ensure that future generations are not burdened with unsustainable costs in maintaining the infrastructure built today.

In order to better manage the City's assets, Council approved a Comprehensive Asset Management (CAM) Program in 2012. The CAM Program is about investment decisions that meet levels of service in a manner that manages risks and remains affordable.

The process for implementing pedestrian infrastructure is managed through three approaches, each of which is described further in this section:

- *Implementation in conjunction with new development* through the development approvals process (pre-emptive)
- *Implementation in conjunction with road construction and reconstruction projects* (proactive)
- *Implementation as retrofit projects* to correct discontinuities (i.e. complete missing links) in the existing network (reactive)

The first two approaches are the most cost-effective, with limited community disruption, and result in the best overall streetscape design. The last approach is significantly less efficient but is an important tool for the City to correct existing network deficiencies, although it may not be able to meet all design standards where physical constraints exist.

4.2.1 Implementation with New Development

Building new communities and managing development in a manner that promotes pedestrian travel through sufficient density and quality of walking facilities is the best opportunity to establish walkable communities. Every lost opportunity creates a new infrastructure deficiency and directly shifts the burden to the City at a later date, at a substantially higher cost, and with greater community disruption. Requiring provision of pedestrian facilities at the time of development is a long established and accepted planning practice recognised by the *Planning Act*. Pedestrian facilities implemented at this stage require no initial capital contribution by the City, though ongoing funding for maintenance and future funding for lifecycle renewal will be required.

Historically, the practice of implementing sidewalks as a condition of development has contributed to the steady expansion of the pedestrian network. The City will require the implementation of pedestrian facilities as required in Section 4.1, as a condition of

development. The City may accept Cash-in-lieu of the provision of sidewalks at the time of development only under exceptional circumstances that prohibit implementation of the required pedestrian facilities in an efficient manner. In those cases, the Cash-in-lieu will be at a sufficient rate to cover the complete cost of implementation of the required pedestrian facility including design, tendering, construction and inspection. Furthermore, prospective buyers should be made aware of the pending pedestrian facilities; this information should be readily available and incorporated into promotional/sales materials.

OPP Recommendation 4.2:

The City will require that development projects permitted to provide cash-in-lieu of pedestrian facilities contribute funds at a sufficient rate to support implementation of the pedestrian facilities. [Development Review Branches, PGM]

OPP Recommendation 4.3:

The City will require that developers inform prospective purchasers of pending pedestrian facilities. [Development Review Branches, PGM]

4.2.2 Implementation with Road Construction and Reconstruction

Similar to pre-emptive implementation with development, proactive implementation provides the opportunity to build pedestrian facilities in conjunction with road construction or reconstruction projects. The provision of pedestrian facilities and making improvements to the pedestrian realm as part of a capital construction or reconstruction project is far more economical, is of a higher quality and is less disruptive to the community than doing so at a later point in time.

The requirement for implementation of pedestrian facilities in conjunction with road projects is an established and economical method for municipal provision of pedestrian facilities. The scope of road projects will identify the sidewalks as required in Section 4.1, and will include the cost of the sidewalk in that project's capital budget for Council's consideration, as directed through the City's Comprehensive Asset Management Program.

4.2.3 Stand-alone Retrofit Implementation

Retrofitting sidewalks to correct deficiencies or gaps in the existing pedestrian network is addressed through the City's Pedestrian Facilities Program. Stand-alone sidewalk retrofit into the existing streetscape will be prioritized to best support the City's comprehensive strategy for supporting and encouraging walking and transit use to increase their respective mode shares. Funding for the Pedestrian Facilities Program is provided through the annual budget process and implementation is in accordance with priority, as resources permit.

Prioritization of sidewalks for stand-alone retrofitting is a two-step process that begins with screening based on:

- Encouragement of commuter walking to the City's transit system and local schools – considering routes that provide access to rapid transit stations, run along or to transit intensive corridors and to local transit stops, schools, and parks
- Safety and roadway characteristics – considering roadway classification (general speed, volume, lanes)
- Pedestrian demand potential (based on population and employment densities)

The second step can then be applied to better ascertain relative priority based on the broader set of criteria for clearer separation of priorities if required, based on:

- Additional community destinations and pedestrian generators such as public facilities, services and recreation (arenas, athletic facilities, community centres, health care facilities, meeting/convention centres, stadiums, libraries, religious centres, cultural facilities, etc.); high demand commercial (within 600m); youth and seniors (seniors' residence, long term care, persons with disabilities, daycare, youth centres)
- Additional safety aspects: speed, volume, sightlines
- Additional priority locations: Segments within the area of transit, schools, parks; barriers; identified under another study (for example, CDPs, environmental assessments for transit projects)

Further details of the prioritization process for retrofit projects (as used to evaluate links for inclusion in the OPP 2013 pedestrian network) and the list of proposed retrofit priority

projects are provided in Section 3.2. A complete report on the process is included in **Annex F**.

5.0 Maintaining Pedestrian Facilities

The City's Maintenance Quality Standards for Roads, Sidewalks and Pathways as adopted by Council in 2003 (MQS 2003) set maintenance classifications and service levels. This chapter outlines the maintenance standards as they relate specifically to pedestrian facilities during summer and winter months, as well as the approach for winter-maintaining multi-use pathways throughout the city. Additionally, reprioritization of pedestrian routes that facilitate walking to transit and schools has been explored and a new set of guidelines for accommodating pedestrians in construction areas has been introduced.

5.1 Seasonal Maintenance

5.1.1 Winter Maintenance Standards

Currently, the City's maintenance standards for pedestrians include the prioritization of facilities for winter maintenance based on snow accumulation, geographic location and their function in providing access to City services. Exhibit 5.1, from the MQS 2003, describes the division of the City's pedestrian infrastructure into one of three priority levels, plus a fourth level for non-maintained facilities.

In general, the MQS 2003 calls for the fastest response to the downtown core and large employment centres. Most of the remaining pedestrian facilities are categorized as Priority 2, while collector and minor local roads in the city's suburban and rural areas are designated as Priority 3 and allow for longer times before clearing.

Winter maintenance operations are conducted in geographic areas subdivided into zones with a number of beats (predetermined routes) in each zone. Each of the maintenance beats have been categorized into one of two priority levels; Priority 1 ("Priority Sidewalk") and Priority 2 ("Residential Sidewalk").

Exhibit 5.1 Snow and Ice Control on Sidewalks and Pathways

Priority	Sidewalk/ Pathway Maintenance Classification	Minimum Depth of Snow Accumulation for Deployment of Resources	Time to Clear Snow Accumulation From the End of Snow Accumulation or Time to Treat Icy Conditions	Treatment Standard	
				Bare Surface	Snow Packed
1	• Downtown business district • Byward Market • Large employment centres • Special tourism areas	2.5 cm	4 h	☐	
2	• Downtown/urban residential • neighbourhoods where sidewalks are only safe place to walk • Sidewalks in Villages • Pathways that serve as main community links or to access transit services • Sidewalks along roads with transit service, emergency facilities, public facilities or retail/commercial frontages Pathways designated as part of City cycling routes	5cm	12h	Sidewalks directly adjacent to arterial roads	All other locations
3	• Sidewalks along rural and suburban collector and residential roads • Paved pathways in rural and suburban neighbourhoods (pathways that are winter maintained)	5cm	16h		
4	• Unpaved pathways and trails • Paved pathways that are not winter maintained	Not winter maintained			

Source: City of Ottawa Maintenance quality Standards 2003 (Table 103.02.01)

Recommended Improvements on Existing Service

Consideration has been given to modifications to the winter maintenance sequencing for sidewalks and pathways that support accessibility to transit and schools, both a key community service and daily commuter destination. Review and analysis were undertaken within areas in proximity to various transit facilities and schools to identify and assess the potential to increase the priority of pedestrian links within the review areas that are maintained as Priority 2 that can be upgraded to Priority 1 to more readily provide walking access to these destinations.

Several combinations of options were considered for upgrading lower priority pedestrian links near the various key pedestrian destinations and the associated resource and funding requirements were identified and reviewed. The best scenario for achieving the most advantageous service improvement to winter walkability in the broadest area in the most cost efficient manner would be to consider undertaking sequencing changes to lower priority links in proximity to Rapid Transit (600m) and Transit Intensive Corridors (200m).

Exhibit 5.2 summarizes the facilities and associated catchment areas within which Priority 2 pedestrian links are recommended for increased winter maintenance prioritization to Priority 1.

Exhibit 5.2 Facilities and Radius for Consideration of Adjustment to Prioritization of Pedestrian Winter Maintenance

Category	Facilities	Radius
Rapid Transit Stations	BRT Transitway Stations Future O-Train Stations	600m
Transit Intensive Corridors	• Woodroffe – Baseline Station to Hunt Club • Heron – Prince of Wales to Data Centre • Baseline – Bayshore to Prince of Wales	200m

Implementation of these improvements is dependent upon Council's future approval of ongoing funding for the resource requirements and both the capital and operating cost associated with these improvements.

OPP Recommendation 5.1:

The City will consider providing additional funding for maintenance at the time of capital and operating budget approvals to support improved priority sequencing to lower priority routes within proximity to Rapid Transit (600 m) and Transit Intensive Corridors (200 m).

Winter Maintenance Criteria for Pathways

The OPP 2009 introduced screening criteria for determining a pathway's eligibility for winter maintenance. The original criteria remain valid and the process of considering pathways on a request basis ensures that pathways to transit, schools and other key community destinations (e.g. library, church) will be assessed for inclusion should the community so desire. The criteria for determining a pathway's eligibility for winter maintenance are presented in Exhibit 5.3.

Exhibit 5.3 Screening Criteria for Winter Maintenance of Pathways

Must satisfy all of the following:	
1	The pathway is situated on City property or if non-City owned, a legal agreement exists between the property owner and the City
2	The pathway has an improved surface
3	The pathway does not provide an alternate route to an existing City-maintained sidewalk or pathway (400m threshold).
Plus must satisfy one of the following:	
1	The pathway is equipped with pathway lighting
2	The pathway provides pedestrian access to a community destination / attraction such as: • Rapid Transit (Transitway) • Transit Route (bus route) • School • Community Centre • Park (including parkland) • Seniors' residence • Long term Care (nursing home) • Library • Church • Other public institution • Retail / commercial centres • Business / industrial areas • Employment centres
3	The pathway connects communities or dead end streets and cul-de-sacs where alternate routes do not exist.

5.1.2 Summer Maintenance Standards

Summer maintenance standards are also conducted in accordance with MQS 2003. Summer maintenance standards reflect the inspection and repair of sidewalks and pathways and how they are prioritized for repair.

Annual Spring Inspection: The MQS 2003 requires all sidewalks and pathways be inspected annually in the spring, prior to June 15th. More precisely, the purpose of this is to ensure facilities are safe and passable/accessible for pedestrians, cyclists and other users by removing surface hazards and extending the life of the asset by preserving the infrastructure. The MQS 2003 also specifies that inspections are carried out to identify any deficiencies that could pose a risk to pedestrians, defined as bumps or depressions that result in water ponding, potholes, cracking, and vertical discontinuities. Deficiencies can be caused by frost action, tree root growth, and differential settlement of the soil substructure and/or deterioration of the surface due to excessive wear. Exhibit 5.4 describes the various types of deficiencies and assigned priorities.

Exhibit 5.4 Priorities Assigned to Sidewalk and Pathway Distortions

Priority	Condition Description
A	Condition that presents a potential hazard (public liability): vertical discontinuities or cracks of 3 cm, damaged bollards or other devices that restrict vehicle access;
B	Condition that impairs functions but is not a hazard: vertical discontinuities or cracks between 1.5 cm and 3 cm;
C	Condition that contributes to the long-term decline of the infrastructure: cracks less than 1.5 cm and spalling of the surface.

Source: MQS 2003, City of Ottawa

The MQS 2003 states that the action taken to eliminate hazards and the response time shall be based on the priority of the condition, as shown in Exhibit 5.5.

Exhibit 5.5 Repairs to Sidewalks, Pathways and Bus Pads

Priority of Condition	Action	Time
A	Clearly identify location as a hazard	Within 8 hours
	Make safe by repairing hazardous conditions	Within 7 days
B	Schedule into planned maintenance	As practicable prioritized based on severity.
C	Identify as part of infrastructure rehabilitation programs	Prioritized based on condition assessment.

Source: MQS 2003, City of Ottawa

A city-wide spring cleanup takes place annually prior to May 31st to maintain clean and safe roads, sidewalks and City-owned pedestrian malls by removing debris and

harmful materials that have accumulated during the winter. The spring cleanup maintenance activities for sidewalks / pathways are:

- Sweeping/cleaning of all hard surface sidewalks/pathways, where required
- Removal of debris and litter along pathways
- Cleaning of bridges, including sidewalks as they are concrete and may be impacted by de-icing material

General Visual Inspections: In addition to the official yearly spring inspection, General Visual Road Inspections of Primary Road Classes 1 and 2 take place between four times a week to once a month, depending on the road class. These road patrols are conducted to monitor and ensure proper road conditions, and also incorporate visual monitoring of sidewalks that are located within the right-of-way and can be reasonably observed from a moving vehicle.

5.1.3 Multi-use Pathways

Proper maintenance of pathways is imperative to providing pedestrians with an appropriate level of service. Condition ratings and life-cycle management of multi-use pathways should ensure that they are maintained and rehabilitated to appropriate standards for use by both pedestrians and cyclists.

5.2 Guidelines for Temporary Conditions

As part of the Pedestrian Oriented Design Guidelines recommended in Section 2.2, the City will include Temporary Conditions Guidelines for accommodating pedestrians in construction zones. They will be based on elements from the "Guidelines for Accommodating Cyclists in Construction Zones and Road Closures" (OCP 2009) and on the *Ontario Traffic Manual Book 7 – Temporary Conditions* (OTM Book 7). The OTM Book 7 was developed to provide basic uniform guidelines for traffic control in temporary work zones on or adjacent to public highways, including ramps and municipal roads and streets, as well as other public rights-of-way to which road traffic has access.[32] Although the main focus of OTM Book 7 is motor vehicles, it also examines pedestrian safety considerations, which will be incorporated in the new guidelines.

The guiding principles for development of the Temporary Conditions Guidelines for accommodating pedestrians in construction zones will be:

Safety is paramount: Pedestrians are vulnerable road users and their safety needs require careful consideration. Adherence to the guidelines will help ensure that the expectations of pedestrians are consistently met, which in turn will maximize their safety during temporary changes to the pedestrian network.

Responsibility is shared: The City is responsible for providing advance notification and ensuring detours are established around work zones, where facility closures result from contracted work or special events. Within construction zones, the contractor is responsible for providing all road users with safe passage. This is particularly necessary for pedestrians, who also require advance notification of sidewalk closures and alternate paths.

Limitations on application: The appropriate application of the guidelines may be more or less stringent in a given situation, depending on a number of variables including availability of alternate routes, development context, season and duration. The document is meant to complement, not replace OTM Book 7.

The guidelines will address the following key issues:

- Notification
- Pedestrian detours around work zones
- Impact on pedestrians of diverting cyclists onto sidewalks
- Temporary sidewalk and temporary route design
- Barriers and barricades
- Traffic control using flags or temporary signals
- Access to transit services
- Monitoring

6.0 Promotion and Safety Awareness

Encouraging walking, whether for recreation or utilitarian purposes, requires improving the pedestrian environment by making it safer and more attractive to users. Strong promotional programs and activities, which encompass all groups within the community, are also required to encourage pedestrian activity. Several programs have been developed within the city to improve roadway safety, educate pedestrians, promote walking for utilitarian trips and provide overall awareness about the positive aspects of walking as not only a viable mode of transportation, but also an integral part of a healthy and active lifestyle.

The principles of safety, walking, promotion and Transportation Demand Management (TDM) are integrated into various services and operations delivered by many City departments. Changes to the built environment to better accommodate pedestrians are fundamental; however, a successful pedestrian plan cannot rely solely on infrastructure improvements and changes in the approach to city planning and design. Promotional and safety components play important roles. Promoting walking as a mode of transportation and to increase physical activity levels is the responsibility of different City departments and is incorporated into a number of programs and strategies. This chapter provides an overview of the many safety and promotion programs that support walking.

6.1 TDM Strategy

For over a decade, the City has been involved in planning and implementing TDM initiatives through *Official Plan* and *Transportation Master Plan* policies and recommendations, including TDM-supportive planning practices; education and promotion; and complementary initiatives to encourage transit, cycling, walking and carpooling. Ottawa City Council approved the TDM Strategy in May 2012 with the goal of updating the programs and policies to encourage an increase in the use of sustainable mobility options.

The TDM Strategy supports *Ottawa's Strategic Plan* - Promote alternative mobility choices by emphasizing transit, cycling and walking as preferred ways of getting around the city; use education, promotion and incentives to encourage alternatives to driving, and provide information that encourages responsible travel. As well, it supports the

City's long term sustainability goals, most notably in terms of Connectivity and Mobility (goal: walking, cycling, and transit are residents' first choices for transportation), but also in terms of Health and Quality of Life (goal: all residents enjoy a high quality of life and contribute to community well-being).

Based on the *Official Plan*, *Transportation Master Plan*, and *City Strategic Plan*, as well as best practices in other jurisdictions and historical experience in Ottawa, the TDM Strategy identifies four overall goals for the City's TDM program:

- **Employee commuting and business travel:** Lead by example by motivating more sustainable commuting and business travel by City employees.
- **Communication and promotion:** Use communication and promotion initiatives to remove barriers to more sustainable travel choices by individuals.
- **Community partnerships:** Establish strong partnerships to engage individuals in workplaces, schools and neighbourhoods, and to extend the City's reach and leverage community resources.
- **Internal linkages:** Integrate TDM principles into a wide range of related City initiatives.

6.2 Pedestrian Safety and Evaluation

Whether pedestrian safety concerns are real or perceived, it is important to ensure that there are safety programs in place to assist residents with choosing to walk around their communities with more confidence. The notion that it may be unsafe or risky to walk around a community often comes from a feeling of being uncomfortable and not due to the degree of safety. Therefore, to help residents feel more comfortable with walking, the City has developed a number of programs that increase the safety of the pedestrian environment.

Public Works has the mandate for the Safer Roads Ottawa Program in partnership with Ottawa Fire Services, Ottawa Paramedic Services, Ottawa Police Service, and Ottawa Public Health. The following are some of the activities that are part of this program:

Annual Road Safety Report – The purpose of this report is to monitor road safety and provide a variety of statistics. Statistics include the number of collisions, fatalities and injuries, top 10 signalized intersection collision locations, collisions by hour of day, collisions by day of week, collisions by road surface condition.

Ottawa.ca – The City's website gives information on road users, including statistics such as that male drivers are involved in more collisions, and that collisions are the leading cause of death for teens. It also outlines key messages and traffic issues such as seat belts, impaired driving, and infant/child and booster seats.

Selective Traffic Enforcement Program (STEP) - The Selective Traffic Enforcement Program (STEP) targets enforcement of road rules. Each month, two traffic safety priorities are highlighted, such as following too closely, speeding, stop sign violations, pedestrian safety, etc. To determine when specific themes will be enforced, the program takes into consideration the timing of annual national and provincial campaigns, as well as education campaigns that occur during specific months each year, such as impaired driving in December and school bus safety in September. The program is coordinated with the City of Gatineau so that themes are the same in both cities and enforcement statistic are collected consistently from both police forces.

There are other programs for which Public Works is the lead department to increase transportation safety, generally, within Ottawa. While some of these programs are not aimed solely at the pedestrian, they are designed to make the overall transportation network safer and more comfortable for pedestrians:

Safety Improvement Program (SIP) – The City's Safety Improvement Program (SIP) is carried out once a year. It consists of examining locations with higher than usual collision rates. Comprehensive studies of collision patterns are carried out and used to suggest countermeasures, which can include modifications to signage, pavement markings, roadway geometry, etc. Most of the implemented recommendations are low-cost, high-return measures that result in improved safety.

Pedestrian Safety Evaluation Program – The purpose of the Pedestrian Safety Evaluation Program (PSEP) is to prioritize and implement road safety improvements focused on pedestrian safety crossing roadways at signalized and non-signalized intersections in Ottawa. PSEP is a 2013 pilot, which aims to reduce the frequency and severity of preventable collisions involving pedestrians. Recommendations are implemented through corresponding capital projects where possible.

Audible Pedestrian Signals – Audible Pedestrian Signals (APS) are the sounds heard at signalized intersections in the city. The APS use a combination of sounds to indicate which direction a pedestrian can cross the street safely by drawing the attention of

pedestrians towards the signal to provide improved security for the visually impaired, allowing them greater mobility. There are currently approximately 700 intersections in the city equipped with APS and this number increases every year.

Pedestrian Countdown Signals – This feature indicates countdown in seconds during the flashing "Don't Walk" interval of the pedestrian crossing time. It offers pedestrians more information on how much time they have left to safely cross the intersection. Countdown signals lead to fewer pedestrian-car collisions at intersections by providing pedestrians clearer information on when the lights will change. There are currently approximately 435 intersections across the city equipped with pedestrian countdown signals and this number increases every year.

School Zone Traffic Safety Education Outreach Program – The School Zone Traffic Safety Outreach Program is a free service provided to schools where a representative from the Ottawa Safety Council gives a presentation with the goal of educating children on safe walking and cycling. The points of discussion are: mid-block crossing; crossing at a stop controlled intersection; crossing at a signalized intersection; distracted walking; cycling safety; and, roundabout crossings. The presenter makes use of tools and props to make the educational process more interactive, and modifies the presentation delivery to cater to different ages.

Adult School Crossing Guard Program – The city currently has 154 Adult School Crossing Guards to assist children in crossing the street during their walk to and from school. Requests for new locations are received each year and the City conducts spring reviews to determine if a location would warrant the installation of an Adult School Crossing Guard. If so, and if funding is approved by City Council, the City will install signs and pavement markings to have the location ready for the start of school in the fall, when an Adult Crossing Guard will be assigned to the location.

School Child Safety Patrol Program – The School Child Safety Patrol Program is a partnership between schools and the Ottawa Police Service. Grade 6 – 8 students assist younger children in crossing the street near the school. The Ottawa Police

Service provides training to the older students on how to cross the road safely. Signs are installed to notify motorists that an established school crossing is ahead, and to eliminate stopping close to the established school crossing.

Snow Go Program – The Snow Go Program provides a matching service to seniors and persons with disabilities looking to hire an individual or contractor to clear snow from private driveways and walkways. Residents who participate in this program are responsible for paying the individual or contractor charged with removing the snow. During the intake process, home support agency staff identifies potential applicants who may be eligible to receive financial assistance through the Snow Go Assist Program.

Snow Go Assist Program – Eligible low-income seniors and people with disabilities may apply to receive financial assistance to pay for a portion of their snow removal costs through the Snow Go Assist Program. Approved participants may be reimbursed for 50% of the cost of snow and ice clearing per event, up to a seasonal maximum of $250.

Grit Box Program – To make the city's sidewalks safer to walk on in the winter, the City has placed 56 "do-it-yourself" grit boxes at various locations for residents to use. The boxes contain the same winter grit used by the City's snow operations staff to keep sidewalks safe for everyone. The grit boxes are located close to steep hills and in areas where there are many pedestrians, seniors and persons using mobility devices. All residents are encouraged to spread the grit on slippery spots on sidewalks and other problem areas.

6.3 Public Health

Through the Healthy Eating, Active Living Strategy, Ottawa Public Health (OPH) seeks to increase physical activity by promoting walking and active transportation. Walking for both recreational and utilitarian purposes is an important part of a healthy lifestyle across the life span. Programs vary in scope; however, the goal is to encourage more pedestrian activity:

Partnership with Ottawa Public Libraries – OPH has a long standing program in which pedometers can be borrowed by the public through Ottawa Public Library (OPL) branches, with the goal of encouraging people to walk 10,000 steps per day. In 2012, the pedometers were loaned out 1356 times. This evidence-based approach recently has been complemented by the publication of suggested walking routes of 1.5km to 2.0km in length around 30 OPL branches.

Workplace Health – OPH provides support to local workplaces to encourage active transportation and physical activity. Examples of activities include consultation on workplace policies, the development of a new toolkit, as well as presentations and workshops. OPH maintains an e-bulletin that goes out to employers five or six times per year to provide updates on events, resources and motivational tips.

School-Based Active Transportation – Public Health Nurses affiliated with over 300 schools in Ottawa work with educators, students, parents, and other partners (listed later in this chapter under Active and Safe Routes to School), to increase the number of children using active transportation to get to and from school. Public Health Nurses use a comprehensive approach to promote active transportation including: educating; advocating and assessing for supportive physical environments; promoting supportive social environments; and, partnering with key stakeholders. This includes supporting student committees, organizing events, providing how-to tips and offering traffic safety resources. As one of the key deliverables on the Board of Health's priorities, OPH is focusing on supporting all elementary schools to have a school travel plan. In 2013, OPH sponsored a Photovoice contest that encouraged students to submit photos of school active transportation.

Walking Promotions – OPH provides support and information about walking through community presentations, Ottawa.ca, and through existing walking groups such as the Wild about Walking group at St. Laurent Mall as well as rural clubs for seniors, which "makes you feel better, live better and be healthier", and is possible to enjoy year round.

Events **–** OPH hosts numerous events annually that promote healthy living, including walking. In addition to contributing to many of the events listed later in this chapter, OPH profiles walking and 10,000 steps a day at its own health promotion events, such as Ottawa Health Day and Physical Activity Month, and at community events such as Councillors' activities, multicultural celebrations, rural fairs and other well-attended venues.

6.4 Neighbourhood Connections Office

The Neighbourhood Connection Office (NCO) offers an easy way for residents and community groups to connect with the City to make things happen at the neighbourhood-level. Neighbours work together on projects that make their neighbourhoods more liveable, vibrant, healthy and beautiful. Project examples include making streets more walkable, revitalizing a park, or artistic initiatives such as street painting.

The NCO supports the *Ottawa Strategic Plan* objective of making sustainable choices and the objective of encouraging residents to contribute to the improvement of their quality of life. Both of these objectives are in line with the NCO promotion of 'complete, livable' neighbourhoods – the hallmarks of sustainable communities.

The NCO supports small-scale projects for all neighbourhoods by providing information and resources that are offered through the NCO web pages. The Better Neighbourhoods program for selected urban / suburban neighbourhoods supports small-scale community-driven projects at the neighbourhood level. Part needs assessment and part project implementation, selected neighbourhoods work with City staff to identify opportunities and to choose and implement projects.

This office will serve over 100 neighbourhoods in the urban and suburban areas. All neighbourhoods will have access to project tools and resources on the website. This will include a toolkit that will give a step-by-step process to determine neighbourhood needs and opportunities generate ideas for projects and decide what and how they will do to improve their neighbourhood. Funding information, such as fundraising advice or available funding programs, will also be provided.

6.5 Active and Safe Routes to School

Safe Routes to School is a national program that promotes the safe and active journey to and from school through the promotion of safety, physical activity and environmentally friendly modes of travel. Green Communities Canada has partnered with municipalities, school boards, public health and community organizations across the country to encourage children and their parents to use active modes for school travel. In Ottawa, City departments, local school boards, the Ottawa Student Transportation Authority, the *Consortium du transport scolaire d'Ottawa*, Ottawa Police Services and the Ottawa Safety Council are working together through the Green Communities Canada's Active and Safe Routes to School program to encourage more walking and cycling by children. Safer Roads Ottawa participates in this initiative as well.

Source: 2013 Youth Photovoice Contest, Ottawa Public Health

School Travel Planning – School Travel Planning is intended to encourage local ownership of Active and Safe Routes to School. It solicits the participation of stakeholders such as school boards, municipal transportation planners and engineers, public health, police, parents, students and school staff. School Travel Planning conducts research to identify any obstacles to active transportation to school and implements solutions, with the support of local stakeholders. This initiative leads to better health for school children and reduced traffic congestion, amongst other benefits. It is currently being implemented at 17 Ottawa schools (12 elementary schools and five high schools).[33]

Source: 2013 Youth Photovoice Contest, Ottawa Public Health

iCAN walk to School…Can you? – Schools taking part in the program log their walking and active travel activities during the year for prizes. They can organize a weekly or monthly walk to school/walk at school campaign, or participate in Winter Walk Day in February during Heart Month, or Spring into Spring in April to June.

International Walk to School Day/Week/Month – International Walk to School Day/Week/Month is celebrated on the first Wednesday of October, and has been a tradition in Canada since 2000. The event is intended to foster a culture of walking in the schools and their communities. iWALK provides support documentation to assist participating schools in organizing their event. Students, parents and teachers plan the event by organizing contests and canvassing local businesses and organizations to donate prizes or refreshments for the students. Schools promote iWALK in their community, invite special guests, and involve the media.

Winter Walk Day – Winter walk day is a cross-Canada event that provides tips for dressing for winter walking and for making winter walking fun. Where walking to school is not possible, walking to a local skating rink for a skate or holding a winter carnival in the school yard at lunch is encouraged.

Walk/Wheel on Wednesdays – Designates one day per month or one day per week as a Walk to School Day or a Wheel to School Day, starting right after International Walk to School Week in October. The event encourages families to commit to one day where they break their car habit and take part in active transportation to reach their destination, be it walking or cycling. Program benefits include less congestion near schools.

Spring into Spring – Participating schools walk, jog, skip or bike for a week between "Earth Week and Clean Air Day". It can combine activities with Earth Week (April) or Environment Week (June). Program benefits include a healthier environment, safer streets and making friends, amongst others.

The iWalk Club – The iWALK club promotes active travel and healthier lifestyle choices for students and their families. Schools receive membership cards and stickers. Participation is not limited to students walking to school; those who take transit to school can walk part way to qualify, and those that must be driven can encourage their parents to make them walk in a "walk a block" zone set up by the school.

6.6 Other Programs

The City has developed a number of plans and programs that incorporate walking supportive activities:

Rural Pathways Monitoring Program / Rural Pathways – Following the construction of the Prescott-Russell Rural Pathway and the Osgoode Rural Pathway and the subsequent adoption of the Rural Pathways Shared-Use Policy, the City has implemented a program to monitor pathway usage levels and to obtain feedback from pathway users and residents to determine the effectiveness and impact of the Shared-Use Policy. Ongoing monitoring will continue via a set of automated counters installed along the pathways.

Suburban Subdivision Design Guidelines – A comprehensive look at how the City designs suburban subdivisions will include analysis of parking, rear lanes, road right-of-ways, boulevard width, sidewalks, trees, street layout, parks, open space and school sites.

Urban Residential On-Street Parking Program – Policies that guide the residential parking permit program and leverages on-street parking as a traffic calming measure of urban residential streets.

Individual Marketing Pilot Program (IMPP) – The IMPP will provide customized information and motivation to residents of the Westboro Beach neighbourhood to encourage sustainable travel habits using transit, cycling and walking. The shift from automobile use to sustainable transportation alternatives is a key component to the City's transportation strategy and supports the City's overall growth management objectives.

Richmond Road/Westboro Transportation Management Implementation Plan (TMIP) – The TMIP identifies programs, policies and infrastructure improvements that promote a shift to more sustainable modes of transportation, including walking, in the Richmond Road/Westboro community over the next 15 years. These measures include pedestrian specific initiatives such as infrastructure improvements and the implementation of safety programming and promotion.

Older Adult Plan – The Older Adult Plan (OAP) represents a significant initiative that will help the City enhance the quality of life of older adults in the community. The OAP supports Ottawa's *Strategic Plan* to achieve equity and inclusion for an aging and diverse population. Further, Council has included as one of its priorities for the current term (2011 to 2014): to help all residents enjoy a high quality of life and contribute to the community well-being through healthy, safe, secure, accessible and inclusive places. The needs of a diverse and aging population will be accommodated by effectively planning and implementing changes to major infrastructure development and service delivery. Two issues brought forward in the OAP report are that many seniors feel unsafe walking on sidewalks and pathways and the increase in the number of motorised scooters and wheelchairs that may result from an aging population. Both are to be addressed with an education campaign and a review of implications of motorised mobility aids using bikeways. There are also recommendations associated with the OAP aimed at enabling older adults to be more active through better infrastructure.

Area Traffic Management Program - A program focused on preserving quality of life in neighbourhoods by mitigating undesirable effects of motor vehicle use, including excessive volumes and speeds, aggressive driver behaviour and hostile conditions for walking and cycling. A wide range of area traffic management tools can be considered through this program, including road network modifications, traffic control devices, traffic calming measures, streetscaping, enforcement, transportation demand management and public education.

7.0 Inter-jurisdictional Cooperation

The City shares with other government agencies the goal of a pedestrian-friendly city. These partners include the National Capital Commission (NCC) (multi-use pathways and crossings), Public Works and Government Services Canada (Interprovincial bridges and management of federal properties), Parks Canada (Rideau Canal), the Province of Ontario (highway crossings, roadway design, Highway Traffic Act and various regulations) and the City of Gatineau.

Pedestrian activity is important between the core areas of Ottawa and Gatineau and relies on crossings over the Ottawa River that are the shared responsibility of the Federal Government and the NCC. Joint initiatives undertaken with these two partner jurisdictions that most affect pedestrian activity in Ottawa are further discussed within this chapter.

7.1 Federal Government

7.1.1 National Capital Commission

The Ottawa-Gatineau region is fortunate to be at the confluence of three major rivers and a canal. The NCC, through the Gréber plan, established an extensive set of pedestrian and cycling facilities along these natural corridors as well as within Gatineau Park and the Ottawa Greenbelt. This network is largely completed, but the NCC and the City have been continually improving these facilities. The City's rural pathways and the NCC's 55 kilometres of Greenbelt pathway are good examples of such initiatives.

The NCC has also expanded its pathway network (example: new links to Blacks Creek) as well as addressing long-standing missing links such as the Rockcliffe Park pathway between Acacia and Lisgar.

The following collaborations are envisaged between the City and NCC in support of walking in the National Capital Region:

- The NCC places particular emphasis on improving connectivity between Ottawa and Gatineau, with an emphasis on green crossings, and providing visitors and residents improved opportunities to explore the Capital's shorelines with future concepts such as a potential bicycle/pedestrian crossing on the Prince of Wales Bridge.

- The City and NCC strive to develop similar standards and usage policies (for example signage and pathway rules) to promote as seamless an environment for pedestrians as possible.
- The NCC conducts its own safety campaigns on pathways focusing on the promotion of "Sharing the Pathway" codes of conduct to reduce bicycle-pedestrian conflicts and co-operates with the City on wider safety and promotional initiatives.
- The NCC is considering opportunities to improve bicycle/pedestrian crossings of Queen Elizabeth Driveway and Colonel By Drive.
- The City and NCC work on reducing sidewalk cycling in the core thereby reducing bicycle-pedestrian conflicts and increasing safety for pedestrians.
- The City and NCC work on development of way-finding and on-line mapping resources to help residents and visitors explore the National Capital Region by foot.
- The NCC considers City requests to maintain its pathways during winter months, but does not offer funding support.

7.1.2 Interprovincial Bridges

Pedestrians have been well served by existing Ottawa River crossings. There are five interprovincial crossings connecting the urban areas of Ottawa and Gatineau. Each of these bridges provide infrastructure to enable pedestrians to travel between both cities:

MacDonald Cartier Bridge – is currently undergoing an extensive rebuild which will provide a bi-directional multi-use path on the east side of the span, including improved connectivity at both approaches. Although the bridge includes pedestrian facilities, it is not as extensively used as the other bridges connecting the downtown cores.

Alexandra Bridge – provides a convenient link between key government, tourist and cultural destinations on both sides of the river. There are bi-directional pedestrian and cycling facilities on the west side of the span.

Portage Bridge – provides a scenic link between LeBreton Flats and the area west of downtown Ottawa to the Hull sector. The span includes sidewalks on both sides.

Chaudière Bridge – connects Booth Street (and the War Museum/LeBreton Flats) to Rue Laurier and Rue Eddy in the Hull sector. It provides for a convenient connection between the western end of Ottawa's downtown core and the Gatineau downtown, as well as providing access to Victoria Island.

Champlain Bridge – connects the western communities within Ottawa's Greenbelt to western communities in Gatineau via Island Park Drive and chemin d'Aylmer/boulevard Tâché. There is a narrow sidewalk on the east side of the span which is separated from the roadway by a bicycle lane. This is a scenic route that also connects directly to the NCC pathways located on both sides of the Ottawa River.

7.2 Province of Ontario

The Province exerts considerable influence over the future evolution of walking facilities in Ontario Cities. Provincial influence extends to setting legislation in the Highway Traffic Act as well as technical guidelines for roadway design (backed up by appropriate legislation and regulations such as OTM Book 15 on Pedestrian Crossing Facilities), and also holds responsibility for crossings over Highway 416 and 417 in Ottawa, many of which are key pedestrian routes.

On 19 September 2012 the Office of the Chief Coroner for Ontario released the *Pedestrian Death Review - A Review of All Accidental Pedestrian Deaths in Ontario from January 1st 2010 to December 31st 2010*, containing a series of recommendations encouraging both pedestrian-oriented policy and operational improvements intended to improve safety conditions for Ontario's pedestrians. The purpose of the Chief Coroner's *Pedestrian Death Review* was to examine the circumstances of 95 pedestrian deaths that occurred in Ontario in 2010 and make recommendations to help prevent future pedestrian deaths. The *Pedestrian Death Review* contained 26 recommendations in the areas of Leadership, Legislation, Education, Engineering and Enforcement. The transportation policy recommendations contained in the *Pedestrian Death Review* provided guidance to the Pedestrian Plan review process as the intent of the Chief Coroner's recommendations were considered and applied in the development of the updated Plan.

7.2.1 Ministry of Transportation Ontario Sustainability Strategy

The Ministry of Transportation (MTO) has developed a sustainability strategy - *Sustainability inSight* - that includes goals for sustainable transportation. The following are examples of how the ministry will provide guidance related to pedestrian activity:

- Providing access to a variety of transportation options so that the mode best suited to the trip, and which is the most sustainable, can be chosen

- Encouraging the use of multi-modal trips through safe and comfortable pedestrian connections to transit
- Integrating land use and transportation planning to encourage walkable, mixed use communities
- Encouraging the use of TDM strategies to promote sustainable transportation modes and manage vehicular congestion, which could lead to collaboration between the province and municipalities

Additionally, the 2012 Chief Coroner for Ontario's *Pedestrian Death Review* recommended that "the MTO should amend the *Highway Traffic Act*, to allow for municipalities to set the unsigned default speed limit at 40 kilometres an hour on residential streets, a decrease from the current 50 kilometres an hour." This recommendation is supported by both the City's TMP and the OPP 2013. The Coroner's Panel was of the opinion that the scientific evidence that pedestrians struck at lower speeds had a far greater chance of survival was irrefutable. In addition to lower default speed limits, corresponding engineering changes were acknowledged as encouraging the adoption of the slower speed.

7.2.2 Ontario Trails Strategy

The Ontario Trails Strategy is a framework that is designed to bring all trail stakeholders in the province together to enhance the trail network in Ontario. Trails are a significant component of the pedestrian network and this document provides guidance on how to ensure that trails continue to be part of this system.

7.3 City of Gatineau

The City of Ottawa and the City of Gatineau will work together to integrate active transportation networks and policies, and in particular to improve further quality and interconnectedness of links over the Ottawa River. The following policies and joint initiatives will be considered by Gatineau as part of its 2013 Mobility Plan (*Plan de déplacements durables*) update subject to the required review and approval process. Any implied investment will also be subject to the City of Gatineau budget process, notwithstanding any previous policy agreements. In that respect, the Gatineau Mobility Plan includes the following recommendations:

- Give consideration to develop a multi-year proposal for full-time monitoring of all traffic modes crossing the Ottawa River scan-line (all modes, all year)
- New streets designed to accommodate pedestrians and links to the bike routes
- Infrastructure improvements for active modes (sidewalks, curb extensions, bike lanes, bike storage)
- Implementation of the recommendation contained in the Gatineau special planning program for the downtown, to improve conditions for pedestrians and cyclists[34]

8.0 Conclusion

A strong pedestrian transportation vision and policy for pedestrian travel in Ottawa are key components in a balanced Transportation Strategy. Developing a safe, convenient and comfortable network of walking routes and walkable environments will make walking a feasible and attractive mode of travel. This requires creating pedestrian-scaled urban environments with safe and well-connected network of pedestrian facilities that supports access to a diverse mix of destinations such as transit, schools, retail, recreation and employment opportunities. A walkable community is safe, convenient and enhances the mobility and health of residents while creating a more liveable, inclusive and vibrant city.

To create a pedestrian-friendly city, the OPP 2013 includes the following key elements:

Updated Pedestrian Vision, goals and objectives – To inform and strengthen the City's growth management in a pedestrian-supportive manner and through creation of a Pedestrian Charter for Ottawa.

Obtainable mode share targets that reflect the characteristics of different areas of the city – Revised targets include specific rates for the rural communities and villages, the outer suburbs, the inner suburbs and the inner core, based on historical data and growth projections.

Tools to measure walkability – A Walkability Map tool which illustrates the variation in walkability across the city, identifying hot spots of walkability and a new performance measure describing intersection operation from the perspective of pedestrians.

Strengthened policies for pedestrian facilities – Which ensures pedestrian accessible, safe, and direct connections to key pedestrian destinations primarily transit, schools, parks and other important community amenities are provided in a timely manner that is most cost-effective, minimizes disruption and results in the best quality facility.

A refined methodology for prioritization of stand-alone retro-fit pedestrian infrastructure projects – An updated and refined methodology for project ranking to ensure retrofit by priority to fill gaps in the walking network at priority locations that best

support increases in the walking and transit modal shares, with a focus on safety on roads with greater speed and volume.

Guiding principles for implementation – The development of pedestrian facilities within an overall policy framework is necessary for increasing walking modal share and building a walkable city. The development of the pedestrian network will take time to evolve and is primarily dependent on the design of new developments, road construction and reconstruction opportunities and funding for stand-alone retrofit pedestrian facilities. Three guiding principles are proposed to implement a cost-effective and quality pedestrian network:

- Create no new deficiencies – Build new communities and develop sites with adequate density and quality of pedestrian facilities to create walkable communities.
- Maximize opportunities through construction – Build sidewalks when roads are being constructed or reconstructed, as this is cost-effective, not disruptive and results in a better quality facility.
- Retrofit by priority – Undertake stand-alone projects to fill gaps in the walking network at priority locations that best support increases in walking and transit modal shares.

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Annex A

Summary of 2009 Pedestrian Plan Recommendations

Summary of Status of 2009 Pedestrian Plan Recommendations

Rec #	Technical Recommendation	Action	Pedestrian Plan 2013
7.1	Form an interdepartmental working group comprised of staff involved in planning, design, maintenance and rehabilitation of sidewalks and pathways, to coordinate efforts in pedestrian network management.	Discussions undertaken and ongoing as required	NA (Resolved)
7.2	Use walking participation results from the 2005 Origin-Destination Survey, and future updates to this survey as a source indicator of possible trends.	Completed	Now also includes 2011 OD data
7.3	Undertake a comprehensive review of roles and responsibilities for all aspects of sidewalk and pathway planning design, operation, rehabilitation and maintenance to ensure that responsibility for all aspects of the pedestrian network infrastructure have been accounted for and properly assigned to the appropriate Branch or Department.	Completed	NA (Resolved)
7.4	The scope and budget for new and reconstructed roads are to include the provision of sidewalks and / or multi-use pathways as prescribed by the Pedestrian Plan, the Official Plan and the Transportation Master Plan.	Completed	Strengthened policy directive
7.5	Modify the New Sidewalks Link program using the criteria and weighting system for assessing candidates identified in the Ottawa Pedestrian Plan, so that eligibility is established and a clearer separation of priorities is achieved. This may include recommendations for the development or reinstatement of parallel program(s) for pedestrian facilities, other than sidewalks such as pathways.	Completed	Refocused to align with City priorities for better integration with transit and increasing modal share
7.6	Consolidate pedestrian master data, currently managed independently by various branches, utilizing the corporate GIS tool. This would require processes to ensure data is continually updated and refined by the various data “owners”.	Data updates ongoing; to be available on GeoOttawa	NA (Resolved)
7.7	Refine and adopt the Community Pedestrian Improvement Process methodology and process to assess the walkability of a community, subdivision or specific site. This methodology proactively improves pedestrian facilities by analyzing pedestrian origins, routes and attractions.	Completed	NA (Resolved)

Annex A –Summary of Recommendations | 2013

Rec #	Technical Recommendation	Action	Pedestrian Plan 2013
7.8	Establish a Pedestrian Network for Ottawa based on: a) The proposed pedestrian network presented in Schedules 1 through 17; b) Refinements to the network through the application of the Community Pedestrian Improvement Process (as established in recommendation 7.7);and c) The consistent application of the Community Pedestrian Improvement Process methodology to all planning and development process, undertaken by all City Branches.	Completed	Network updated for phased implementation to 2031
7.9	Launch the Ottawa Pedestrian Plan by selecting a community for a pilot Community Pedestrian Improvement Process from one of the priority communities identified in Table 7.7 of this Plan. Establish an appropriate study budget and review and report on the outcomes of the pilot including any recommendations and future capital funding allocation request.	Funding not provided for pilot. PIP applied during review processes	Strengthened policy directive
8.1	Develop a Pedestrian Charter for adoption by the City that represents a commitment to creating a walkable and pedestrian –friendly city. Link the Pedestrian Charter to the City of Ottawa Official Plan and Transportation Master Plan.	International Walking Charter signed 2011.	Ottawa Walking Charter
8.2	Integrate pedestrian planning tools and methods from the Ottawa Pedestrian Plan, particularly the Pedestrian Improvement Process into planning processes (such as the Community Design Plan process), which will then form part of the base pedestrian network. These tools also include walkability audits and the various pedestrian supportive guidelines.	Ongoing application	Strengthened policy directive
8.3	Establish a priority list of landscape and streetscape improvements within each Secondary Plan and Community Design Plan to further walkability.	Ongoing application	Strengthened policy directive
8.4	Create a Pedestrian Facility Planning and Design Guideline document to be used during the development review and capital works processes. Base the guidelines on a consolidation of the pedestrian –supportive recommendations in existing City guideline documents, as well as the safety and accessibility guidelines presented in the Ottawa Pedestrian Plan.	Some aspects completed.	Proposed Pedestrian- Oriented Design Guidelines

Rec #	Technical Recommendation	Action	Pedestrian Plan 2013
8.5	Require the pedestrian design solutions established by the pedestrian plan be applied to the development application process. (Reference recommendations 8.1, 8.3, 8.4, and 8.5.)	Ongoing application	Strengthened policy direction
8.6	Amend the Transportation Impact Assessment (TIA) Guidelines to specifically include the requirement for a description of how the site meets the pedestrian supportive guidelines and Community Pedestrian Improvement Process methodologies (Reference recommendation 8.5).	Ongoing – TIA under review	NA (ongoing)
8.7	Use the sidewalk boulevard guidelines presented in Table 8.4 as a guide for the development or redevelopment of roadways.	Some aspects completed.	Proposed Pedestrian-Oriented Design Guidelines
8.8	On new road construction, road reconstruction and rehabilitation, apply Ottawa's Pedestrian Guidelines and Community Pedestrian Improvement Process and methodology.	Ongoing application	Strengthened policy directive
8.9	That the defined sidewalk pedestrian zone meet accessibility guidelines and remain unimpeded.	New City of Ottawa Accessibility Design Standards	NA (Resolved)
9.1	Review design elements of sidewalks and street crossings to ensure that they meet accessibility and safety guidelines presented in the Pedestrian Plan and include consideration of pedestrian signal activation devices on pedestrian islands.	Some aspects completed.	Proposed Pedestrian Oriented Design Guidelines
9.2	Review warrants for ladder markings at pedestrian crossings for their application at locations such as school crossings, roundabouts (particularly multi-lane) and multiple right-turn and left-turn lanes.	Review not undertaken	NA (no further action)
9.3	Improve measures to reduce risks and improve accessibility for pedestrians passing through road construction zones including advance signing for construction activities, temporary conditions that are fully accessible and pedestrian specific detours where appropriate.	Some aspects completed.	Proposed Pedestrian Oriented Design Guidelines
10.1	Review road and sidewalk maintenance standards, as an initiative under the City Strategic Plan, with a specific focus on levels of service and maintenance classifications based on the sidewalk's transportation role.	In 2013 Pedestrian Plan	New Winter Maintenance Scenarios Included in 2013 Plan

Rec #	Technical Recommendation	Action	Pedestrian Plan 2013
10.2	Support programs with the assistance of partners such as the Yellow Grit Box Program and the Snow-Go Program including the development and introduction of new programs to meet specific needs.	Ongoing Programs	NA (ongoing)
10.3	Undertake a comprehensive review of roles and responsibilities for managing the lifecycle continuum (planning, construction, maintenance, rehabilitation, reconstruction and lighting) of pathways to ensure that responsibility for all aspects of the pedestrian network infrastructure have been accounted for and properly assigned to the appropriate Branch or Department (Reference recommendations 7.1 and 7.3).	Ongoing review	NA (ongoing)
10.4	Adopt the sidewalk pathway maintenance criteria presented in Table 10.4.	Being applied on ongoing basis	Included in Pedestrian Plan 2013

Annex B

Ottawa Pedestrian Charter

City of Ottawa
PEDESTRIAN CHARTER

Recognizing the crucial role that walking plays in creating an attractive, accessible, safe, and healthy city, Ottawa has developed a Pedestrian Plan that places walking at the core of a sustainable transportation system. This Charter summarizes the City's pedestrian vision, goals and objectives and articulates a commitment to creating a city where people walk not because they have to, but because they want to. It will inform decisions on the allocation of space and funding, and engrain a culture of walking into City decision making.

OTTAWA'S PEDESTRIAN VISION

Transform Ottawa into a world class pedestrian city where an equally vibrant and functional pedestrian realm encourages people to walk all year-round. With the realization of this Vision, Ottawa will become a more:

Vibrant ƒ † Beautiful City

A walkable urban environment encourages social interaction and local economic vitality.

Sustainable City

Pedestrian-oriented land use patterns reduce automobile dependency, land consumption and emissions.

Equitable City

Walking is the only form of transportation that is universally affordable, and allows children, the elderly and people of all abilities to travel independently.

Safe City

An environment in which people feel safe and comfortable walking increases community safety for all.

Healthy City

Walking is a proven method of promoting personal health and well-being.

Integrated City

Walking is a part of every trip. Through integrating an attractive pedestrian environment with cycling and transit networks, walking becomes a viable alternative to automobile travel for short distances.

To create an urban environment where walking is the first choice mode of travel, the City of Ottawa:

- Recognizes that the pedestrian environment is valued (not vacant) space that should be protected when designing for other users;
- Gives due consideration to the aesthetics of pedestrian space in the physical design of infrastructure;
- Encourages the organization of land uses that create rich detail and a mix of experiences, making walking more interesting and attractive;
- Continues to allocate sufficient resources to maintain pedestrian spaces year-round;
- Enhances pedestrian facilities to reflect the intensity of pedestrian use;
- Establishes and enhances pedestrian routes to transit, schools and parks to promote healthy, active lifestyles;
- Creates complete streets that make walking trips more direct, interesting and productive, within a pedestrian scaled, permeable urban environment;
- Minimizes unnecessary interruptions for pedestrians including signal delay and physical obstructions;
- Establishes a well-connected network of active modes of transportation, providing residents with alternatives to the automobile;
- Collects, analyzes and distributes data that helps articulate the social, economic, environmental and health benefits of walking as a form of travel, exercise and recreation;
- Coordinates efforts with other levels of government and works with local citizens, community groups, and businesses toward achieving the Pedestrian Vision.

A safe, convenient, and beautiful pedestrian environment will enhance the mobility and health of Ottawa's citizens, creating a more liveable, inclusive and vibrant city.

Ottawa

Annex C

Trends Analysis

TRENDS ANALYSIS

1.0 Introduction

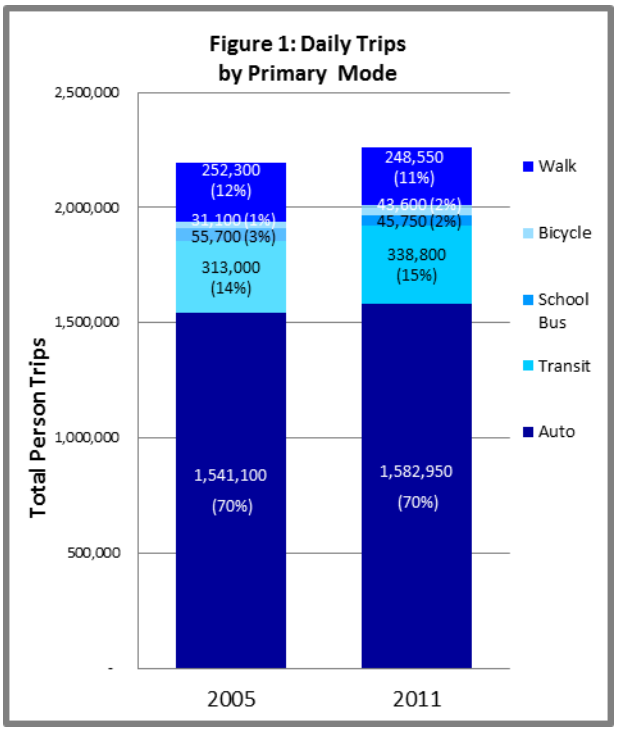
Active transportation is becoming an increasingly popular means for Ottawa residents to lessen their impact on traffic congestion and minimize negative environmental impacts, while promoting an active and healthy lifestyle. In recent years, more attention has been placed on infrastructure and services that support active transportation, which has led to higher levels of public investment. In response to this interest and demand, the City released its first Pedestrian Plan in 2009 to guide the future development of infrastructure and policies that support walking as a mode of transportation.

Detailed area-wide travel surveys to examine the travel behaviour of Ottawa and Gatineau residents have been used for many years by local planning agencies to determine trends and gain insight into the daily decisions of local residents about where, when, and how they travel. The most recent travel survey was completed in 2011 by the TRANS Committee, representing all levels of government on both the Ontario and Quebec sides of the National Capital Region. This report provides a comparative analysis between the 2011 survey and the previous survey from 2005 with a specific focus on the changes in travel demand and behaviour for walking trips.

The travel surveys used in this analysis were undertaken in the fall months, as this time period is considered reflective of typical travel patterns. However, the use of active transportation peaks during the summer months and declines into the fall, so it is notable that the proportions of walking trips reported in the travel survey may not be fully reflective of the peak numbers of travellers using these modes.

2.0 Growth in Daily Travel

The 2011 Survey reported approximately 2.26 million daily trips on a typical workday, an increase of approximately 3% from the previous survey in 2005. This increase reflects the growth in Ottawa's population and employment over this time. This growth varies further when examined based on time of day and the location of the origins and destinations of trips; this variation is examined in the following sections.



3.0 How We Choose to Travel

Traditionally, the prevailing mode of transportation in Ottawa has been the private automobile, although the City's investment in transit infrastructure has resulted in a relatively high transit mode share, particularly during the morning and afternoon peak travel periods. **Figure 1** illustrates the choice of transportation modes that respondents reported using for their daily trips for the 2005 and 2011 travel surveys.

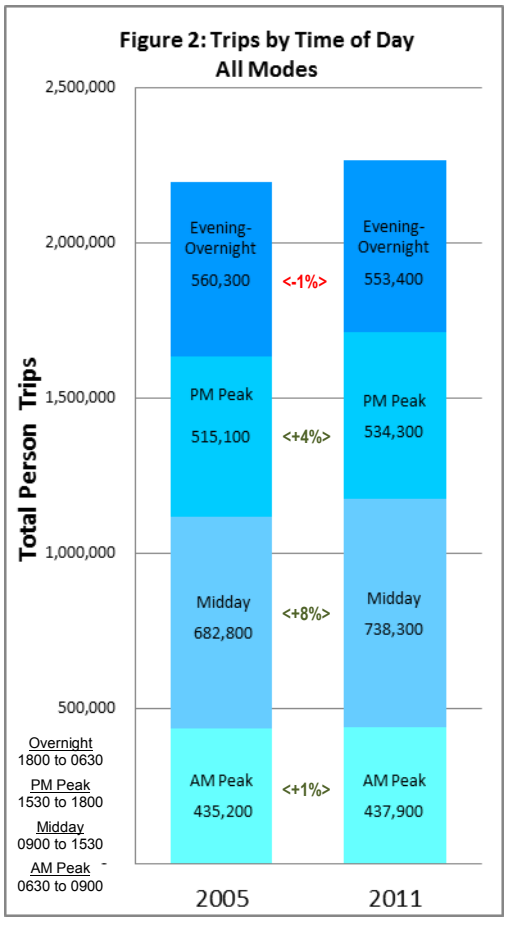
The data illustrates the continuing prominence of the private car, accounting for approximately 70% of all trips made in the city in both the 2005 and 2011 surveys. An increase in transit use is noticeable as well, with the number of transit trips growing by approximately 8% between 2005 and 2011 and causing an increase of nearly 1% in the overall share of trips using this mode.

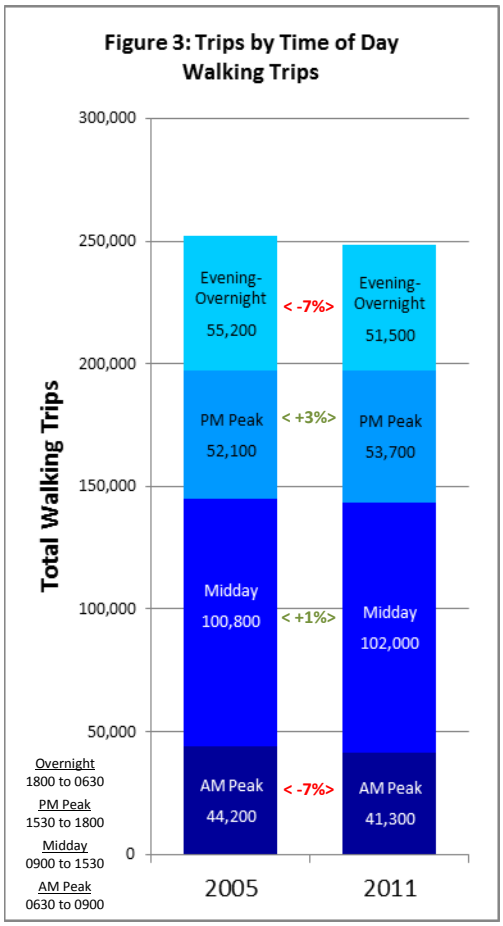
Also notable is the changing role of active transportation (walking and cycling) in the city between the two survey years. The overall number of daily active transportation trips has increased by about 3% between 2005 and 2011, which is consistent with the reported growth in the overall trips by all modes. The proportion of trips using these modes has remained stable at approximately 13% during both survey years.

When reviewed in detail, the active transportation trips show an increase in cycling trips (12,500), but a slight decrease in walking trips (-3,750) reported in the 2011 survey by comparison to 2005. As a result, walking trips now represent 11% of all trips, down from 12% in 2005. This could indicate a shift of some walking trips to cycling trips as a result of the City's increased investment in cycling infrastructure over the past several years.

4.0 When we travel

Figure 2 illustrates the change in trips between the 2005 and 2011 travel surveys by time of day. The number of trips grew in all periods of the day except for the evening-overnight period (6:00pm to 6:30am), which reported a 1% decrease in trips from 2005 to 2011. The growth in travel during the AM peak hour was fairly low (1%) while the midday and PM peak periods reported 8% and 4% increases in the total number of trips made during these times, respectively.





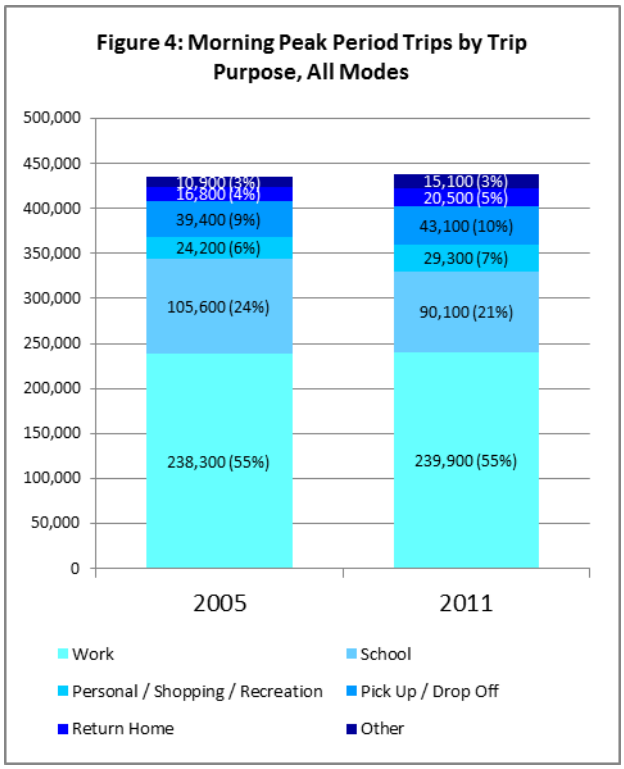
The morning and afternoon peak hours traditionally have represented the highest concentrations of daily trips; both the 2005 and the 2011 surveys show that the trips made during these two periods account for approximately 44% of all trips made during the day. Of these, the afternoon period continues to be the busiest period, largely due to work and school trips during this time being linked with including shopping, personal and recreational trips.

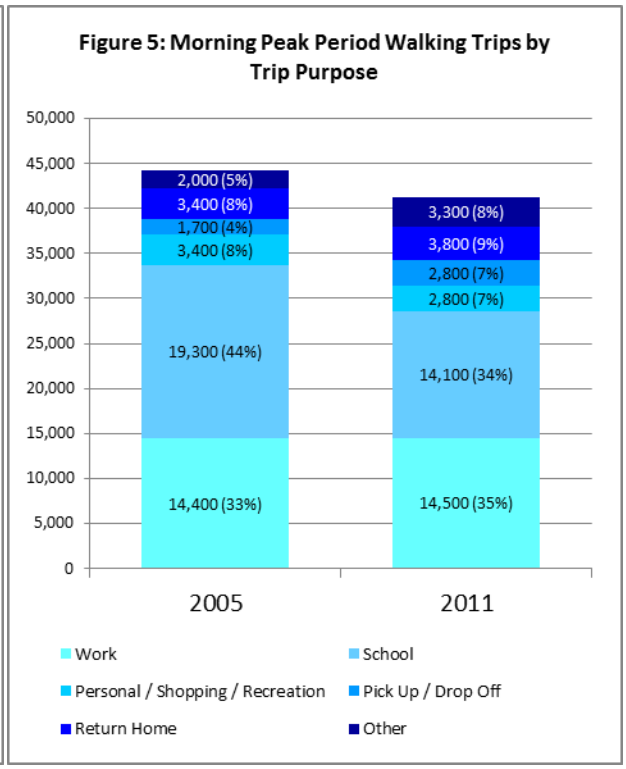
Figure 3 illustrates the change in walking trips between the 2005 and 2011 surveys by time of day. There is some increase in walking trips during the midday and afternoon peak periods, but decreases in the morning peak and evening-overnight periods that account for the overall drop in walking trips indicated in Figure 1. Walking trips represent approximately 10% of the overall trips for the morning peak, afternoon peak and evening-overnight periods in both surveys. The share of walking trips during the midday period is higher, representing 15% and 14% of all trips during this time in the 2005 and 2011 surveys, respectively.

5.0 Why we travel

Understanding the purpose of our trips provides further insight into the choice of when and how we travel. Some trips, such as work and school commutes, must take place within specific windows of time, while more discretionary trip purposes, such as shopping trips, can be scheduled with more flexibility. In addition, there are many factors that will determine the range and attractiveness of transportation options available for any given trip, depending on the time, number of passengers, if there are any trips being linked, and transportation amenities available (vehicles, transit service, parking).

Figures 4 and 5 summarize the proportions of trips made for various purposes during the morning peak period. Commutes to work and school represent nearly 80% of all trips made during this time period, with a further 10% being related to picking up and dropping off passengers, likely at school and work as well. Discretionary trips such as shopping and visits make up only a small proportion of trips during the morning peak.





Of all walking trips made during the morning peak period, commutes to work and school accounted for 69% in the 2011 travel survey, down from 77% in 2005. This is reflective

of the overall drop in walk trips during the 24 hour and morning peak periods highlighted in the previous sections. Walk trips are strongly aligned with school trips, with the proportion of school walking trips being nearly double of the proportion of school trips by all modes combined. Walking trips account for a higher proportion of trips returning home and 'other' trips than for trips of all modes, and a slightly lower proportion of pick up and drop off trips.

Figures 6 and 7 list the proportions of all trips and walking trips made for the same trip purposes across the whole day. The proportion of work and school trips across the full day are considerably less than what is observed for the morning peak period, due to the majority of these trips occurring during the morning only. Trips reported as "return home" represent the return home from all trip purposes and would be expected to approach 50% across the full day; the fact that the total of these trips is just over 40% in both surveys indicates a proportion of travellers who are linking trips of different purposes in one outing before returning home.

Figure 6: Daily Trips by Trip Purpose, All Modes

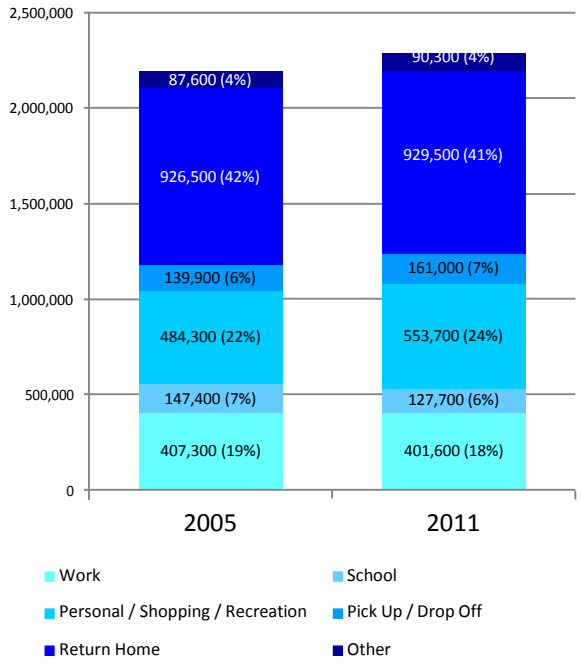
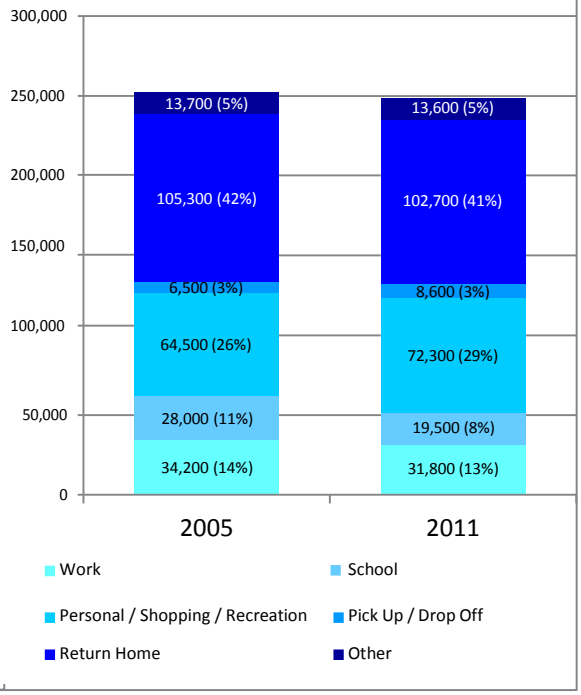
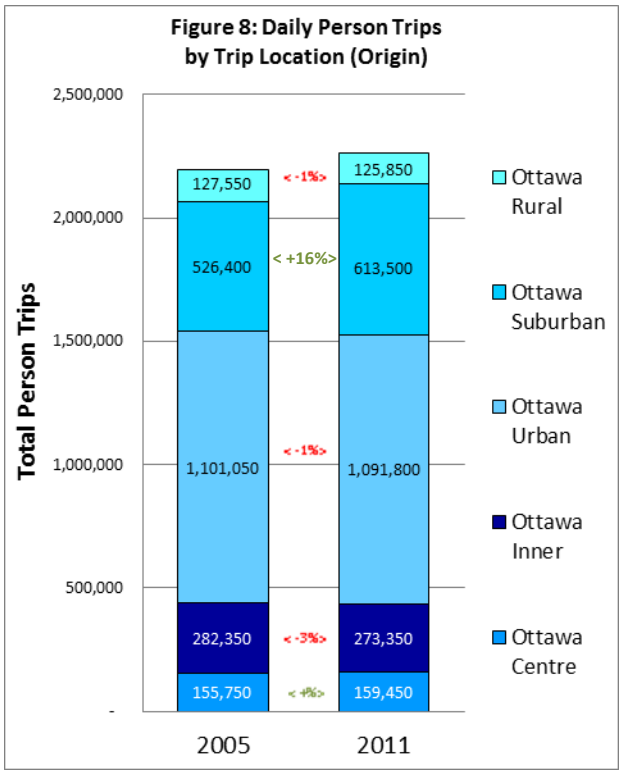


Figure 7: Daily Walking Trips by Trip Purpose



The proportion of walking trip purposes again indicate that walking trips are more prominent for trips to school and discretionary person trips compared to all modes combined, while being slightly less prominent for work trips and picking up or dropping off passengers.



6.0 Where we travel

Figure 8 illustrates the trips made in 2005 and 2011 based on the location in the city where these trips began, **Figure 9** illustrates the locations of areas used in this summary. The results show a significant increase in daily trips (about 16% or over 85,000 trips) originating in the suburban communities outside of the Greenbelt, reflecting the growth in new housing in these locations. In comparison, the number of trips made in the urban and inner areas of the city fell by approximately 10,000 in each area. Rural areas have also reported a slight decrease in daily trips but continue to account for approximately 6% of trips overall.

Ottawa Centre (the core area) saw an increase of almost 3,700 daily person trips, reflecting a more than 2% growth since 2005. This demonstrates the regional role Ottawa's downtown area plays in terms of job location.

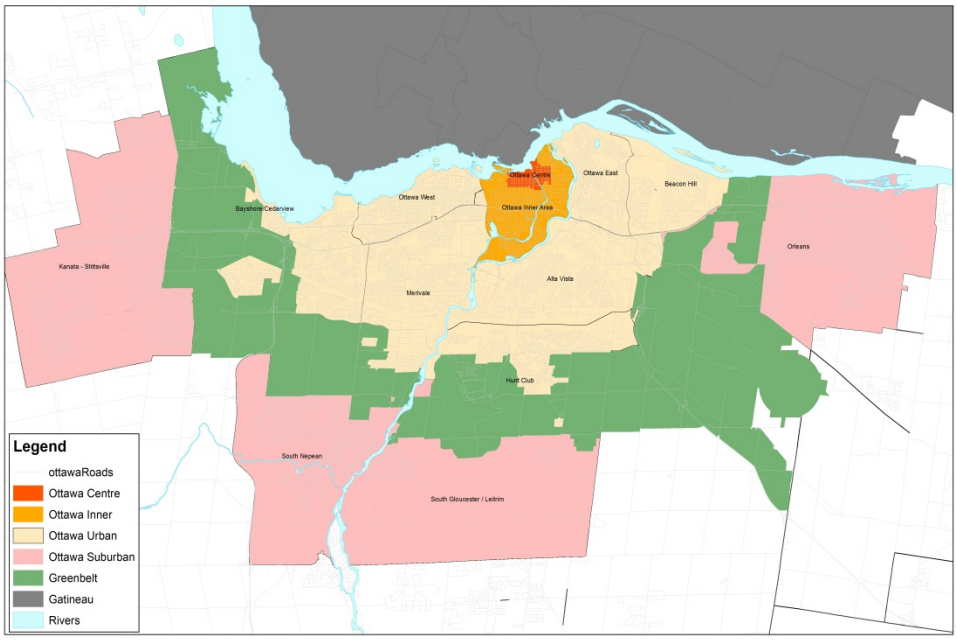
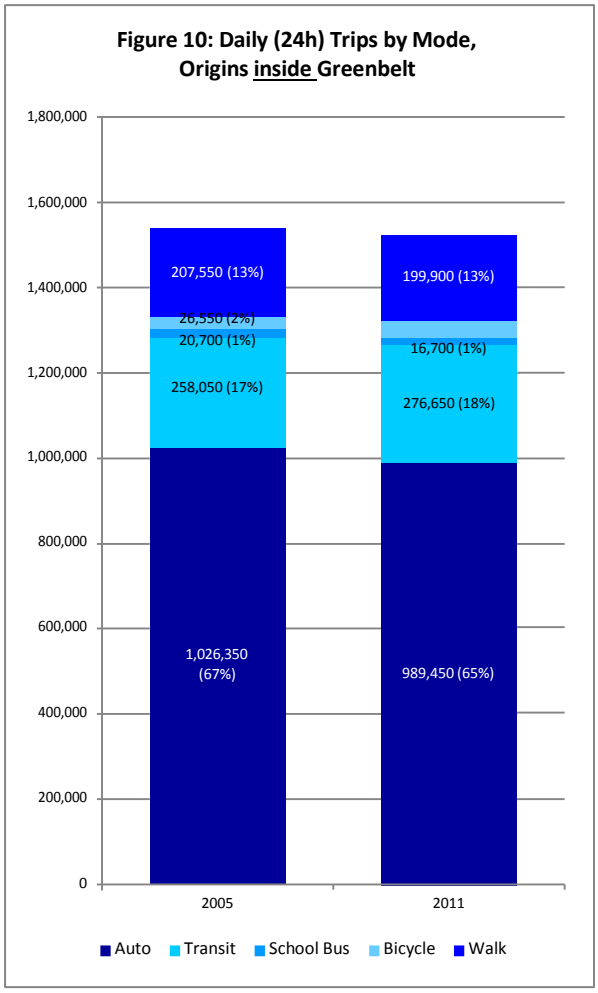
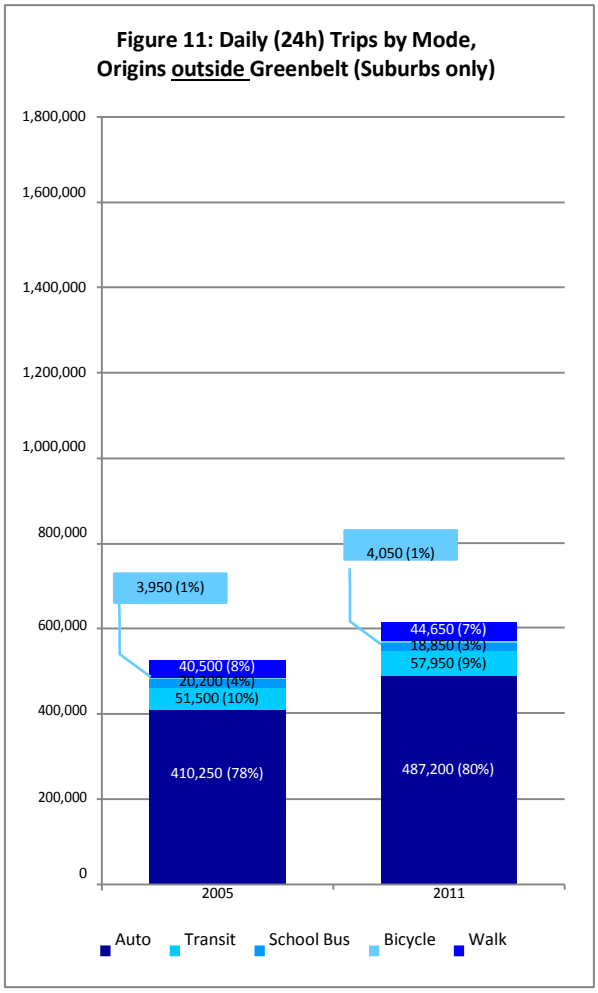


Figure 9: Ottawa Travel Survey Summary Areas

Given the availability of transportation infrastructure and commuting distances for various parts of the city, the location where one lives is a significant factor on the modes of transportation they use regularly. **Figures 10 and 11** illustrate the mode choice for daily trips for the areas inside and outside the Greenbelt, respectively.



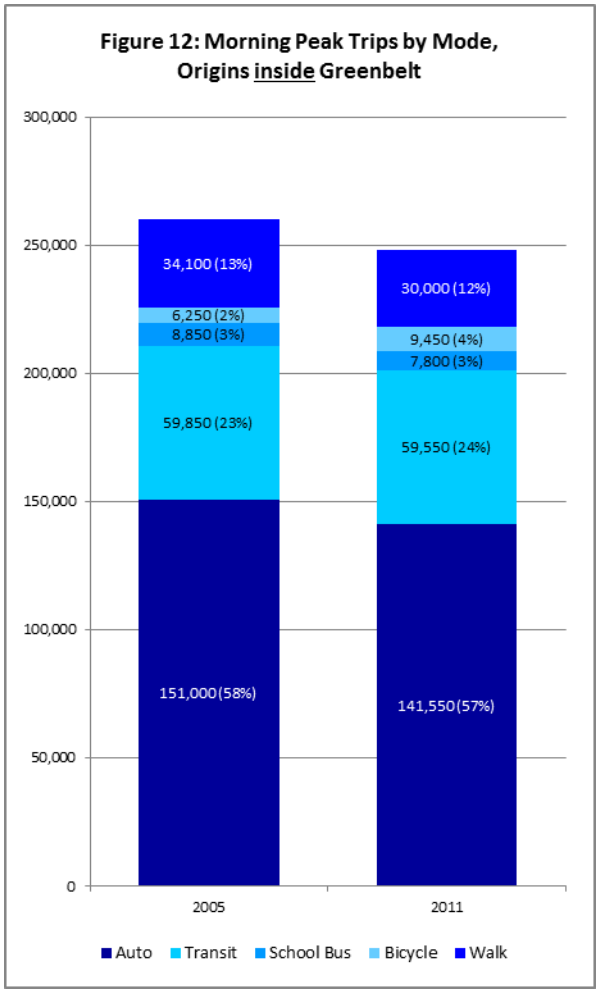


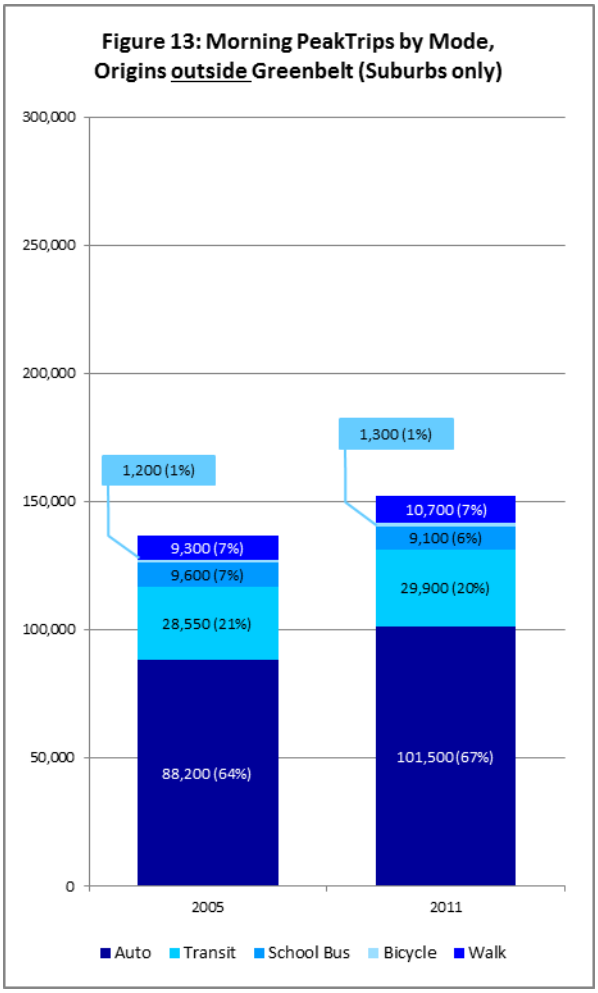
These results reflect the earlier observation that automobile is the dominant travel mode in Ottawa, representing the majority of the mode share both inside the Greenbelt and in the suburban areas outside. Automobile trips comprise a much higher proportion of total trips originating in the suburbs outside of the Greenbelt (80%) and have grown by nearly 80,000 (15%) between 2005 and 2011. This accounts for approximately 92% of all new trips originating from the suburbs during this period. Comparatively, automobile trips originating inside the Greenbelt represent only 65% of the total mode share, and have decreased by nearly 37,000 (-4%) between 2005 and 2011. Increases in transit and cycling use suggest that automobile users may increasingly be exploring the use of other modes in the urban area.

As can be expected, the mode share for walking trips is much higher inside the Greenbelt than in the suburban areas outside, reflecting the greater amount of

pedestrian infrastructure and shorter commute distances that come with living within the city's urban area. That said, the survey results show a slight decrease in walking trips within the Greenbelt between 2005 and 2011, and a small increase in the suburban areas outside of the Greenbelt over the same period.

Survey results showing mode choice by these areas of trip origin for the morning peak period are summarized in **Figures 12 and 13**.

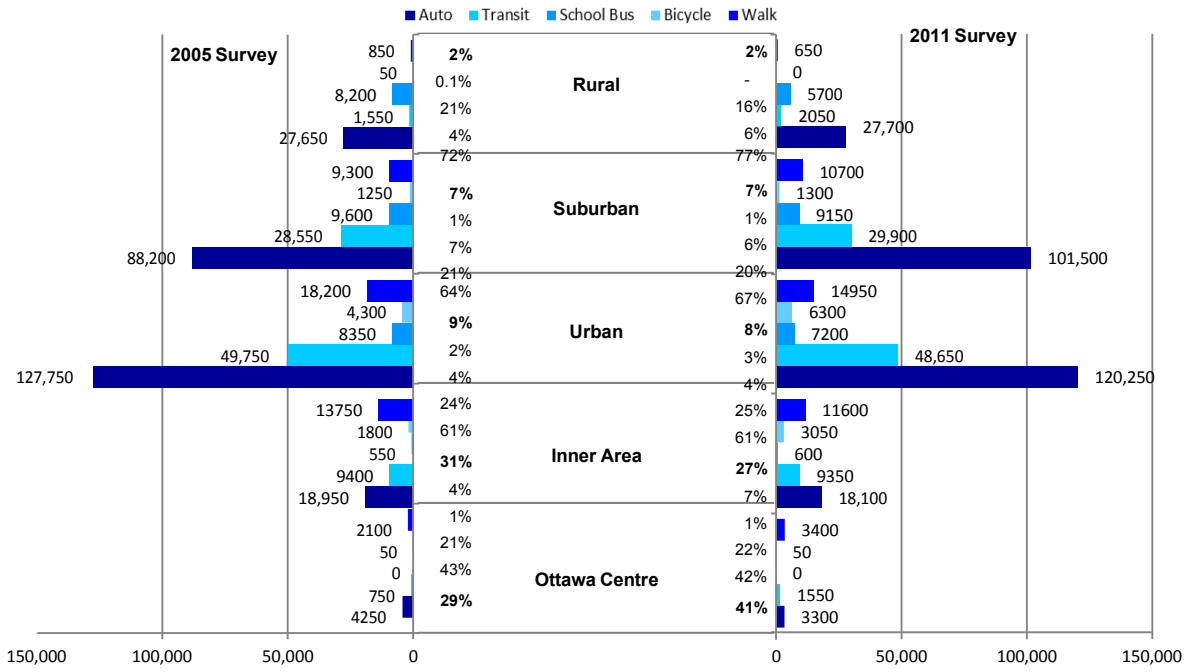




Mode choice during the morning peak period shows similar proportions to what was reported in the full day period; the primary difference is a much lower automobile share and much higher transit share than was observed across the full day, likely due to the availability of quality transit service during peak periods. The share of walk trips during this period generally reflect the same mode share and growth as are visible over the whole day.

Figure 14 presents a summary of the reported number of trips and percentage mode share by each of the geographic areas during the morning peak period.

Figure 14: Mode Shares by Area



Ottawa Centre reports only a small number of trip origins during the morning peak period, reflecting its function as a commuter destination rather than a residential area. Increases in walking and transit trips originating in Ottawa Centre resulted in the automobile mode share dropping from almost 59% to 39% of all trips during the morning peak period between 2005 and 2011. This area reported the highest walk share at 41% of all trips during the morning in 2011, increasing from 29% in 2005, and is the only area of the city where automobile use is outnumbered by another mode (walking) in 2011. This reflects the extensive amount of walking infrastructure that is available in the downtown area, and the abundance of destinations for work, shopping and personal trips that can be linked with short walks.

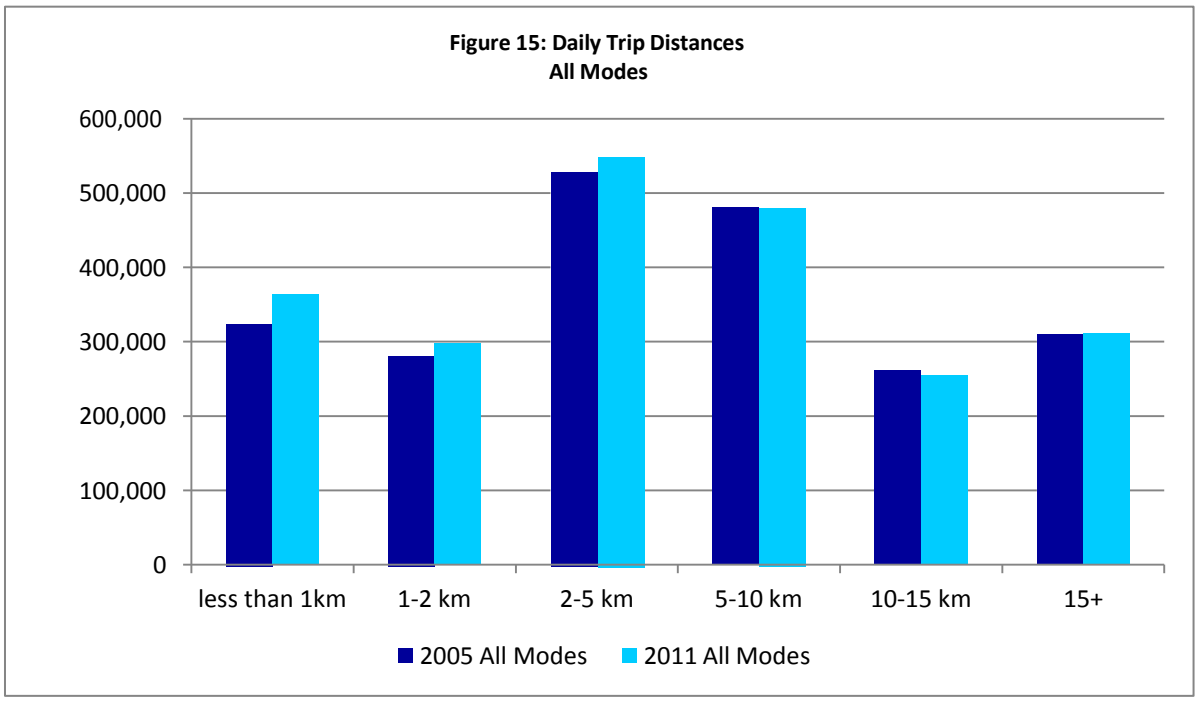
Ottawa's Inner Area experienced slight decreases in automobile, transit and walking trips and an increase of cycling trips between 2005 and 2011. Regardless, walking trips were the second most common trip mode used in this area reported in both surveys; this area was one of only two in the city (along with the downtown core) where the walking mode share exceeds transit.

Both the urban and suburban areas have mode shares that show a high tendency for automobile use, with over 60% of the mode share during both survey periods. However, automobile use in the suburban areas has increased significantly since 2005, while in the urban area it has decreased slightly in favour of transit and cycling trips. As indicated previously, the survey results show walking trips decreasing in absolute terms slightly in the urban area, while increasing in the suburbs, reflecting the overall growth of the suburban areas and land use changes in the urban area between the survey years.

Rural areas, in general, favour automobile use and do not capture high mode shares for active transportation modes. Walking shares have fallen slightly from 2.2% to 1.8% during the morning peak period, while transit use and automobile use have both increased.

7.0 How far do we travel

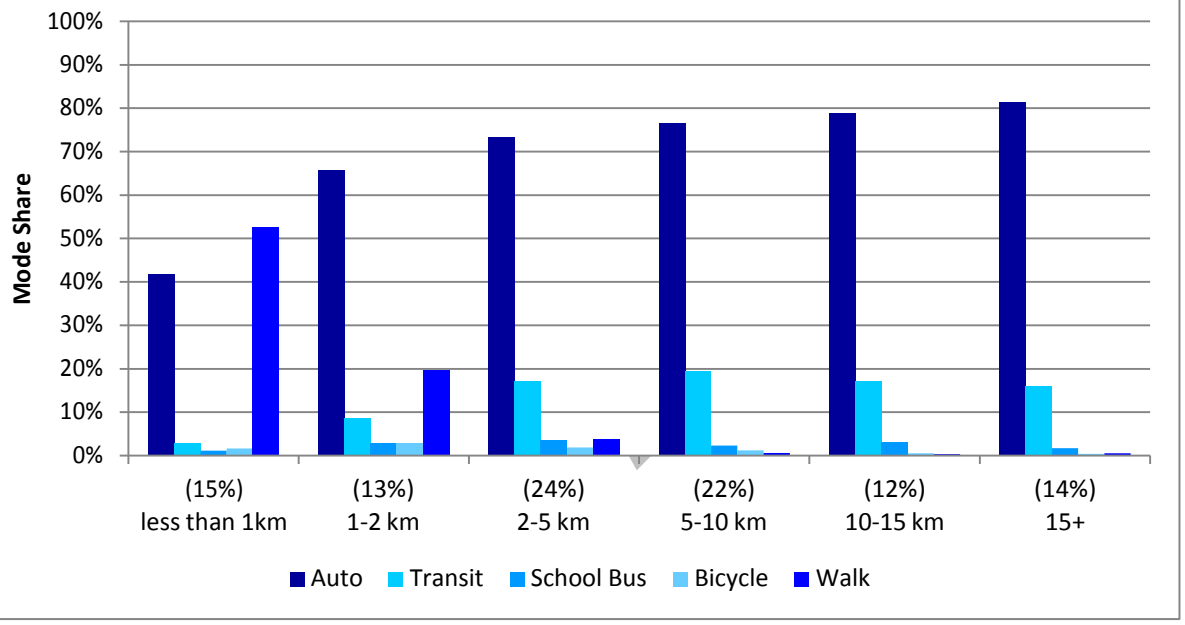
Travellers living in different areas of Ottawa will necessitate different trip distances to reach work, school, shopping and personal destinations. **Figure 15** summarizes the distribution of trip length for all modes and all trip purposes recorded in the 2005 and 2011 travel surveys.

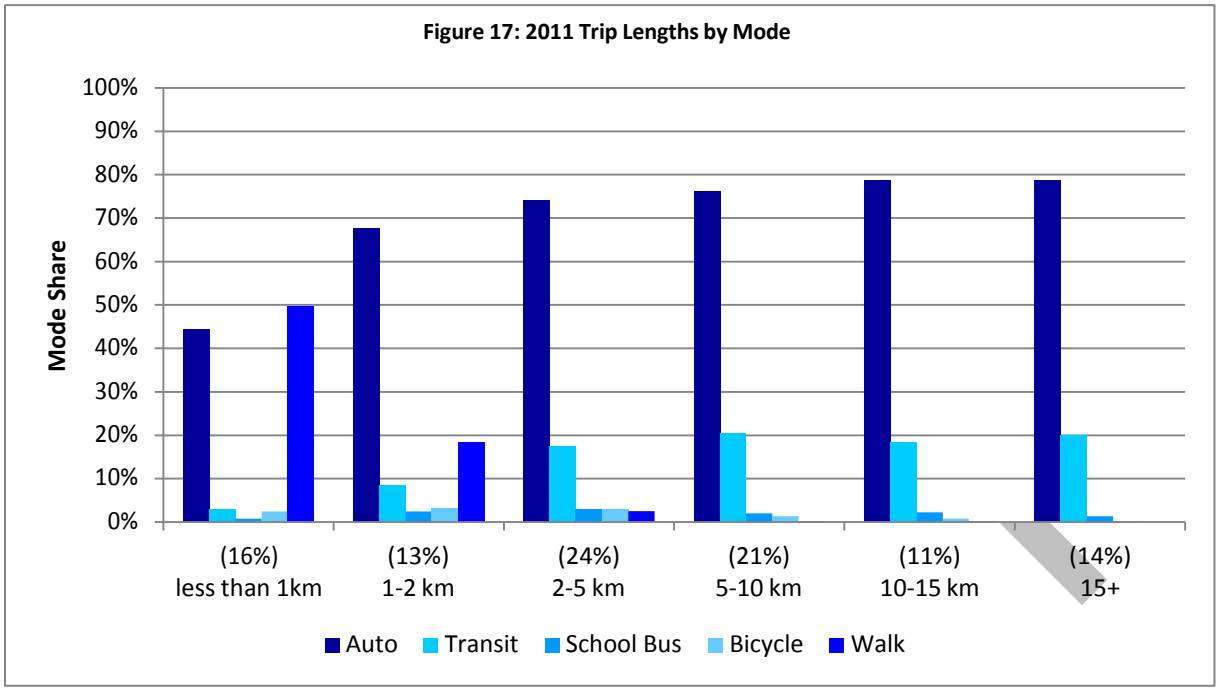


The survey results show a reasonably wide distribution of trip lengths within the City of Ottawa. Trips of 2-5km and 5-10 km are the most common representing 24% and 22% of all daily trips respectively, while all other trip distances represent between 11% and 15% of total trips. The percentage of trips less than 2km increased 1% to 29% between 2005 and 2011.

In general, the physical exertion and slower speeds associated with active transportation modes make them better suited to shorter trips for most travellers. **Figures 16 and 17** summarize the modal split for different categories of trip lengths from the 2005 and 2011 surveys.

Figure 16: 2005 Trip Lengths by Mode

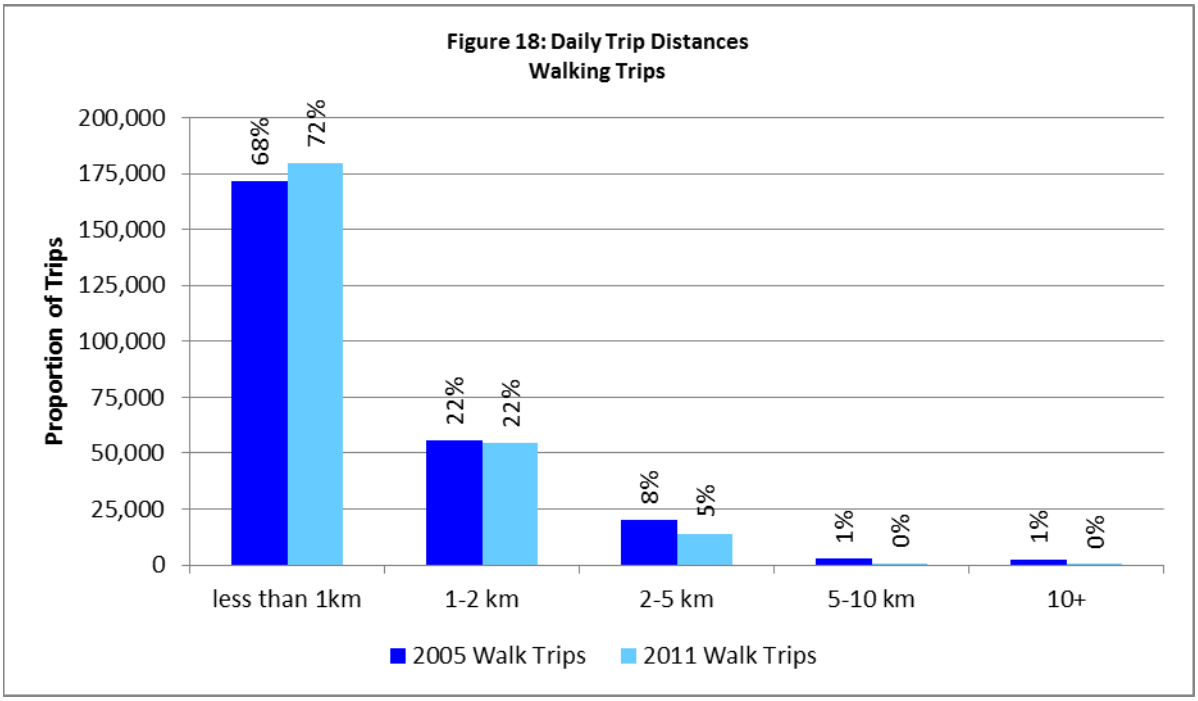




The mode share for each tip length category is similar for both the 2005 and 2011 surveys. Automobile travel is the most commonly used mode for all trip categories except trips one km or less; automobile travel accounts for only 44% of these trips in the 2011 survey, while 50% of were reported as walk trips. These figures have changed from 42% and 53% in 2005, showing a slight decrease in short walk trips and a small growth of car trips under one km during this period. Walking trips accounted for 18% of trips in the 1-2km category, down from 20% in 2005.

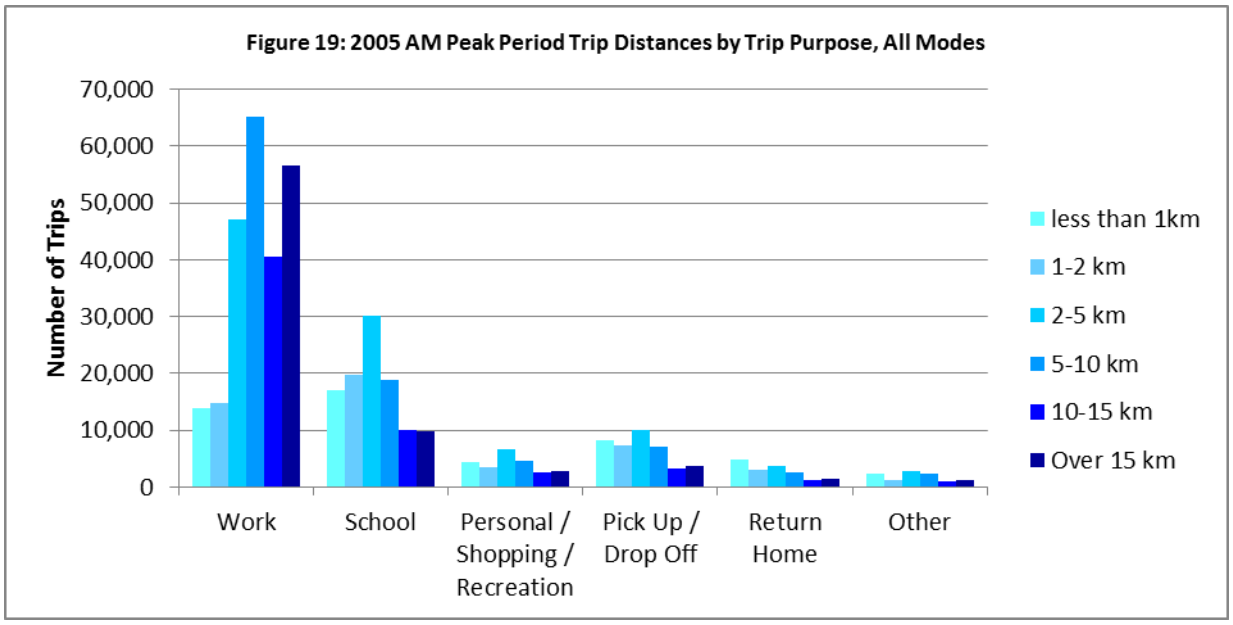
Transit trips were most frequently used for medium to long-distance trips of 2km or more, where they overtake walking as the second most commonly used mode after automobile in each distance category.

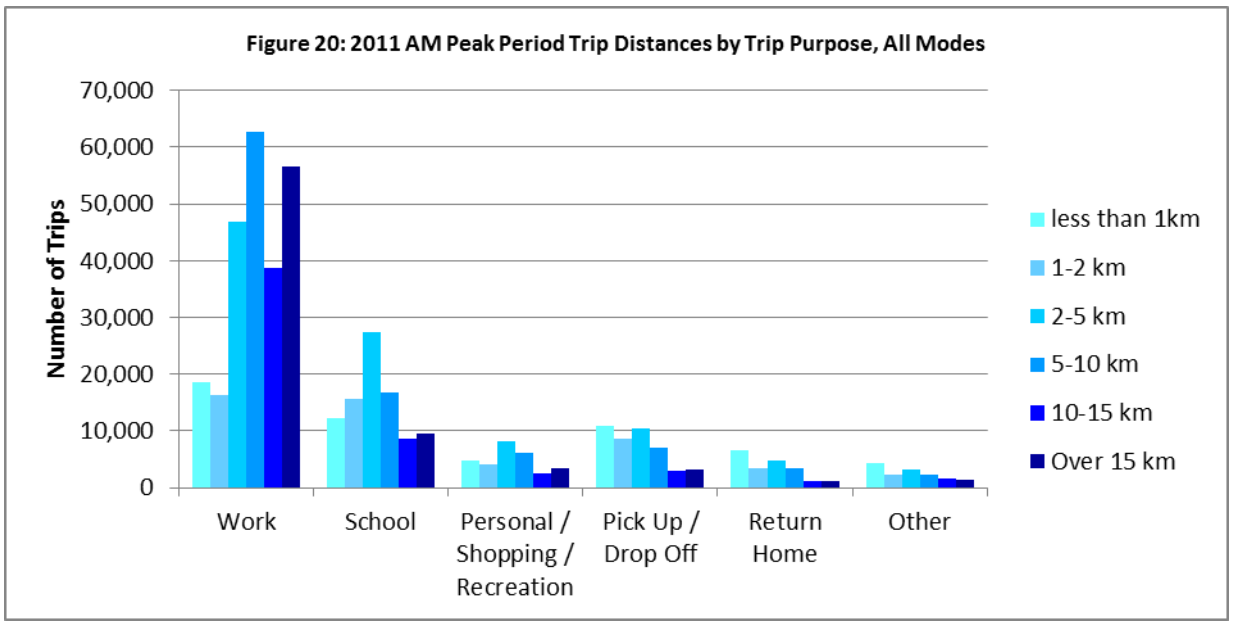
Figure 18 summarizes the distribution of walking trips from each survey by trip distance category.



As expected, walking trips are heavily biased towards shorter distances, with approximately 70% of all walking trips reported being under 1km in length and a further 22% being between 1km and 2km. The results show a slight increase in walk trips less than 1km between 2005 and 2011, but decreases in longer walk trips over the same period.

Figures 19 and 20 summarize the breakdown of trip distances by trip purpose during the AM peak period from the 2005 and 2011 travel surveys, respectively.

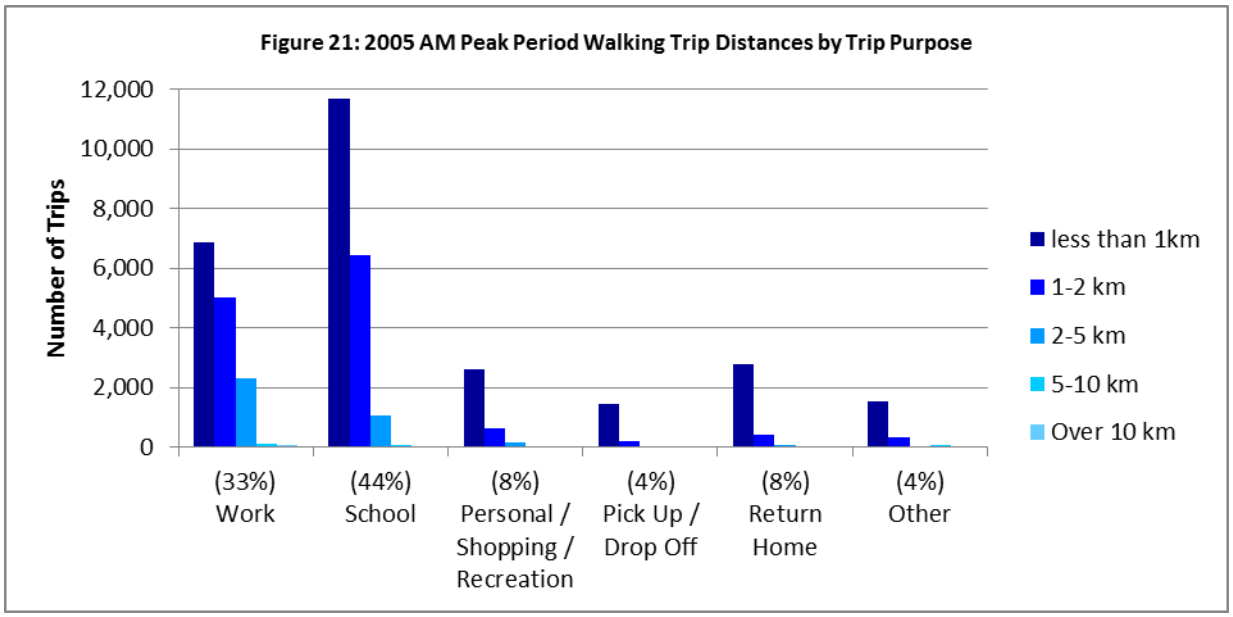


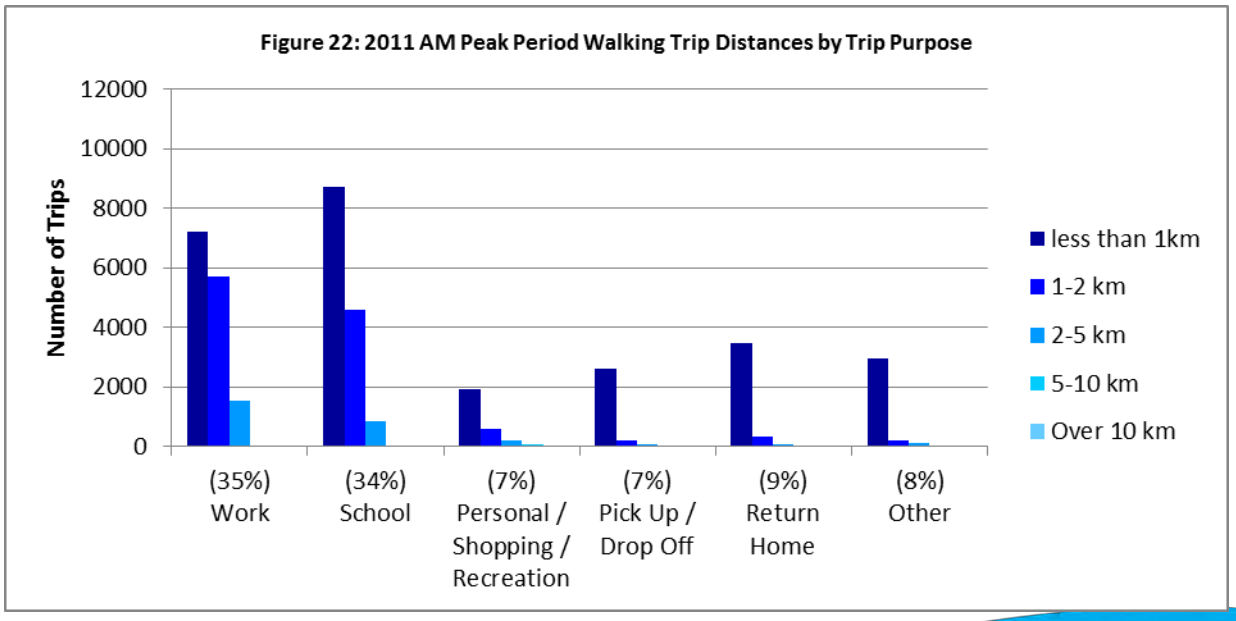


The results from both surveys show similar trends in the distribution of trip length for each trip purpose. The data suggests a greater willingness to travel longer distances to work then for other purposes. However, a comparison to the 2005 survey shows that this trend is starting to reverse; trips to work shorter than 2km have increased by 21% over this period, while trips to work longer than 2km have decreased by 2%.

School and personal trips show more of an even distribution of trips, centered around medium distance trips of 2-5km, while the remaining trip purposes tended towards shorter trips in both survey years.

Figures 21 and 22 summarize the same breakdown of trip distances for the walking mode during the AM peak hour of the 2005 and 2001 travel surveys.





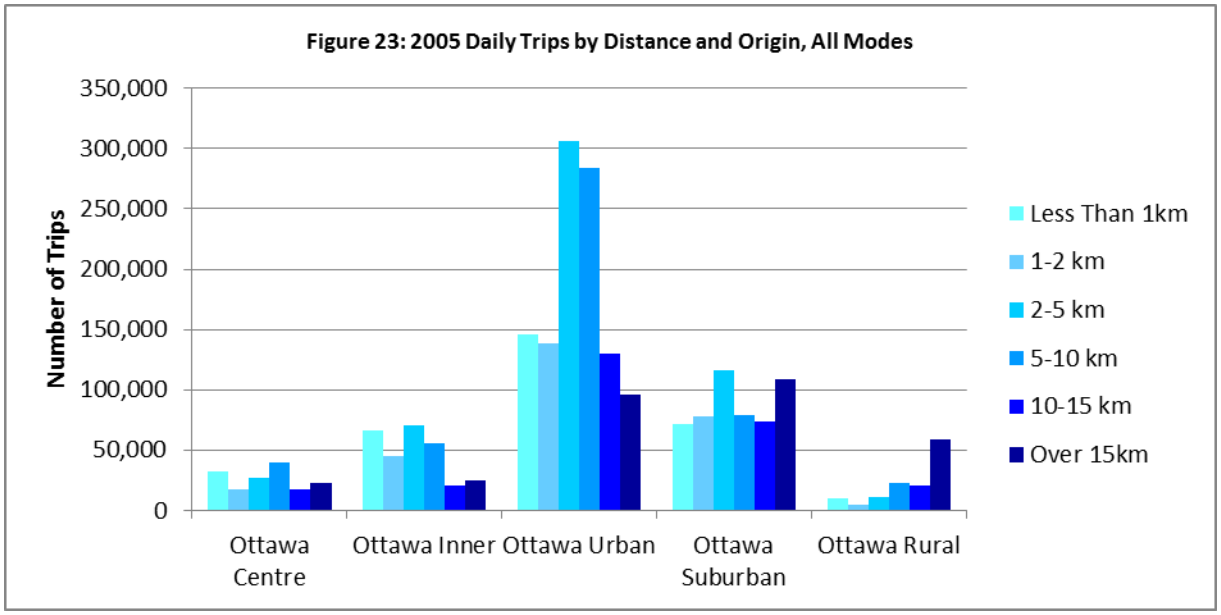
The results by trip purpose reflect the walking mode's greater suitability for shorter trips for most travellers, with at least 50% of the walking trips for each purpose being 1km or less. Work and school trips have relatively high proportions of walking trips in the 1-2km category; this shows a willingness to walk slightly farther for these purposes than for personal trips, which tend much more strongly towards very short walking trips. The 2005 and 2011 show similar trends in walking trip distances, and indicate a slightly greater tendency for shorter walk trips than was reported in 2011.

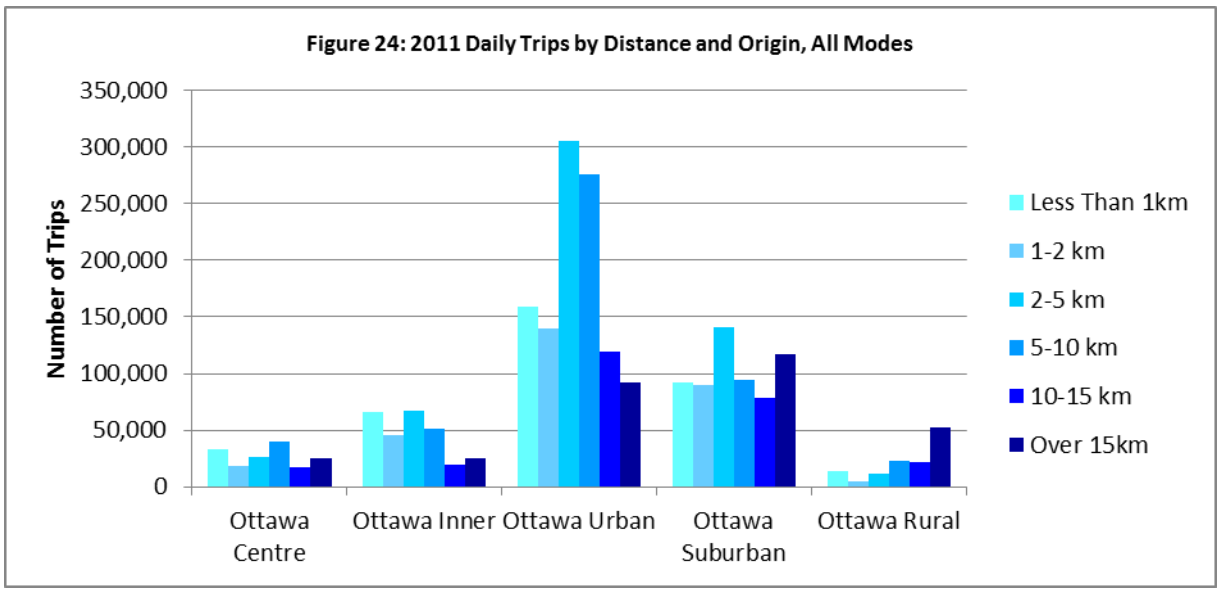
While focusing on walk trips as an overall proportion of all travel, the previous discussion points identified the number of trips where walk was reported as the primary mode. It is important, however, not to forget that a very significant number of walk trips are a fundamental part of almost all reported transit trips. Walk trips as a secondary mode support the transit mode and consequently while not often reported as such when one considers both ends of the trips (the walk trip to transit and from transit to your destination) is often not inconsequential in terms of distances traveled.

8.0 Active transportation tendencies by geographic areas

Figures 8-14 summarized the relative levels of trip making based on the trip origin's location in the city; it was determined that walking was more common in Ottawa's urban area than in the suburbs, but walking has been increasing in the suburbs and slightly declining in the urban area since 2005. Furthermore, these figures indicated a larger automobile mode share outside of the Greenbelt, and presumed that this may reflect suburban residents commuting into the urban area for work.

Figures 23 and 24 summarize the daily trips reported by the 2005 and 2011 travel surveys with respect to the location in Ottawa where these trips originate.

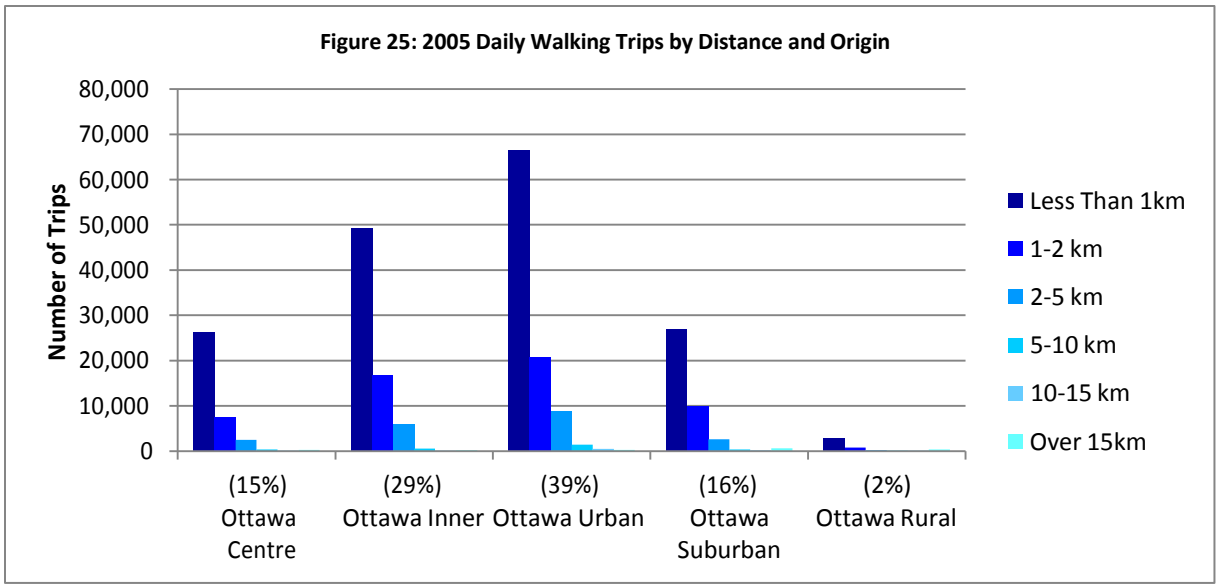


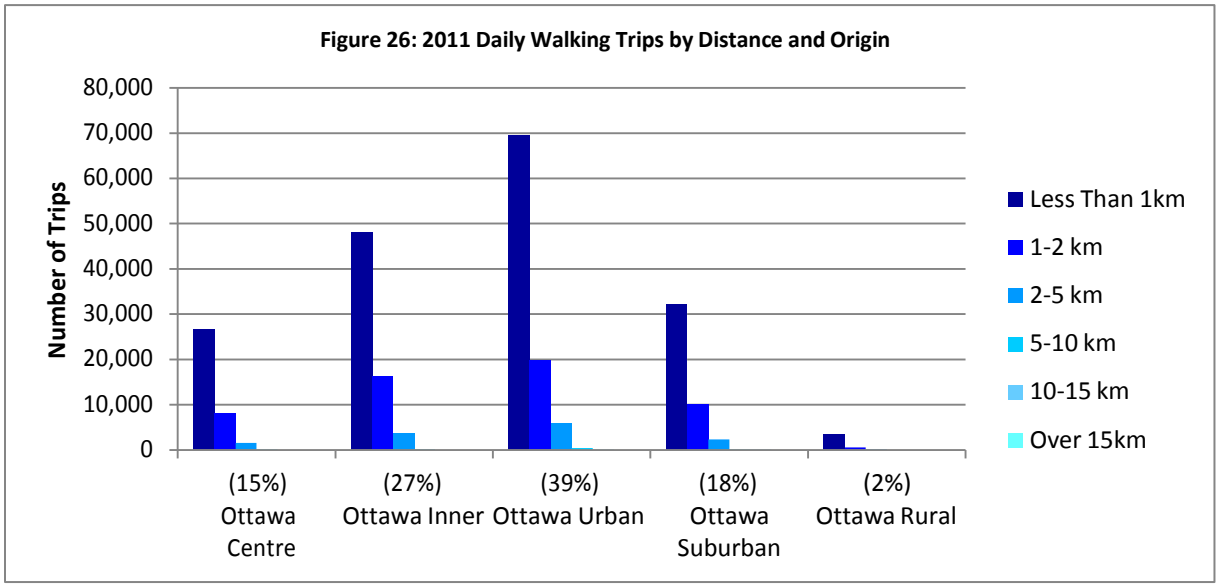


The data indicates similar trends for each geographic area in both 2005 and 2011. Ottawa Centre has a fairly even distribution of trip lengths, with peaks for very short (less than 1km) and medium length (5-10km) trips. Trips from the Ottawa inner area tend towards shorter and medium length trips. Trips from the urban area are primarily in the 2-5km and 5-10km categories, but there has been some growth in very short trips from 2005 to 2011. As expected, the rural area exhibits a large proportion of long distance (over 15km) trips, due to the length required to get to employment and commercial centres.

The suburban area shows a fairly uniform distribution of trip lengths, which seems to counter the assumption of the primary trip destination of suburbanites being the urban area. With the growth of Ottawa's suburbs over the last several years, there has been increased development of commercial areas and community facilities; although employment trips from the suburbs may still be predominately bound towards the urban area, the abundance of facilities in the city's suburban neighbourhoods allow for shorter trips to shops and schools.

Figures 25 and 26 summarize the distribution of walking trips by distance and area of origin.





As was observed previously, walking trips in all areas tend towards shorter trips, with the majority of trips being less than 1km in all areas. The number of these short walking trips has increased in both the urban and suburban areas between 2005 and 2011. However, the inner area and urban area both have a sizeable proportion of travellers who choose to walk for slightly longer trips (1-2km and 2-5km), although these proportions have fallen since 2005. As expected the overall number of walking trips in Ottawa's rural areas remains very low.

9.0 Conclusions

The comparison of the 2005 and 2011 National Capital Region travel surveys has indicated several trends related to the use and growth of walking trips. Overall, the number of daily travel (all modes) in Ottawa has increased by about 3% from 2005 to 2011; the growth in active transportation matched this 3%, but consisted of a large increase in cycling trips and a slight decline in walking trips. Walking currently has just over a 10% mode share city-wide across the full day and during the morning and afternoon peak periods. Walking trips are slightly more common in the midday period when they make up about 15% of all trips.

Unsurprisingly, walking was most commonly used for shorter trips – walking trips accounted for 50% of trips under one kilometre (ahead of cars, with 44%) and 18% of trips less than two kilometres (second to cars, at 68%). For trips longer than two kilometres, walking trips are rarely used, and are overtaken by transit use as the main

alternative to automobile trips. Walking trips were most commonly used for trips to school and personal trips, reflecting that most residential communities in Ottawa have schools and stores nearby. Work trips made up a smaller proportion of walking trips, but the surveys indicated a larger proportion of these trips that were willing to walk farther than one kilometre.

The automobile mode remains the dominant mode of transportation in Ottawa, particularly outside of the Greenbelt where it currently occupies approximately 80% of the total mode share. However, walking trips outside the Greenbelt have also been increasing since 2005, highlighting a latent demand for pedestrian-friendly infrastructure in these areas.

Potential increases in walk shares over time will occur when more of us choose to walk for many of the shorter trips we make. Opportunities to improve our pedestrian facilities will no doubt make a difference in attracting more walk trips; this will be most effective where land use considerations raise the number of trips falling into the shorter trip categories of two kilometres or less. In cases where trips of longer distances are necessary, improvements in transit facilities will act as the main alternative to automobile use. However, it is important to note that walking trips are routinely used as the start and end of transit trips, as well as between parking areas and destinations. The proportion of these secondary walking trips to transit stations and stops reported in the 2005 and 2011 travel surveys was very small; the importance of these trips indicates a much greater importance of supporting short distance walking trips than the survey results suggest.

Annex D

Walkability Heat Map
Summary of Methodology

WALKABILITY HEAT MAP
SUMMARY OF METHODOLOGY

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1.0 Introduction

As part of the update of its 2008 Transportation Master Plan (TMP), MRC has been retained by the City to update its 2009 Pedestrian Plan. One of the deliverables of the Pedestrian Plan will be a city-wide walkability evaluation map, which will display the results of an analysis of a number of indicators that reflect walkability or pedestrian-friendliness. This annex summarizes the methodology for the construction of this map using the ArcGIS platform.

1.1 Study Area

The study area for this exercise will be the full extent of the City, including the suburban communities and rural villages outside of the Greenbelt. For whatever characteristics possible, disaggregate data will be used to determine the density of features at a city-wide level. However, based on the data available for several of the characteristics, aggregation of data may be required. In these cases, it is proposed that the traffic zones from the 2011 TRANS OD survey be used for the aggregation level.

2.0 Methods of Measurement for Spatial Data

An initial list of measures for walkability was prepared as part of the Best Practice Review on Quality and Level of Service and a data request was made to the City to identify what data was available in a GIS platform. The City has provided a number of data files containing spatial information of demographics, as well as physical geographic and infrastructure features. This information will be used to assemble a raster “heat map”, consisting of a grid overlay across the full extent of the study area with each segment assigned an individual score.

The ultimate walkability evaluation map will be the result of combining a number of individual analyses, using elements related to walkability and pedestrian-friendliness. These include the presence and concentration of pedestrian supportive infrastructure, accessibility to destinations and other modes of transportation, and the overall comfort of walking through these areas. Once the individual layers have been created to score the effects of each type of element on the walkability of the city, each of the layers will be weighted and combined to produce a map illustrating walkability as a combination of all of the factors examined.

2.1 GIS Raster Layers

As opposed to a GIS vector layer, which illustrates spatial data using individual points, lines or polygons, a GIS raster layer illustrates spatial data by overlaying a fine grid on a physical area. Each individual cell of this grid is then assigned attributes that can be used to reflect the properties of the space occupied by a cell or group of cells. The smaller the cell size, the more accurately a feature can be illustrated (see Figure 1).

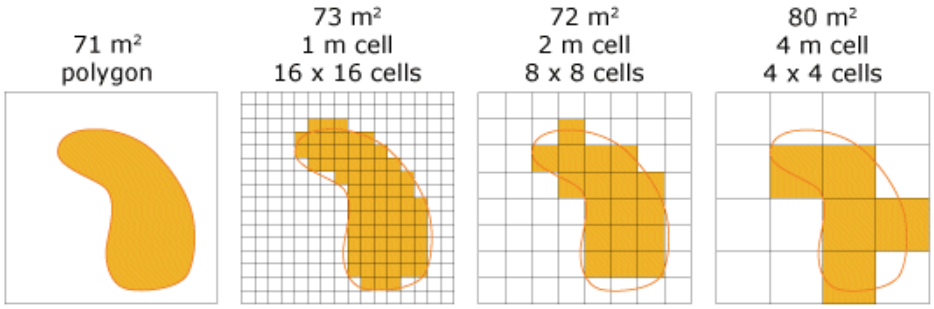

Figure 1: Display of Geometric Features Using Raster Data

Cell values in individual raster layers can be combined mathematically; the walkability raster layer will be based on a weighted sum of scores in a number of raster layers calculated based on the effects of selected demographic and physical features in Ottawa on walkability. The structure and combination of raster layer scores are illustrated in Figure 2.

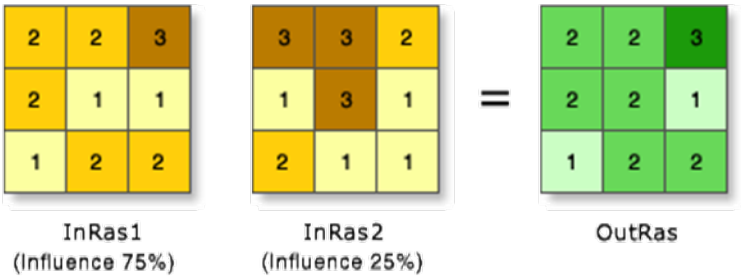

Figure 2: Weighted Averaging of Scores on Multiple Raster Layers

The evaluation each characteristic's impact has on the overall walkability will vary depending on the format of the data provided (points, lines or polygons) and fall into one of the three methodologies: Buffer Analysis, Density Analysis and Traffic Zone Aggregation, as described in the following sections.

2.2 Buffer Analysis

A buffer analysis will typically be used to determine the number of features within a walking radius around a potential pedestrian trip origin. The simplest form of a buffer analysis is through the use of a radius buffer; this procedure creates one or several rings around specific features which can then be used to count or sum features or feature attributes within specific distances. The layout of this type of buffer showing distances to the nearest transit stop is illustrated in Figure 3.

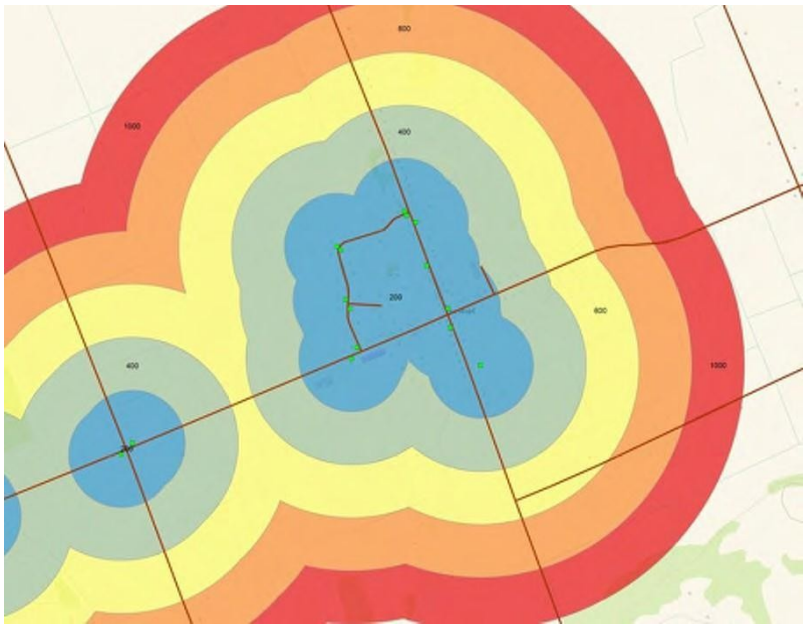

Figure 3: Radius Buffer Coverage Area

In order to represent accurate service coverage we will not use a traditional radius buffer as it relies on a linear distance from a feature and does not account for the availability of pedestrian infrastructure or the presence of barriers between a traveler and the feature. To reflect walking distances along existing pedestrian routes, this analysis will use a pedestrian network generated from the sidewalks and pathways spatial data provided by the City and the Network Analysis tool in ArcGIS. Instead of a linear distance, buffer areas will be created by following the network out from the feature so that the distances are based on the actual walking distance along the network. The buffer areas resulting from a network buffer analysis for the same distances to the nearest transit stop are illustrated in Figure 4.

Figure 4: Network Buffer Coverage Area

As it is intended for this analysis to use a small raster cell size to provide an accurate illustration of the variation of walkability across Ottawa, performing buffer calculations on individual raster cells will result in a number of calculations that cannot be performed efficiently. Instead, the buffer analysis will be performed on destination features; the walkability score of each raster cell for a specific facility type will be based on the number of destination buffer areas that each raster cell lies in. The results of this analysis will be individual raster layers for each characteristic being scored, which will act as components of the final walkability score.

2.3 Density Analysis

A density analysis will be used to provide a measure of individual features that are amenities or have a more aesthetic purpose rather than acting as destinations. Density analysis generates a raster layer with the density of specific features or feature attributes within a specified radius calculated for each cell. This analysis generally results in a “heat map” of smoother colour gradients between areas of high and low feature density than is shown in a buffer analysis. A sample point density map is illustrated in Figure 5.

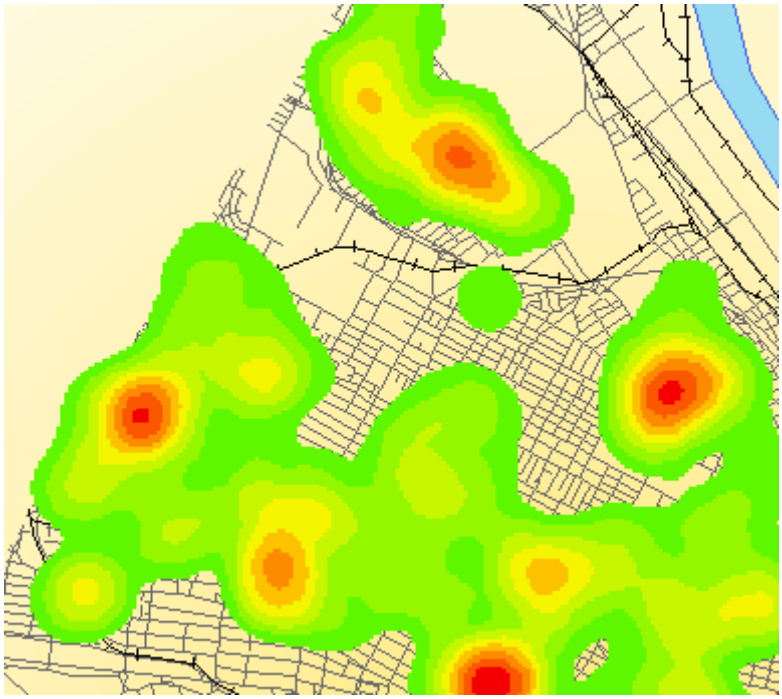

Figure 5: Density Analysis "Heat Map"

2.4 Traffic Zone Aggregation

The 2011 TRANS OD survey features a system of 654 zones across the National Capital Region; 422 of these zones encompass the city, illustrated in Figure 6. This zone system is roughly based on population segments, with zone sizes inversely proportional to the level of population and employment they contain. For Ottawa's urban and suburban areas, this zone structure provides a fairly accurate breakdown of the variation of population and employment between individual communities and neighbourhoods. However, the smaller rural villages in the outskirts of the city are typically part of much larger zones; it is important to note that aggregation by traffic zone may spread the population and employment concentrated in these villages over much wider areas and will not provide an accurate measure of population and employment in these areas.

It will be necessary for some of the characteristics being measured to be based on data aggregated to the traffic zone level, either due the data being provided at this level of detail or to facilitate density calculations that cannot be easily performed using heat map functions as described above (generally where target features are expressed as lines or polygons). In both cases, a raster layer will be created that assigns scores to each raster cell based on the traffic zone it is inside.

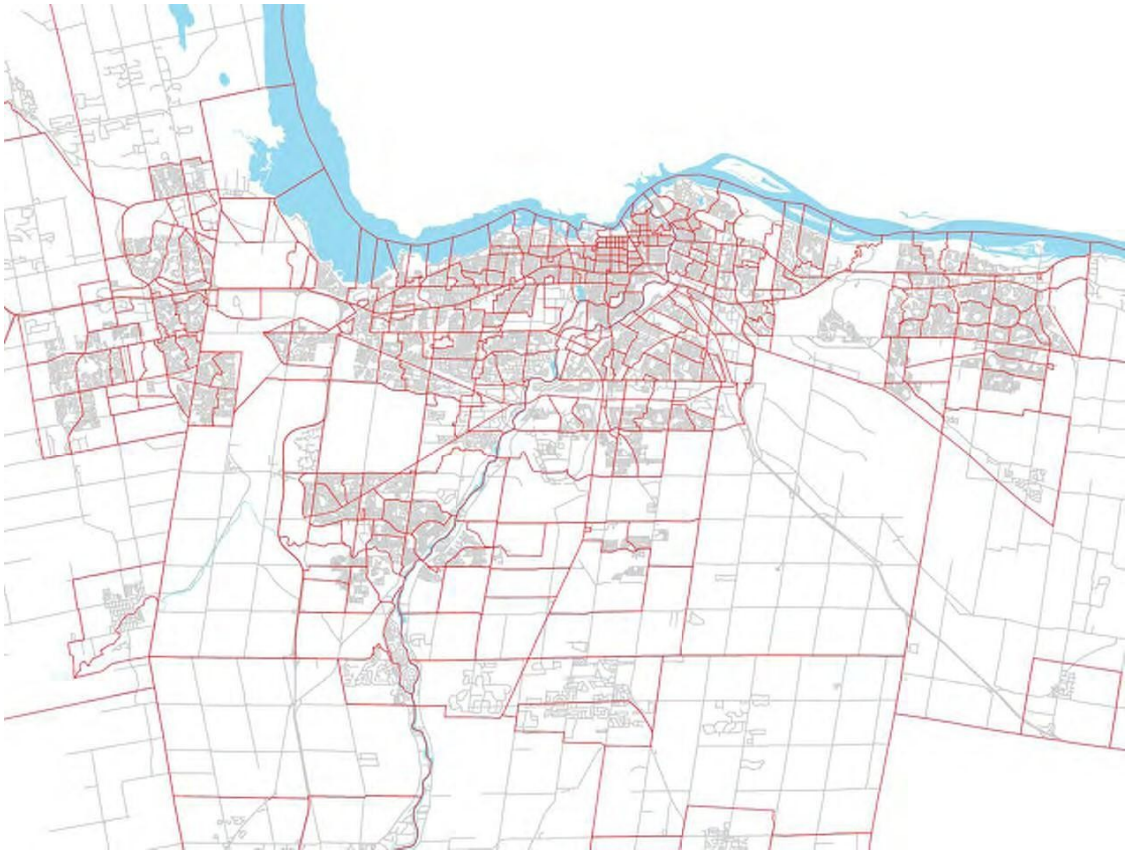

Figure 6: Ottawa Urban and Suburban Area Traffic Zones

3.0 Selection of Characteristics for Walkability Evaluation

The analysis methodology has identified seven measures that will be used to calculate walkability scores across the city. These categories are:

1. Available Destinations
2. Efficiency and Continuity of Pedestrian Network
3. Comfort
4. Equilibrium of Modes
5. Accessibility
6. Maintenance
7. Attractiveness

A total of 13 characteristics falling into these measurement categories have been identified as individual elements to measure as part of the analysis. These characteristics, their rationale for selection and the proposed methods of measurement for each are summarized in Table 1.

Table 1: Measures and Characteristics for Evaluation of Walkability

Measure	Characteristic	Rationale	Layer Name	Method of Measure	Weighting (to be further developed)
Available Destinations	Ratio of employment density to population density (by age group) by traffic zone	A community with a population to employment ratio nearing 1:1 indicates the presence of a nearby employment node. Residents have the opportunity to walk to a place of employment in the vicinity, thereby increasing walkability. With the incorporation of age demographic data for a given traffic zone, the population density can be calibrated to be more accurate.	Population Density: DB_2011_OttawaGatineauCMA_DataMart2 Employment Density: DB_2011_OttawaGatineauCMA_DataMart2 Demographic Information: 2011 Land Use.xls	**Traffic Zone Aggregation** 1:1 population to employment ratio = highest score out of 9; score will decrease down to 1 the greater the ratio.	High
	High-Demand Commercial Destinations (grocery stores, restaurants, retail stores, entertainment)	Having commercial destinations within a residential community encourages walking. High-demand uses/ destinations within a residential area therefore contributes to the overall walkability of a community whereby the option to access these destinations by foot is a viable option whereby the automobile is not required for activities that are carried out by all residents.	LU_2010_Dissolve BuildingsLarge NAICS code data (NAICS code data will be used to determine precise locations of commercial/industrial buildings in relation to building footprint information)	**Network Buffer Analysis** Measurement of the number and variety of commercial destinations within walking distance of residences. More destinations, as well as a greater variety of destinations will result in a higher score.	High
	Service and Recreation Destinations (Arenas, Art Facilities, Athletic Facilities, Community Centres, Cultural Facilities, Equestrian Facilities, Municipal Golf Courses, Health Care Facilities, Indoor Pools, Meeting/Convention Centres, Performing Arts Facilities, Rec Complexes, Stadiums, Workshop Complexes, Youth Centres, Libraries)	A variety in destinations make valuable contributors to the walkability of a community: a neighbourhood with a good number and variety of amenities gives citizens a reason to walk, generally adding vibrancy and life to its streets. The more destinations people can reach by foot, the more walkable the community.	community_facilities library_locations NAICS code data NAICS code data to be verified with data provided by the City to access accuracy	**Network Buffer Analysis** Measurement of the number and variety of service and recreation destinations within walking distance of residences. More destinations, as well as a greater variety of destinations will result in a higher score.	High
	Parks	Parks are not only a destination but green spaces in a neighbourhood offer venues for community events and public gathering spots. People are more likely to go for a walk if their surroundings are inviting and varied. Parks offer beauty, a place to rest and variety to urban areas. The City's Official Plan sets a target of 2.0 ha of park and leisure land for every 1000 residents.	Parks (polygon) Network buffer	**Network Buffer Analysis** Creation of a citywide density map (heat map) summarizing the distance to the nearest park facility via the local pedestrian network. Shorter distances will result in higher scores.	Med
	Schools	Having the ability to walk to school reduces the demand for motorized trips on the surrounding road network. The density of schools across the city will be a key factor – with four school boards in Ottawa, the closest school may not be the preferred school for individual residents.	School_Elem_Sec School_Post_Sec	**Network Buffer Analysis** School density (heat map) across the city – living within walking distance of more schools will result in higher scores.	High

Measure	Characteristic	Rationale	Layer Name	Method of Measure	Weighting (to be further developed)
Efficiency and Continuity of Pedestrian Network	Unification of Pedestrian network (Direct Routes and Connectivity)	An interconnected pedestrian network that minimizes the amount of out-of-way travel and barriers to potential routes is a key feature of a walkable community. A high density of intersections in a neighbourhood indicates a higher concentration of potential routes to local destinations. Conversely, physical features such as rivers, railroad tracks, and major arterial street lacking pedestrian crossings create obstacles to travel for pedestrians.	TSM_Intersections Existing_Sidewalk (Dec 21 2012) Roads and Pathways Roadway junctions (product of the creation of a GIS network). Barriers (highway, canal, river, etc.)	**Density Analysis** Scoring will be partially based in density of nearby intersections – a higher intersection density represents a greater number of routing options and will result in a higher score. Additionally, the network used to determine distances to specific facilities as described above will include barriers and result in longer travel distances and poorer scores for these characteristics. Walkable thoroughfares[1] recommendation for block lengths is 200-660 feet (60 to 200 metres)	High

[1] An ITE Proposed Recommended Practice: Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities (http://www.ite.org/bookstore/RP036.pdf) – Chapter 6

Measure	Characteristic	Rationale	Layer Name	Method of Measure	Weighting (to be further developed)
Comfort	Vehicle Travel Speed in Relation to Pedestrian Facility Separation	Increased speeds put pedestrians at higher risk; pedestrians feel exposed and vulnerable when walking directly adjacent to a high-speed road. Vehicle noise and exhaust further reduce pedestrian comfort. Pedestrian comfort improves with the provision of separation from moving traffic and reduced vehicle speeds.[2]	**Facility type**: Existing_MultiUsepathway NCC_Planned_MultiUse_Pathway NCC_Rec_Paths_and_Trails Existing_Sidewalk (Dec 21 2012) Proposed_Sidewalk AMB_20130211 The Data provided to MRC by the City does not include data on road speed limits and pedestrian facility separation from roadways. For this exercise, road hierarchy (based on the 2008 TMP) will be used as a proxy for these characteristics. Assumptions of posted speeds will be as follows: - Core Arterials 50 km/h - Urban Arterials 60 km/h - Suburban Arterials 80km/h - Major Collectors 60 km/h - Minor Collectors 60km/h - Locals 50 km/h It is recognized that the above may not apply to all roadways (i.e. local roads that have a posted speed of 40 km/h) posted speed limits should be data collected by the City for any Heat Map update to have a more accurate reflection of this characteristic.	**Density Analysis** Measure will be a combination of the vehicle speed and facility type. With a score assigned to each line type we can use the line density tool in GIS to calculate the density. 80km/h with no sidewalk = low score (1) 80km/h with adjacent sidewalk low to mid score (4) 80km/h with off-road pathway = mid to higher score (6) 60km/h with no sidewalk = low to mid score (2) 60km/h with adjacent sidewalk mid score (6) 60km/h with off-road pathway = high score (7) 50km/h with no sidewalk = low to mid score (3) 50km/h with adjacent sidewalk mid score (7) 50km/h with off-road pathway = high score (8)	Medium
	Crossings	In order to provide comfortable crossings of roadways the following is considered: - protected pedestrian crossing frequency (pedestrian signals or high-visibility markings at unsignalized crossings) - pedestrian countdown heads - Adequate crossing times - shorter cycle lengths - median refuges for very long crossings	CountDownPeds6Feb2013.xls TSM_intersections	**Network Buffer Analysis** Measurement of the number of pedestrian countdown signals within a defined area; the higher the number of countdown signals, the higher the score. Walkable thoroughfares[3] recommendation for frequency of signalized crossings is 200-600 feet (60 to 180 metres)	High

[2] An ITE Proposed Recommended Practice: Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities (http://www.ite.org/bookstore/RP036.pdf) – Chapter 8

[3] An ITE Proposed Recommended Practice: Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities (http://www.ite.org/bookstore/RP036.pdf) – Chapter 6

Measure	Characteristic	Rationale	Layer Name	Method of Measure	Weighting (to be further developed)
Equilibrium of Modes	Access to Public Transit Number of stops to population in traffic zone.	Having a balance among transportation modes accommodates and encourages pedestrian participation, and additional 'eyes on the street' from these pedestrians increase the safety of a community. Transit stops should be situated adjacent to work, residential areas, shopping etc. to encourage pedestrian trips as well, adequate pedestrian facilities should be provided to access stops.	Bus_Stops_Nov27th_2012 stop_times.txt	**Density Analysis** Measure of the number of nearby bus stops and the effective headway of service at these stops across the day. More stops nearby and stops with a higher frequency of buses will result in higher scores.	Med
Accessibility	Audible pedestrian signals	Audible pedestrian signals provide audible queues to visually impaired pedestrians to improve safety when crossing streets. The provision of audible signals increases the accessibility of a neighbourhood for these people.	AUDIBLES List 25-Jan-2013.xlsx CountDownPeds6Feb2013.xls Signals6Feb2013.xls Imported into TSM_Intersections	**Network Buffer Analysis** Count of nearby audible signals. The greater the number of nearby audible signals, the higher the score.	Low
Maintenance	Unification of Pedestrian network in winter based on the percentage of traffic zone having maintained pathways.	Maintaining facilities by snow-clearing encourages continuous, year-round foot travel and increases walkability.	winter_maintained_sidewalks_pathways Sidewalks_Pathways_Provided_8Feb2013.shp	**Traffic Zone Aggregation** Measurement will be the percentage of pedestrian facilities in each traffic zone that are maintained versus the percentage that are not (based on facility length). Greater percentages maintained will be scored higher.	Med
Attractiveness	Art in public places	Street art makes for an interesting pedestrian environment, and therefore contributes to walkability.	Public Art.xls	**Density Analysis** Measured by the density of public art features across the city. Proximity to more public art will result in higher scores.	Low
	Continuity/presence of street trees	Street trees can provide a buffer between pedestrians and vehicular traffic thereby increasing pedestrian safety. They provide a perceptual narrowing of the street and can result in reduced driving speeds. As well they reduce ambient temperatures in warm weather, absorb/block rain and tail pipe emissions, provide UV protection, and reduce the effects of wind.	TreeInventory2011	**Density Analysis** Measured based on the surrounding street tree density. The higher the density of street trees nearby, the higher the score.	Med
	Presence of Street Furniture	Providing furnishings such as benches, drinking fountains and similar elements creates a more attractive and functional environment for pedestrians.	Street Furniture	**Density Analysis** Measured using the density of street furniture across the city. Greater density will result in a higher score.	Low

4.0 Evaluation and Next Steps

Initially, the evaluation procedure will assign scores of 0 to 9 to each raster cell for each characteristic, representing very poor and very good areas for walking, respectively. Each characteristic and measurement category will then be assigned a weight that will be used to calculate a total walk score for each raster cell.

There are currently no proposed weights for each characteristic; the selection of weighting factors will be refined through a calibration procedure. This procedure will aim to adjust weighting factors, as well as individual characteristic scoring methodologies as necessary, in order to ensure that appropriate scores are being assigned to neighbourhoods that are and traditionally have been very walkable (e.g. Bank Street through the Glebe, Richmond Road through Westboro) and areas that are known to be less walkable.

Annex E

Project Prioritization List

Project Name	Ward	Project Length (m)
Phase 1		
Bridgestone (north side) - Grassy Plains to Eagleson	23	430
Bronson off-Ramp for Heron (west side) - Transit Link Station to Heron	16	190
Castlefrank - Torcastle to Winchester	23	710
Colonial Rd - Henn to Delson	19	210
Cummings - Cyrville to Ogilvie	11	280
Cyrville Rd, north side between Cummings and Transit Linkway	11	170
Cyrville Rd, north side Startop Top to Labrie	11	400
Cyrville Rd, south side between 250m east of Startop and 200m east of Transit Linkway	11	430
Dovercourt - Churchill to Broadview	15	610
Dumaurier - Ramsey to Pinecrest	7	450
Gardenway - Thicket to Portobello	19	1030
Grassy Plains - Stonehaven to Bridgestone	23	1150
Halton - Flamborough to Newcastle	4	435
Industrial (south side) - just east of Trainyards to Neighbourhood	18	810
Iris - Pinecrest to Navaho	8	2100
Jeanne d'Arc - Champlain to Tenth Line	1	1320
Katimavik - Davis (north side) to MUP	23	110
Katimavik (north side) - Eagleson to Hearst	23	230
Klondike - north side, March to Sandhill	4	325
March (south side) - Teron to Hwy 17 S Ramp Terminal	4	2180
McCurdy - Castlefrank (N) to Castlefrank (S)	23	1960
McGibbon - Katimavik to Davis	23	450
Meadowlands - south side, Fisher to Apeldoorn	16	350
Michael, east side between Cyrville to 150m s of Cyrville	11	150
Parkglen - Woodroffe to Withrow	8	570
St Laurent Blvd, east side between Hwy 417 e/b on-ramp at Tremblay	18	140
St Laurent Blvd, east side between Tremblay and Belfast	18	610
Startop, east side, between Cyrville and Algoma	11	510
Sunview - Belcourt to Des Epinettes	2	1390
Teron - East side, Campeau to existing sidewalk	4	750
Teron - East side, Existing sidewalk to The Parkway	4	210
Tremblay, north side between Riverside and Transit Linkway	18	430
Varley Drive (inside) Beaverbrook to Carr (N)	4	490
Phase 2		
Ahearn - Farrow to Scrivens	7	470
Albion - Brenda to Johnston	10	240
Arnot (east side) - Dynes to Fisher	16	250
Banning-Abbotsford-Morrena - Abbeyhill to Morrena	23	580
Brady - Newcastle to Halton - Newcastle	4	480
Broadview - Byron to Princeton	15	410
Carriere - Orleans to Belcourt	2	290
Castlefrank - Sheldrake (N) to Sheldrake (S)	23	510

Project Name	Ward	Project Length (m)
Chimo (both sides) - Katimavik to Anik Way and McClure	23	2090
Clyde - Carling to Woodward	15	480
Cobden - Iris to Elmira	8	100
Connaught / Roman - Carling to Hindley	7	1360
Edgeworth - Georgina to Carling	7	170
Hemlock/Beechwood - Oakhill-Lansdowne	13	320
Kakulu (segments) - Dranie to Eagleson	23	600
Katimavik - Eagleson to W of Whitney	23	1070
Larkin - St Remy to Andrea	3	840
Leacock Drive (inside) - Beaverbrook to Beaverbrook - MUP	4	1590
Leacock Drive (outside) - Beaverbrook to Leacock Way	4	430
Malvern - Fable to Greenbank	3	740
Meadowbrook - Dondale to Bortolotti	11	640
Navaho - Iris to Erindale	8	900
North River - McArthur to Stevens	12	220
Pleasant Park (north side) - Lynda to Alta Vista	18	1090
Prestwick - Amiens to Des Epinettes	1	1670
Seyton - Cymbeline to Seyton	8	930
Sherbourne - Byron to Bromley	7	1300
Sherway - Fable to Malvern	3	1170
Tartan - Strandherd to Townsend	3	2010
Varley Drive (inside) - Beaverbrook to Milne (N)	4	520
Varley Drive (outside) - Beaverbrook to Carr (N)	4	460
Varley Drive (outside) - Beaverbrook to Varley Lane (S)	4	330
Varley Drive (outside) - Carr (N) to Varley Lane (N)	4	626
Weybridge - Maravista to Delmeade	3	190
Phase 3		
Bottriell - Merkley to Charlemagne	1	430
Clare - Churchill to Tweedsmuir	15	310
Como - Varennes to Varennes	1	1110
Deancourt /Briarfield- Princess Louise to Existing Pathway	1	350
Field - Woodroffe to Iris	8	770
Glamorgan-Rothesay - Castlefrank to Old Colony	23	360
Holitman- Foxfield to Fallowfield	3	830
Knoxdale - West Hunt Club to Conover	9	370
Knudson/Weslock/Beaverbrook - Campeau to Leacock Drive (outside)	4	1910
LaVerendrye - Quincy to Ogilvie	11	1170
Matheson - Ogden to Bathgate	11	1110
Meadowglen - Orleans to Forest Valley	2	1520
Meadowglen - Summerfields to Boyer	2	760
Old Colony - Rothesay to Abbeyhill	23	1210
Orleans Blvd - Notre Dame to Jeanne d'Arc	2	540
Parkway/Fellows/Westbury - Iris to Highgate	8	760

Project Name	Ward	Project Length (m)
Pleasant Park (south side) - Haig to St. Laurent	18	1190
Range Rd - Mann Ave to South of Templeton St	12	180
Saville - Sherbourne to Neepawa	7	310
Shillington - Hollington to Merivale	16	400
Tormey - Cobourg to Brigadier	12	170
Varennes - Watters to Sheenboro N	1	250
Viewmount - Overlake to Europa	9	540
West Hunt Club (Sections) - Greenbank to Prince of Wales	9	4860
Wilkie - Merkley to MUP near Chenier	1	700
Woodfield - Pathway 70m east of Downsview to Merivale	9	530
Woodward - Maitland to Clyde	8	1160
Beyond 2031		
Algoma, north side between Star Top and Kenaston	11	1640
Algoma, south side between Star Top and *200m west of Comstock*	11	480
Beaulieu, east side between Ogilvie and round-about 150m south of Ogilvie	11	40
Belfast, west side between Coventry and Hwy 417 Overpass	13	180
Comstock, east side between Algoma and north end	11	1640
Cyrville Rd, north side between Ogilvie and *100m east of Michael*	11	200
Cyrville, west side between St. Laurent and Ogilvie	11	130
Hardy, south between pathway and Bernard	13	130
Joseph Cyr, west side between Lemieux and Cyrville	11	200
Kenaston, north side between Labrie and 70m west of Labrie	11	310
Labelle, south side between Michael and Lemieux	11	120
Labrie St, east side between Kenaston and Cyrville	11	1640
Lemieux, south side between Labelle and St. Laurent	11	120
Michael, west side between Cyrville to Transit Linkway	11	220
Michael, west side, between Parisien and Belfast	11	1310
Parisien, north side between Michael and Marchand	11	260
Parisien, north side between Triole and Michael	11	440
Parisien, south side between Triole and Michael	11	1100
Startop, west side between Cyrville and Algoma	11	1640
Terminal, north side between Trainyards and Riverside (Hurdman Station)	18	920
Terminal, south side between Riverside (Hurdman Station) and Trainyards (short segments existing)	18	610
Tremblay, north side between St. Laurent and Triole	18	300
Triole, east side between Parisien and end	11	1450
Triole, west side between Parisien and end	18	70

Annex F

Prioritization Process Review

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Appendices

1.0 INTRODUCTION

The implementation of most new City-built sidewalks (not associated with new road construction, road reconstruction or development) is addressed through the Pedestrian Facilities Program (PFP). The program completes discontinuities in the existing pedestrian network through ongoing community requests for new sidewalks and pathways. The program is managed by ranking the requests relative to each other based on a set prioritization methodology whereby each candidate site is scored based on a numerically weighted value assigned to each criterion. The 2009 Pedestrian Plan made refinements to the earlier process in order to eliminate those locations that do not fit the intended scope of the program to complete discontinuities in the existing pedestrian network or where a sidewalk is not necessary to support community connectivity and access of key pedestrian destinations. At the time of the 2009 Pedestrian Plan there were approximately 300 outstanding candidate segments residing on the candidate list. There are now approximately 500 outstanding candidate segments residing on the candidate list and through the implementation of the current process a number of issues have become apparent.

As part of the Ottawa Pedestrian Plan 2013 update, a review of the prioritization methodology was carried out to better screen requests as they are received, but also to be applied on a network level for identifying the planned implementation plan and affordability of the network in the planning horizon to 2031. This annex summarizes the methodology.

2.0 UNDERSTANDING THE PREVIOUS METHODOLOGY

2.1 Eligibility for Consideration as a Candidate

A preliminary process / criteria for determining sidewalk and pathway eligibility for consideration as a candidate was laid out in the 2009 Pedestrian Plan – Document 4. These included:

- Determination if the requested sidewalk or pathway is situated on City property or if legal agreements exist between the property owner and City.
- The link is necessary to complete a discontinuous section in an existing sidewalk or pathway or it extends from the existing sidewalk or pathway network toward an established public pedestrian destination.

- The link would not constitute an isolated segment disconnected from the existing network.
- The link does not create an alternate route to an existing City-maintained pedestrian facility within 400m.
- The link is not situated in a developing area whereby it would be constructed as part of the development process.
- The link is not situated in an area subject to road construction or reconstruction whereby the link would be implemented as part of the construction process.
- There exists the infrastructure or geometric configuration necessary to implement the link.

There is also one instance when sidewalks and pathways were not eligible for consideration as a candidate under the PFP, where the link is required through growth that represent missed opportunities whereby the methodologies of the Pedestrian Improvement Process as established by the Ottawa Pedestrian Plan have not been applied to the development process.

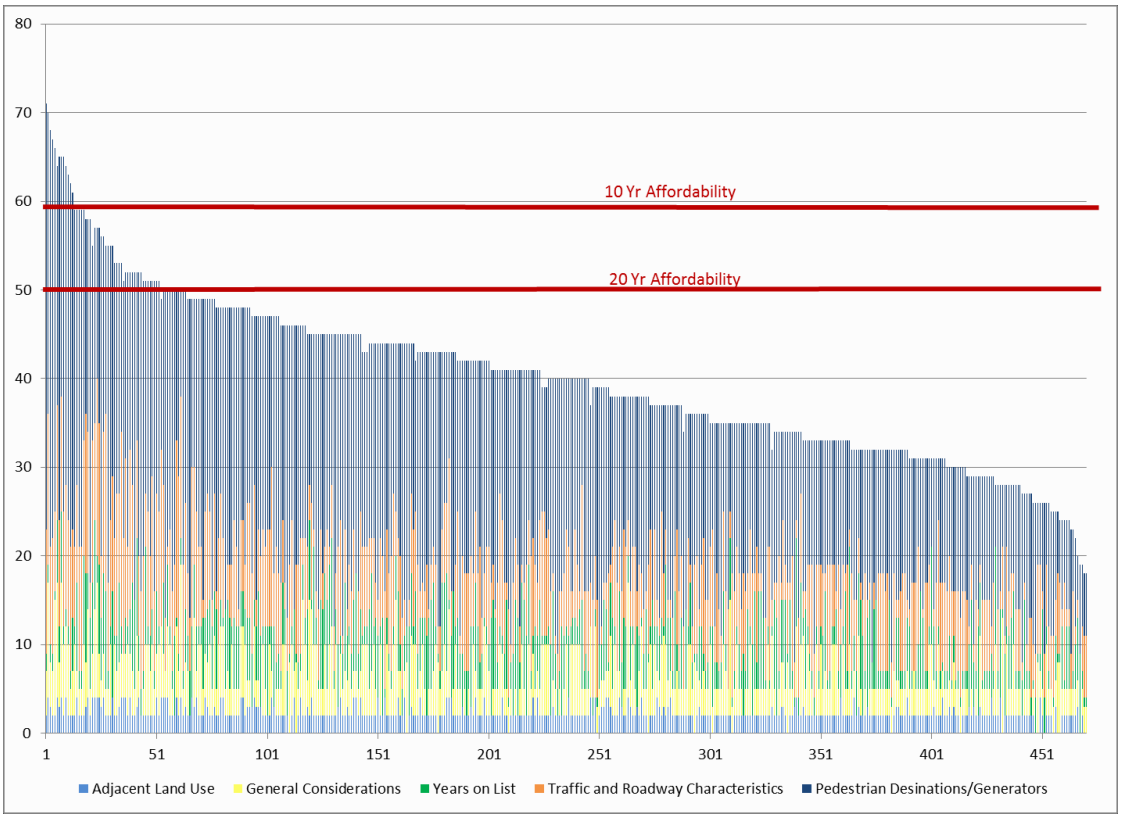
2.2 Previous Criteria for Determining Priority Ranking

The criterion considered in the previous methodology to rank candidate sites that have gone through the eligibility consideration as listed above was reviewed in the context of five key areas as described in the following sections.

2.2.1 Pedestrian Destinations / Generators (100pts available)

Points are allocated for each type of trip generator near a requested link. As such, many points can be accumulated and these factors typically accounted for more than half of the points to any requested link (typically accounted for 50% but could go higher.) This single category was typically the only influential factor in selecting the high priority links as shown Figure 1 (most commonly 20-30pts). The affordability lines within Figure 1 represent the number of current links on the candidate list that would be built based on an assumption of $750K / year for 10 year and 20 year timeframes.

Figure 1: Demonstration of Point Allocation for Five Key Areas



2.2.2 Traffic and Roadway Characteristics (29pts available)

This category reflects the safety aspects of the need for a sidewalk. It includes motor vehicle speeds and volumes, road classifications and sightline concerns. This category typically accounted for 20% of the total points (most commonly 15-20pts).

2.2.3 Adjacent Land Use (4pts available)

This category reflects high or low density areas and commercial, business or industrial land uses. All areas receive 2-4 pts and therefore this factor was not influential in selecting priorities (most commonly 2-3 pts).

2.2.4 General Considerations (18pts available)

This is an important characteristic which identifies desire lines, the presence of existing parallel facilities and the crossing of significant barriers. However, this component typically only accounts for 4-6pts or 11% of the total points for a typical requested link.

2.2.5 Year on Candidate List (1pt per year)

On average 5 pts are allotted for this up to a maximum of 12pts. This accounts for close

to 10% of the total points for a typical requested link.

2.3 Summary of Issues with Existing Process

2.3.1 City Experience with Implementing the Process

The following adjustments were suggested by the City of Ottawa for consideration during the review of the overall process:

- Consider a screening process for requests to identify those that are a priority and require further assessment
- Create a greater hierarchy for transit, schools and parks (streets with transit/school/park, streets leading to transit/school/park, streets in the vicinity of transit/school/park)
- Consider proximity to high density or key destinations rather than only adjacent land use
- Consider the School Travel Planning Program

2.3.2 Review of Process by Others

In addition to the issues raised by the City noted above, a few areas for adjustment were brought to light during the review. The key conclusions are listed below and further demonstrated in the example that follows.

- Key destinations/generators can continue to accumulate points with no fixed maximum giving it too high a weighting compared to other categories when looking at a segment in an urban area
- Adjacent land use has no real impact upon the final scores
- The difference between an unsafe road and a safe road (based on the Traffic and Roadway Characteristics Criteria) is less than 20 points (less than 1/3 of the points required in order to make the list for improvements in the next 10 yrs)
- The availability of a parallel facility accounts for only 3 pts (6% in this case)

Example: The following is an example of how two very different segments can end up with the same score based on the current process. *Segment A* is in a residential area with low population and employment along a busy arterial road connecting to a primary school, park and senior's residence. There are not a significant number of destinations, there are no parallel facilities and this is an unsafe road to walk along.

Segment B is in a highly populated area (population and employment) with lots of nearby amenities. It is on a very quiet local road with a sidewalk on the other side of the street. While there are no safety concerns with Segment B it scores the same number of points due to the nearby amenities and would be ranked the same as Segment A.

Table 2-1: Example Comparison of Two Segments using Current Methodology

	Segment A		Segment B	
Criteria	**Data**	**Points**	**Data**	**Points**
Destinations/Generators				
	Primary School	1	Primary School	1
	Park	7	Park	7
	Seniors' Residence	5	Seniors Residence	5
			Transit Routes	7
			Community Centre	5
			Retail/Commercial Centres	5
			Church	2
			Other public institution	2
Subtotal		2		4
Traffic and Roadway Characteristics				
Speed	80 km/h	4	50 km/h	2
Peak Hour Traffic	500vph	3	<50vph	0
Geometry	Curvilinear	2	Curvilinear	2
Cross-Section	4+undivided	5	2 lane	0
Sightline	Yes	2	No	0
Road Class	Arterial	5	Local	0
Subtotal		2		4
Adjacent Land Use				
Land Use	Low Population Residential	22	High Population Residential	4
Subtotal		2		4
General Considerations				
Desire Lines	Yes	5	No	0
Parallel Facility	No	3	Yes	0
Years on List	None	0	2 years	2
Subtotal		8		2
TOTAL		5		5

3.0 REVISED METHODOLOGY

The methodology changes as described below were developed based on the following:

- The same information collected as part of the previous prioritization process remains relevant.
- Identified those elements that most closely align with the City's current priorities for development of the pedestrian network and used them in a screening process

3.1 Screening (Phase 1)

3.1.1 Overall Methodology Phase 1

For the Screening the candidate project must achieve 30 points to move into the second phase of prioritization. There are three key areas of consideration:

- Pedestrian Demand and Adjacent Land Use – based on population and employment in area
- Current City priorities – transit, schools and parks
- Safety / Roadway Characteristics – roadway classification and availability of parallel facilities

Pedestrian Demand and Adjacent Land Use

Without identifying individual services near a requested link, it is generally understood that in an area with a higher population or higher employment there are more likely to be a greater number of pedestrian trips. Similarly, highly populated areas are more likely to have a wide variety of community services within a walking distance.

A map was generated from the existing defined traffic zones in the city to show the population and employment by land area (Appendix B). Points are assigned based on the overall ranking and the exercise is carried out a 'look-up' process. Using a map of the larger areas will allow areas bordering highly populated areas to be identified rather than just the adjacent land use.

Table 3-1: Pedestrian Demand Point Values

Area Population/Employment (within or bordering)	Points
High	20
Medium-High	15
Medium	10
Low-Medium	5
Low	0

Note: For the existing methodology, an area with a number of generators would easily score above 20 points for nearby services. The revised methodology has capped the total points for this category at 20 points.

Current City Priorities

This characteristic is to define the current City priorities for links to transit, schools and parks. Regardless of the population or employment, ensuring good walking facilities to promote safe trips to parks and schools and to encourage the use of rapid transit is a main priority. Links that 'lead directly to' transit, schools or parks represent those links that connect directly to the street of the facility (i.e. streets that cross the road where the facility is located within the specified distance.)

Note: In comparison to the existing methodology, the total points for these priority areas is roughly maintained, however, a maximum number of points has been set for each of the priority areas.

Table 3-2: Current City Priorities Point Values

Priority Areas	Description	Points
Transit Points		
Rapid Transit Station	On the identified link (600 linear metres either way) of the station	**15**
	Leads directly[1] to the station (600 linear metres either way)	**10**
Transit Intensive Corridor Stops	On the identified link (200 linear metres either way) of the stop	**10**
	Leads directly[1] to the stop (200 linear metres either way)	**6**
Local Transit	On a transit route	**4**
School Points		
Schools (elementary or intermediate)	School fronts on the identified link (300 linear metres either way)	**10**
	Leads directly[1] to the school and within 300m of the school.	**5**
	School part of School Planning Program	**3**
Secondary, University	School fronts on the identified link (300 linear metres either way)	**8**
	Leads directly[1] to the school and within 300m of the school	**4**

Park Points		
Parks (Leads directly to or is on the identified link within 400m)	Park with amenities (playground, ballpark, waterpark, etc.)	**8**
	Green space only	**4**
TOTAL		

[1] "Leads directly to" refer to sidewalk links that connect directly to a roadway link with a transit station/stop or school located on the link it leads to.

Safety / Roadway Characteristics

Without collecting information on each individual roadway, it is generally accepted that collector and arterial roads carry the highest volume of motor vehicles at the highest speeds and sidewalks along these roads should be prioritized.

In addition, a collector or arterial road without a sidewalk on either side should be prioritized above one that has a sidewalk on one side of the road. This also holds true for local roads with the exception that if a local road has a sidewalk on one side of the road, it will not pass screening.

Note: For the existing methodology an arterial road would get 15-25 points while a collector would likely score 10-15 points (speed, volume, number of lanes, classification, identified link in the TMP). The number of points has been reduced where a sidewalk exists on the one side of the road.

Table 3-3: Safety / Roadway Characteristics Point Values

Roadway Classification	Sidewalk on one side of the Street	Points
Arterial or Major Collector	Yes	**1**
	No	**2**
		0
Minor Collector	Yes	**7**
	No	**1**
Local Road	Yes	**Automatically Not**
	No	**5**

3.1.2 Testing of Phase 1 Methodology

The points assigned above are based on a testing phase of randomly selected links from the network to be prioritized. Links selected for the testing phase included a combination of community requests, links to provide connections to transit stations (rapid transit, transit intensive corridors, transit priority corridors) and links to schools. The selected links for testing were also a combination of different road classifications (i.e. arterial, collector or local.) The scores of the selected links being tested are attached as Appendix A.

The starting point for the testing had a point threshold for passing Phase 1 of 45 points, assigned varying points to each of the criteria and included capping the scores within each of the three key areas:

- Pedestrian Demand and Adjacent Land Use – based on population and employment in area (max 20 points)
- Current City priorities – transit, schools and parks (max 30 points)
- Safety / Roadway Characteristics – roadway classification and availability of parallel facilities (max 20 points)

These maximum scores were removed in the final methodology to provide more variance in the scores of the links being assessed and the threshold for passing Phase 1 was lowered to 35 points as there were sidewalk links that while intuitively should be proceeding to implementation were not passing Phase 1.

In addition the following adjustments were made to the criteria scores to arrive at the final assignment of points.

- Additional priority was placed on higher order transit:
  - Rapid Transit (on identified link) was increased from 12 points to 15 points
  - Rapid Transit (leads directly to) was increased from 6 to 10 points
  - Transit Intensive corridors (on identified link) was increased from 8 to 10 points
  - Transit Intensive corridors (leads directly to) was increased from 4 to 6 points
  - Local Transit (on route) was reduced from 5 to 4 points
- It was found that most links were within the 400m of a park/greenspace and therefore the point variation for on the link vs. leads directly to the link did not provide enough variance. Park scores were changed to reflect a higher score for sidewalk links directly on or leading to a park with amenities (i.e. ballparks, soccer fields, playgrounds etc.) where there may be higher demand than a greenspace only.
- Under the Safety / Roadway Characteristics category the points were increased for higher traffic roadway classifications with sidewalks on only one side of the road as there is less opportunities to cross to the sidewalk mid-block.

- Arterial and major collector roads with a sidewalk on one side only had an increase in points assigned from 8 to 14.

- Minor collector roads with a sidewalk on one side only had an increase in points assigned from 5 to 7.

The result of the testing phase is within Section 3.1.1 Overall Methodology for Screening (Phase 1).

3.2 Additional Prioritization (if required) for Candidate Sites Carried Forward (Phase 2)

3.2.1 Overall Methodology Phase 2

In the screening described in Section 3.1 focused on pedestrian demand and land use, safety and roadway characteristics, and the City's current priority areas.

Moving into Phase 2, points may be accumulated to more refine the prioritization of the candidate sites where there may be additional safety concerns, additional amenities or connectivity potential.

Pedestrian Demand

Additional points may be accumulated for additional community facilities along the proposed link or where the proposed link leads directly to a community facility.

Table 3-4: Pedestrian Destinations/Generators Point Values

Category	Description	Points
Service and Recreation (Public, City Facilities)	Arenas, art facilities, athletic facilities, community centres, cultural facilities, health care facilities, meeting/convention centres, stadiums, libraries, religious centres, etc.	**3 points each**
High Demand Commercial	Within 600m of a high demand commercial area	**5 points**
Youth and Seniors	Senior's Residence, Long term care, impaired persons, daycare, youth centres	**3 points each**

Additional Safety Concerns

Roads have already been identified that are a collector or arterial road which by their nature will have higher volumes and speeds. Additional points should be

accumulated where a facility has less safe conditions than a typical arterial or collector.

Table 3-5: Additional Safety Concerns Point Values

Category	Description	Points
Very high speed	Posted speed 80kph+	**5 points**
	Posted speed 50-70kph	**2 points**
Very high volume	Peak hour traffic > 500 vph	**5 points**
	Peak hour traffic 250-500 vph	**3 points**
Sightline challenges	Significant bends, grades or other obstacles creating sightline concerns	**5 points**

City Priorities

While the priorities for pedestrian facilities lie in the areas of transit, schools and parks there remains the overall objective of completing discontinuities (provide a connected network) in the existing pedestrian network. Additional points can be achieved if the link provides a missing connection.

Table 3-6: City Priorities Point Values

Category	Description	Points
Desire Line	Is there a beaten path (Y)	**5 points**
In the vicinity of transit or schools	Based on defined radii (600m for Rapid Transit, 200m for Transit Intensive or Transit Priority and 300m for schools)	**3 points**
Parallel Pedestrian Facilities	No Parallel Pedestrian Facility within 400m	**3 points**
Barriers	Provides a crossing of a significant barrier including a multi-use pathway connection from a dead-end road, cul-de-sac or local street	**5 points**
Identified link	In OP, TMP or other City Priority	**4 points**

3.2.2 Application of Phase 2

The application of Phase 2 will apply to community requests received after the network has been established that have passed the screening laid out in Phase 1 in order to prioritize additions to the overall pedestrian network. In addition, it could be utilized to better rank projects within each of the timeframes should there be funding shortfalls in a given year and there is no variance in priority with only the Phase 1 results.

4.0 REMOVED CRITERIA FROM EXISTING METHODOLOGY

There were a few of the criteria in the existing methodology that were combined or removed in the methodology described in Section 3.0. The criteria and the process in eliminating it is provided below.

Pedestrian Destinations/Generators

Transit, schools and parks were prioritized from the list of destinations / generators to be in the screening (Phase 1) and reflect current priorities of the City. The other generators were generally categorized by Service and Recreation facilities, High Demand Commercial and Youth/Seniors whereby maximum points can be accumulated for this category to reduce higher weighting this criteria was being given.

Traffic and Roadway Characteristics

While a number of these criteria were kept from a safety review perspective there were criteria within this category not carried forward into the new methodology. These include:

- posted speeds less than 50kph where the score was 0 in the existing methodology
- low peak hour volumes as this will be taken into account with the roadway classification
- the number of lanes given that speed would be the influencing factor and the number of lanes would have a bigger impact on the crossing requirement as opposed to the adjacent facility type
- Significant grade which would be accounted for in the sightline challenge criteria

Adjacent Land Use

The points for this category will be related to the potential pedestrian demand based on population and employment and has been accounted for in the screening. The high demand commercial has been moved into the destinations/generators category of Phase 2.

General Considerations

One criterion that has not been carried forward into the methodology outlined above for the general considerations:

- Years on Candidate List (point per year) – while everything on the list will move up together, there is the potential for a link that has been on this list for a number of years to have a large number of points only because it has not been a high enough priority.

5.0 PROCESS APPLICATION FOR CARRYING OUT PRIORITIZATION OF THE PEDESTRIAN NETWORK

For prioritizing the pedestrian facility links on a network level, the screening (Phase 1) will be applied. Should there not be a sufficient variance in the points for prioritizing the links into the three proposed timeframes (2014-2018, 2019-2023 and 2024-2031) consideration may be given to the geographic location of the links (i.e. prioritization will not result in all prioritized links within the same traffic zone in the city) or moving a criteria up from Phase 2 where it can be applied on a network level.

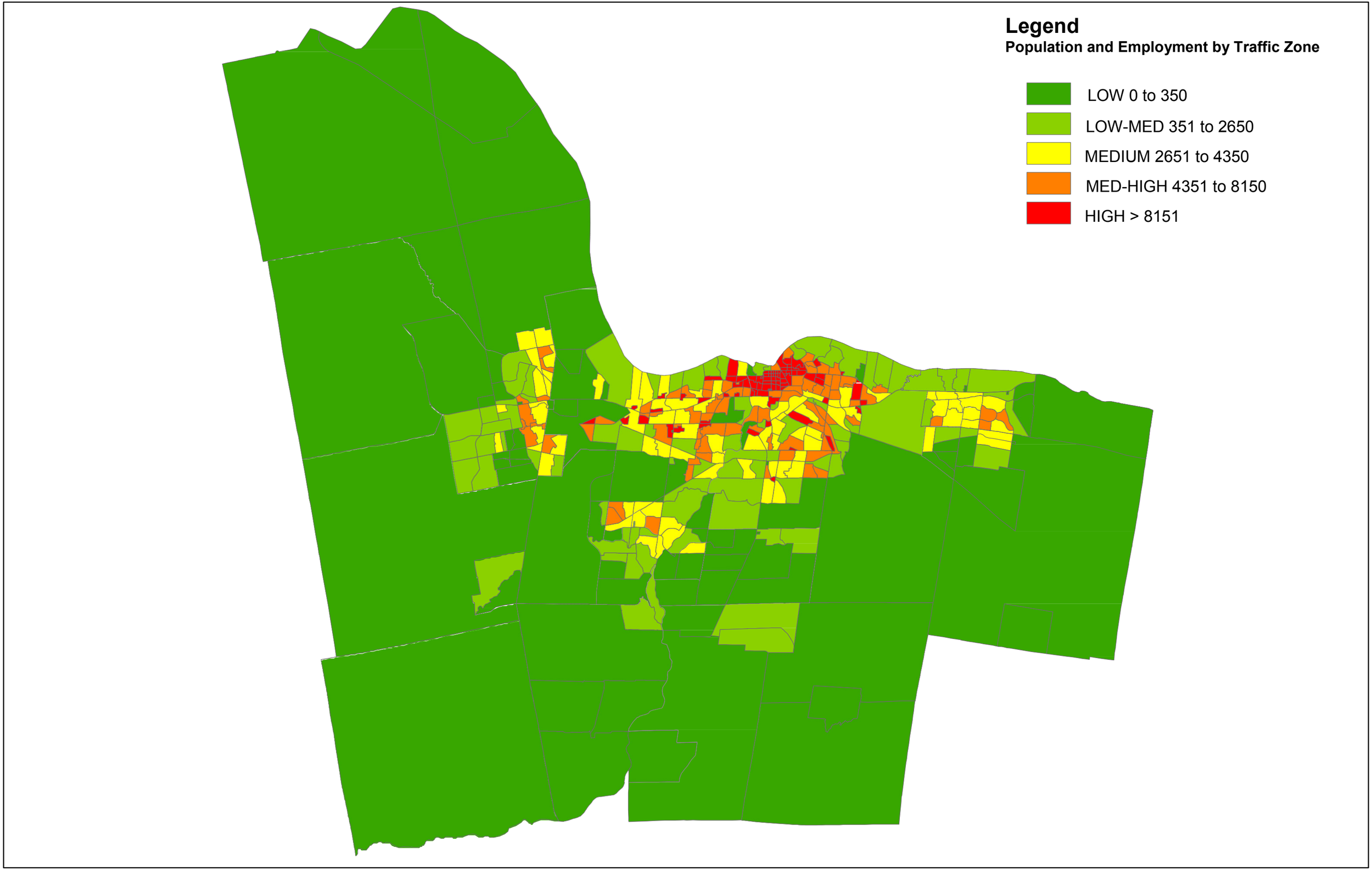
Appendix A: Phase 1 Testing Results

Phase 1: Testing of Selected Sidewalk Links

Criteria		Potential Points	Sidewalk Link												
			Youville Drive (St. Joseph to Jeanne d'Arc)	Castlefrank Road (Winchester to Torcastle)	Iris Street (Southwood to Cobden)	Roman Avenue (Connaught to Hindley)	Cedarview Road (Fallowfield to Jockvale)	Carp Road (Hazeldean to Hobin)	Pleasant Park Road (Haig to Saunderson)	Arc En Ciel (Gardenway to Tourelle)	Knightsbridge Road (Sherbourne to Lockhart)	Saunderson Drive (Goren to Chapman)	Bermuda Avenue (Hochelaga to Carsons)	Crofton Road (Meadowbank to Ashgrove)	Lillico Drive (Erin to Lillico)
			Orleans	Kanata	Nepean	Bayshore	Barrhaven	Stittsville	Alta Vista	Orleans	Ottawa West	Elmvale Acres	Ottawa East	Cedarview	Hunt Club
			Minor Coll.	Arterial	Major Coll.	Local	Arterial	Arterial	Minor Coll.	Local	Local	Minor Coll.	Local	Local	Local
PHASE 1															
Pedestrian Demand and Adjacent Land Use															
Area Population/Employment	High	20	0	0	0	0	0	0	0	0	0	0	0	0	0
	Med - High	15	0	15	0	0	0	0	0	15	15	0	15	0	0
	Med	10	10	0	10	10	0	0	10	0	0	10	0	0	10
	Med-Low	5	0	0	0	0	5	5	0	0	0	0	0	5	0
	Low	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Demand Total			**10**	**15**	**10**	**10**	**5**	**5**	**10**	**15**	**15**	**10**	**15**	**5**	**10**
Current City Priorities															
Transit Points															
Rapid Transit Station	On the identified link (600 linear metres either way) of the station	15	15	0	0	0	0	0	0	0	0	0	0	0	0
	Leads directly to the station (600 linear metres either way)	10	0	0	0	10	0	0	0	0	0	0	0	0	0
Transit Intensive Corridor Stops	On the identified link (200 linear metres either way) of the stop	10	0	0	0	0	0	0	0	0	0	0	0	0	0
	Leads directly to the stop (200 linear metres either way)	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Transit	On a transit route	4	4	4	4	0	4	4	4	0	0	0	0	0	0
School Points															
Schools (elementary or intermediate)	School fronts on the identified link (300 linear metres either way)	10	10	0	0	0	10	0	0	0	0	0	0	0	0
	Leads directly to the school and within 300m of the school.	5	0	5	5	5	0	0	5	5	5	5	0	5	0
	School part of School Planning Program (within 300 m radius)	3	0	3	0	0	0	0	0	0	0	0	0	0	0
Secondary, University	School fronts on the identified link (300 linear metres either way)	8	0	0	0	0	0	0	0	0	0	0	0	0	0
	Leads directly to the school and within 300m of the school.	4	0	0	0	0	0	0	0	0	0	0	4	0	0
Parks Points															
Parks lead directly to link, or is on identified link (400 m radius)	Parks with amenities (ballpark, playground etc.)	8	8	8	8	8	0	8	8	8	8	8	8	8	0
	Greenspace	4	0	0	0	0	4	0	0	0	0	0	0	0	4
Current City Priorities Total			**37**	**20**	**17**	**23**	**18**	**12**	**17**	**13**	**13**	**13**	**12**	**13**	**4**
Safety / Roadway Characteristics															
Arterial or Major Collector	Yes - Sidewalk on one side	14	0	14	14	0	14	14	0	0	0	0	0	0	0
	No - Sidewalk on one side	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Minor Collector	Yes - Sidewalk on one side	7	7	0	0	0	0	0	7	0	0	0	0	0	0
	No - Sidewalk on one side	10	0	0	0	0	0	0	0	0	0	10	0	0	0
Local Road	Yes - Automatically Not Qualified	-	0	0	0	0	0	0	0	0	0	0	0	0	0
	No - Sidewalk on one side	5	0	0	0	5	0	5	0	5	5	0	5	5	5
Safety / Roadway Characteristics Total			**7**	**14**	**14**	**5**	**14**	**19**	**7**	**5**	**5**	**10**	**5**	**5**	**5**
PHASE 1 TOTAL (35 point threshold for advancement to phase 2)			**54**	**49**	**41**	**38**	**37**	**36**	**34**	**33**	**33**	**33**	**32**	**23**	**19**
Meets Threshold - Carried forward For Network Implementation Plan or Phase 2 if Applicable			**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Priority Ranking			**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**

Criteria		Potential Points	Sidewalk Link												
			Youville Drive (St. Joseph to Jeanne d'Arc)	Castlefrank Road (Winchester to Torcastle)	Iris Street (Southwood to Cobden)	Roman Avenue (Connaught to Hindley)	Cedarview Road (Fallowfield to Jockvale)	Carp Road (Hazeldean to Hobin)	Pleasant Park Road (Haig to Saunderson)	Arc En Ciel (Gardenway to Tourelle)	Knightsbridge Road (Sherbourne to Lockhart)	Saunderson Drive (Goren to Chapman)	Bermuda Avenue (Hochelaga to Carsons)	Crofton Road (Meadowbank to Ashgrove)	Lillico Drive (Erin to Lillico)
			Orleans	Kanata	Nepean	Bayshore	Barrhaven	Stittsville	Alta Vista	Orleans	Ottawa West	Elmvale Acres	Ottawa East	Cedarview	Hunt Club
			Minor Coll.	Arterial	Major Coll.	Local	Arterial	Arterial	Minor Coll.	Local	Local	Minor Coll.	Local	Local	Local
PHASE 2															
Pedestrian Demand															
Service and Recreation (Public, City of Ottawa Facilities)	Arena	3	3	3	0	0	0	0	0	0	0	3	0	0	0
	Art Facility	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Athletic Facility	3	3	3	0	0	0	0	0	3	3	0	0	0	0
	Community Centre	3	0	0	3	0	0	0	3	3	0	3	0	0	0
	Cultural Facility	3	0	0	0	0	0	0	0	0	0	0	0	3	0
	Health Care Facility	3	0	0	0	0	0	0	0	0	0	0	3	0	0
	Meeting/Convention Centre	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Stadium	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Library	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Religious Centre	3	3	0	3	0	3	0	0	0	3	3	0	0	0
High Demand Commercial	Within 600m of a high demand commercial area	5	5	0	5	0	0	0	0	0	0	5	0	0	0
Youth and Seniors	Seniors' Residence	3	0	0	3	0	0	0	0	0	0	0	0	0	0
	Long Term Care	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Impaired Persons	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	Daycare	3	0	0	0	0	0	0	0	0	3	0	0	0	0
	Youth Centre	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Demand Total			**14**	**6**	**14**	**0**	**3**	**0**	**3**	**6**	**9**	**14**	**3**	**3**	**0**
Additional Safety Concerns															
Very high speed	Posted speed 80kph +	5	0	0	0	0	0	0	0	0	0		0	0	0
	Posted Speed 50-70 kph	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Very high volume	Peak Hour Traffic >500 vph	5	5	0	0	0	5	5	0	0	0	5	0	0	0
	Peak Hour Traffic 250-500 vph	3	0	3	3	3	0	0	3	3	3		3	3	3
Sightline challenges	Significant bends, grades or other obstacles creating sightline concerns	5	5	0	0	0	0	5	0	0	0	0	0	0	5
Additional Safety Concerns Total			**12**	**5**	**5**	**5**	**7**	**12**	**5**	**5**	**5**	**7**	**5**	**5**	**10**
City Priorities															
Desire Line	Is there a beaten path (Y)	5	5	5	0	0	0	0	0	0	0	0	0	0	0
In the vicinity of transit or schools	(600m for Rapid Transit, 200m for Transit Intensive or Transit Priority and 300m for schools)	3	3	3	3	3	3	0	3	0	3	3	3	3	0
Parallel Pedestrian Facilities	No Parallel Pedestrian Facility within 400m	3	0	0	0	3	0	0	0	0	0	0	0	0	0
Barriers	Provides a crossing of a significant barrier	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Identified Link	In OP, TMP or other City Priority	5	0	5	0	0	0	0	5	0	5	5	0	0	0
City Priorities Total			**8**	**13**	**3**	**6**	**3**	**0**	**8**	**0**	**8**	**8**	**3**	**3**	**0**
PHASE 2 TOTAL			**34**	**24**	**22**	**11**	**13**	**12**	**16**	**11**	**22**	**29**	**11**	**11**	**10**
PHASE 1 AND 2 TOTAL			**88**	**73**	**63**	**49**	**50**	**48**	**50**	**44**	**55**	**62**	**43**	**34**	**29**
Priority Ranking			**1**	**2**	**3**	**5**	**4**	**6**							

Appendix B: Population and Employment by Traffic Zone


Legend
Population and Employment by Traffic Zone
LOW 0 to 350
LOW-MED 351 to 2650
MEDIUM 2651 to 4350
MED-HIGH 4351 to 8150
HIGH > 8151