4.0 Towards a Walkable Ottawa

"In my ideal city, walking is normal."
Ottawa Resident

In addition to policy support for the development of a Pedestrian Plan as outlined in the previous chapter, Chapter 4 of this report provides further justification for creating a plan that focuses on improving pedestrian conditions in Ottawa. It begins by describing some of the important benefits of walking and walkable communities. This is followed by discussion of current trends, themes, characteristics and principles that are common among walkable communities. The chapter concludes with a synopsis of some of the key challenges that Ottawa must overcome to meet its vision to ***facilitate year-round walking in the City of Ottawa as a comfortable, viable, well integrated and well used component of the transportation system in the City***.

4.1 The Benefits of Walkable Communities

Walking is the most basic form of transportation. Based on data from the 2006 Households and the Environment Survey(*17*), approximately 17% of all Canadian households do not own a car. People who do not drive include:

- Children—17.6% of the population is under 15 years of age *(18)*.
- Older Canadians—13.7% of the population is over 65 years of age and some of these may not hold a valid license. *(19).*
- People with mobility, vision or cognitive impairments that cannot drive—12.4% of Canadians have an impairment that limits their daily activities *(20)*.
- Those that cannot afford a car—the cost of owning a car is approximately $590/month *(21)*.

A 2002 US national survey on attitudes toward walking (*22*) found that people want to walk to more places more often, and are willing to invest in making it possible. Poll results show that if given a choice between walking more and driving more, 55% of adults choose walking more. The poll shows overwhelming support for policies to make the walking environment less dangerous for people of all ages, and especially children. A majority (68%) favor putting more federal dollars toward improving walkability, even within a constrained budget. Similar trends could be expected for Canada.

Walking is one of the least costly and easiest forms of exercise available. People walk for enjoyment, health, purpose and convenience. They walk to the park, to schools, to stores and to work. The 2005 Origins-Destinations Survey in the National Capital Region (*23*) reported on the purpose of daily walking trips in the peak morning period:

17 Statistics Canada. *Households and the Environment Survey*. July, 2007.

18 Statistics Canada. *Canada Census 2006*. November, 2007.

19 Ibid.

20 Statistics Canada. *Participation and Activity Limitation Survey*. 2001.

21 Canadian Automobile Association*. Driving Costs Brochure*. 2007.

22 Belden, Russonello & Stewart. *'Americans' Attitudes Toward Walking and Creating Better Walking Communities*. Surface Transportation Policy Project, April 2003.

23 TRANS Committee. *2005 Origins-Destinations Survey in the National Capital Region*. December 2006.

- 32% were trips to work;
- 45% were trips to school;
- 7% were return home trips;
- 4% were pick up or drop off trips;
- 6% were trips for leisure;
- 1% were trips for shopping; and,
- 5% were personal and other trips.

In the peak afternoon period, walking trips were primarily return home trips from work or school (66%), leisure (12%) and shopping (9%)..

The benefits of creating a walkable community are many and far reaching, affecting many facets of the everyday lives of citizens in both the urban and rural environment. Though not exhaustive, the following section describes some of the benefits of walking, grouped around the themes of health, pedestrian safety, increasing social interaction, the environment and energy conservation, traffic congestion, and reduced effects and demand on roadway infrastructure and economics.

4.1.1 Improving Citizens' Health

Ottawa

Obesity rates have increased significantly over the past 30 years and obesity has been linked to many other diseases that affect human health. Many studies link obesity to lifestyle choices and inactivity. More recently, evidence also suggests that trends in obesity may be related to social networks. For example, studies suggest that the chances of a person becoming obese may increase if they have friends or relatives who are obese *(24).*

The health benefits of regular physical activity are far-reaching. Walking as a physical activity may help to prevent obesity and many chronic diseases such as high blood pressure, diabetes, cardiovascular disease, stroke, some types of mental illness and some forms of cancer. Recent studies in the United States have found that people with access to sidewalks are more likely to walk and meet the Surgeon General's recommendations for physical activity *(25).* Residents in highly walkable neighborhoods engage in about 70 more minutes per week of moderate and vigorous physical activity than residents in low walkability neighborhoods *(26)*, and 43% of people with safe places to walk within ten minutes of home meet recommended activity levels, compared to only 27% of those without safe places to walk *(27).* Furthermore, studies indicate that residents are 65% more likely to walk in a neighborhood with sidewalks *(28).* Recognizing current health trends, the move towards a more preventative health care system and effective ways to encourage active, healthier lifestyles, the public health profession (i.e. through the Ministry of Health Promotion) has joined

---

24 Christakis, N.A and Fowler, J.H. *The Spread of Obesity in a Large Social Network Over 32 Years.* New England Journal of Medicine, 357 (4), 370-378. 2007.

25 Eyler, A.A., Brownson, R.C., Bacak, S.J., & Housemann, R.A. *The epidemiology of walking for physical activity in the United States*. Medicine & Science in Sports & Exercise, 35 (9), 1529-1536. 2003.

26 Saelens, B., Sallis, J.F., Black, J., et al. *Neighborhood-based differences in physical activity: An environment scale evaluation*. American Journal of Public Health, 93, 1552-1558. 2003

27 Powell, K.E., Martin, L., Chowdhury, P.P. *Places to walk: Convenience and regular physical activity*. American Journal of Public Health, 93, 1519-1521. 2003.

28. Giles-Corti, B., and Donovan, R.J. *The relative influence of individual, social, and physical environment determinants of physical activity*. Social Science & Medicine, 54 1793-181. 2002.

the growing list of professions advocating for the creation of walkable neighborhoods.

4.1.2 Improving Pedestrian Safety

Traffic collisions are the primary cause of death among all ages from 3 to 34. Traffic fatality rates tend to be lesser in regions with higher rates of walking and bicycling *(29)*.

Walkability is more than just having the "right-of-way" to walk. Safety, convenience, efficiency, comfort and a welcoming atmosphere influence pedestrian accessibility on a designated route. Streets without dedicated places to walk put people at risk. Paved shoulders reduce pedestrian collisions up to 80%, and motor vehicle collisions up to 50%. Residential areas with no sidewalks had 23% of the pedestrian collisions but only 3% of the pedestrian traffic *(30)*. Compared to the overall sample of streets, local streets without sidewalks had 2.6 times more pedestrian collisions than expected (with the expectation based on the number of people using the streets). Streets with sidewalks on one side only had 1.2 times more pedestrian collisions than expected.

Ottawa

In addition to sidewalks is the need to consider pedestrian crossings of streets. The probability of a pedestrian fatality based on the speed of the motor vehicle involved in the collision is high - (45%) at 50km/h and rises dramatically to 85% at only 60km/h.

There is evidence that there is "safety in numbers", and that a motorist is less likely to collide with a person walking if more people walk *(31)*. This pattern is consistent across communities of varying size, from specific intersections to cities and countries, and at varying times of the day. Policies and practices that increase the number of people walking and bicycling may be effective routes to improving the overall safety of people walking and cycling.

4.1.3 Increasing Social Interaction

Pedestrian-friendly streets contribute to a "sense of place" by improving the quality of life for individuals, increasing social interaction, contributing to community liveliness, and creating more social equity. Much of our population is unable to drive, including children, many disabled people, seniors, and those unable to afford the cost of owning and operating a vehicle. Because many more people are able to walk than drive, pedestrian travel is more equitable than other forms of transportation.

Better conditions for walking have intangible benefits to the quality of life. Walking is an indicator of a community's livability – a factor that has a profound impact on attracting businesses and workers as well as tourism. In areas where people walk, there is a palpable sense that these are safe and friendly places to live and visit.

Walking can strengthen and stabilize neighbourhoods - much of the conflict between new development and residential needs arises from concerns about automobile traffic and parking.

---

29. Surface Transportation Policy Partnership, *www.transact.org*. 2000.

30. Knoblauch, R.L., B.H. Tustin, S.A. Smith and M.T. Pietrucha. *Investigation of Exposure Based Pedestrian Areas: Crosswalks, Sidewalks, Local Streets and Major Arterials*. Report No. FHWA RD-88-038, U.S. Department of Transportation, Federal Highway Administration, September 1988.

31 Jacobson, P.L. *Safety in numbers: more walkers and bicyclists, safer walking and bicycling*. Injury Prevention, 9, 205-209. 2003.

As automobile use increases there tends to be less interaction among neighbours. Walking facilitates social contact in public spaces thereby promoting social cohesion and community well-being.

4.1.4 Conserving Energy and Reducing Environmental Impact

Walking is the most sustainable mode of transportation; it is quiet, energy efficient, does not burn fossil fuels or produce emissions that contribute to global warming. In cities across North America hundreds of thousands of workers make their daily commute by personal automobile, resulting in the production of staggering amounts of greenhouse gases, noise and dust resulting in air and water pollution.

Increasing the overall number of pedestrian trips at the expense of automobile trips implies a reduction in the environmental impact of travel. Although some people must walk because of personal circumstances regardless of trip time or distance, many have the opportunity to choose to walk. According to the National Active Transportation Survey *(32)*, 54% of Canadians live within 2.5km of a routine destination (work, school, shopping, etc.). Respondents were willing to walk up to 3km to work or for recreation, 2km for errands and 0.5km to a transit stop.

Walking can reduce roadway congestion, energy consumption, and driver frustration. Walking is also an important link between other modes of transportation. Households in automobile dependent communities devote 50% more to transportation (more than $8,500 annually) than households in communities with more accessible land use and more multi-modal transportation systems (less than $5,500 annually).

Certain types of trips (i.e. personal automobile) contribute significantly to congestion. For example, trips to and from school in urban areas are generally short, however a current trend is for parents to drive their children to school even when trip distances are extremely short. Concerns over child safety and the inconvenience of walking are often cited as the reasons for not having children walking to school. However, if this type of trip were converted from automobile to pedestrian, the environmental effects of congestion could be significantly reduced in neighbourhoods with schools at peak times of the day, and in addition to this some health benefits of walking could be realized.

32 Go for Green. *National Active Transportation Survey*. 2004.

Figure 4.1
Walking to school, Ottawa

Source: Stantec

4.1.5 Reducing Infrastructure Needs and Costs

Travel by automobile requires significant investment in infrastructure. Statistics related to infrastructure costs are well documented by a number of sources. These costs include land acquisition, design and construction, financing, maintenance and operations. The Victoria Transport Policy Institute's (VTPI) *2006 Transportation Cost and Benefit Analysis (33)* documents many statistics related to roadway costs from both Canadian and American sources. According to the *1995 Status of the Nations Surface Transportation System: Conditions and Performance Report*, (in VTPI, 2006) overall roadway expenditures can be broken out as follows:

- Maintenance and Operations (26%);
- Capacity expansion (23%);
- Reconstruction and Rehabilitation (19%);
- Administration (9%);

33 Victoria Transport Policy Institute. '*Transportation Cost and Benefit Analysis' – 'Chapter 5 'Roadway Costs*. http://www.vtpi.org/tca/tca0506.pdf. 2006.

- Highway Safety and Patrol (8%)
- Local Road Improvements (8%);
- Interest on Debt (4%), and;
- Other (3%).

Furthermore, roadway construction and maintenance costs are affected by a number of variables, including the following key factors:

- **Strength requirements** - the increase in costs to deal with wear and tear rise exponentially with vehicle axle weight (by a factor estimated to be in the 3rd or 4th power of 10 range).
- **Design and Space** - larger and faster vehicles require more road space, wider lane widths, and require roads with higher design speeds, more frequent and more extensive protective barriers.

Roadway costs are heavily subsidized. According to *the 2000 Highway Statistics* compiled by the FHWA, user fees account for only 63% of roadway costs when Federal, State and Local roads are considered together. The remaining 37% of costs must come from taxes *(34)*. Roadway costs for urban roads tend to be higher than costs for rural roads by about 25%

Roadway damage by trucks is estimated to cost an average of $0.05/ton-mile on state highways and an average of $0.75/ton-mile on county roads, and roadway damage from overloaded trucks is estimated to be 3 to 4 times higher*(35).* In 1993, the Canadian roadway system was estimated to have a replacement value of $195 Billion, which translated to an average cost of $0.03/ vehicle-km*(36)*. Although trucks made up only 9% of total vehicle traffic on Canadian roads in 1994, they were responsible for about 25% of total roadway costs*(37)*.

It is reasonable to assume that a reduction in the number of vehicle trips on roadways can significantly reduce total costs associated with providing, maintaining and rehabilitating infrastructure. Comparatively speaking, the costs associated with providing, maintaining and rehabilitating infrastructure for pedestrians is much less.

4.1.6 Improving Economic Benefits

The economics of walking are often overlooked because it is not as expensive to provide facilities for walking as compared to other forms of transportation and the walking industry is not as organized as the automobile, transit or air travel industry. Walking is often thought of being able to “take care of itself” *(38)*.

Economic benefits can be grouped according to:

34 Delucchi (1998) in Victoria Transport Policy Institute*. ‘Transportation Cost and Benefit Analysis’ – Chapter 5 ‘Roadway Costs*. http://www.vtpi.org/tca/tca0506.pdf. 2006.

35 Cassavant K and Lenzi L in Victoria Transport Policy Institute. *‘Transportation Cost and Benefit Analysis’ –Chapter 5 ‘Roadway Costs*. http://www.vtpi.org/tca/tca0506.pdf. 2006.

36 Transport Canada (1994) in Victoria Transport Policy Institute. ‘*Transportation Cost and Benefit Analysis’ –Chapter 5 ‘Roadway Costs*. http://www.vtpi.org/tca/tca0506.pdf. 2006.

37 Richardson, S., (1996) in Victoria Transport Policy Institute. ‘*Transportation Cost and Benefit Analysis’ –Chapter 5 ‘Roadway Costs’*. http://www.vtpi.org/tca/tca0506.pdf. 2006.

38 Litman, T. A., *Economic Value of Walkability* Victoria Transport Policy Institute. http://www.vtpi.org/documents/walking.php. 2004

- **Accessibility** - providing basic mobility and access to services for errands education and employment. Inadequate walking facilities can lead to social exclusion.
- **Consumer cost savings** - reducing vehicle ownership costs such as:
    - Fuel, oil, tire wear and tear;
    - Carrying costs for financing and insuring a vehicle;
    - Reduction in mileage related depreciation;
    - Reduction in parking costs;
    - Reduction in the potential for vehicle collisions and citations for parking and driving offences, and;
    - Reduction in higher relative costs for all of the above when considering short trips where vehicle running efficiency is significantly lower.
- **Public cost savings** -costs savings related to overall reduction in energy consumption and costs associated with mitigating the effect of emissions.
- **Land use efficiency costs** - decreased costs to provide infrastructure for roads and parking lots by reducing the overall land requirement for these, in turn making more land potentially available as public open space.
- **Community livability** - increasing community livability by creating more pedestrian friendly designs, reducing vehicle traffic and increasing real and/or perceived pedestrian comfort and safety, potentially increasing the community's desirability resulting in higher property values.
- **Health care cost savings** - preventing illness and death from cardiovascular diseases which are leading causes of death in developed countries, and are 10 times more costly in terms of lost years of productive time than road collisions.
- **Economic development benefits** - as evidenced in many jurisdictions to develop not only new residential lands with good pedestrian facilities, but also the trend to develop and market new industrial lands with improved pedestrian access for daily commuting purposes as well as mid-day mental health break/exercise opportunities (see Figure 4.2).
- **Supporting retail business and tourism** - walking adds to the vitality of downtown areas, villages, main streets, and historical districts, thereby contributing to a more diverse and prosperous economy. The economic base of retail centres and employment areas are thriving in those cities where quality of life is high.

Figure 4.2

Walker Industries trail, Thorold, ON.

Walker Industries in Thorold, Ontario is one of many examples where industry has developed pathway loops near to their offices for the recreational benefit of neighbours and potential health benefit for employees of the firm. Source: Stantec

4.2 Current Trends, Practices and Initiatives in Pedestrian Planning

Part of the challenge in developing the Ottawa Pedestrian Plan is to evaluate the role that walking plays in people's daily lives and the city's transportation system and to then identify the opportunities and needs to incorporate pedestrian travel as a legitimate and viable part of a modern transportation system. Over the past several decades the planning and design of communities has focused on moving vehicles quickly and efficiently, resulting in the creation of neighbourhoods and places that favour the automobile, whereas planning for other modes of travel such as public transit, cycling and walking have in some cases been treated almost as an afterthought.

"We need to create integrated complete communities and not just residential subdivisions."
Ottawa Resident

In recent years there have been initiatives in cities, towns and villages, and among organizations in North America to create more livable communities where walking and bicycling are encouraged and accepted as legitimate forms of transportation.

Urban planners and designers, architects, landscape architects, and transportation planners and engineers have been attempting to provide develop methods to help create more livable streets and roadway environments. Current trends in city design are resulting in new neighbourhoods and older infill areas being designed to be more pedestrian friendly as more complete streets and context-sensitive places where walking is comfortable. This includes but is not limited to the reintroduction of sidewalks complete with street furniture, landscaping, pedestrian-scaled lighting, the addition of bicycle lanes to the streetscape and other features making the public right-of-way more inviting for people to travel by foot and by bicycle.

Current trends in lifestyle choices are resulting in people moving to communities where walking is integral to the design of the environment such as downtown renewal and infill, traditional and traditionally-styled neighbourhoods.

Planning and designing for pedestrians in the Ottawa context is dealt with in greater detail in Chapters 7, 8, 9 and 10 of this report. The following are five examples of exemplary initiatives and programs related to improvement of the pedestrian environment in both the urban and rural setting.

4.2.1 The Ontario Professional Planners Institute

In the Fall of 2007, the Ontario Professional Planners Institute (OPPI) released *"Healthy Communities Sustainable Communities"* (2007), a discussion paper that defines sustainability and demonstrates how principles of sustainability can be applied to urban design, transportation services and design, and public infrastructure. Key issues are identified and recommended actions are provided relating to 5 main questions:

- "How do the built environment and transportation systems contribute to obesity and health related issues?"
- "How do the built environment and transportation systems affect air quality along heavily traveled corridors and in areas of mixed uses and higher densities?"
- "How do the built environment and transportation systems affect air quality in general?"
- "How do the built environment and transportation systems, along with poverty and economic decline within and outside of Ontario's major urban centres affect human health?"
- "How do the built environment and transportation systems affect social cohesion?"*(39)*

4.2.2 The Local Government Commission

The Local Government Commission (LGC) **http://www.lgc.org/index.html** of Sacramento California is a nonprofit, nonpartisan organization that is dedicated to working with community leaders to create healthy walkable communities by providing inspiration, technical assistance, and networking to local elected officials. LGC assists local governments in establishing and nurturing the key elements of livable communities including:

- A healthier human and natural environment;
- A more sustainable economy;
- An actively engaged public, and;
- An equitable society.

Through facilitation of conferences and workshops, producing and disseminating information booklets, videos and newsletters and providing access to an extensive library of resource materials, LGC assists local governments in developing and implementing policies and programs in their jurisdiction to meet their needs. In 1991 LGC developed the "*Ahwahnee Principles for Resource-Efficient Communities*" a set of principles that draw upon the past and present, and help to guide members towards planning communities that will more successfully serve the needs of those who live and work within them. These principles paved the way for Smart Growth and New Urbanism and are in sharp

39 Ontario Provincial Planners Institute. *Healthy Communities Sustainable Communities.* 2007

contrast with patterns of urban and suburban development that result in more congestion and air pollution due to increased dependence on automobiles, the loss of public open space, the need for costly improvements to roads and public services, the inequitable distribution of economic resources, and the loss of a sense of community.

Among the 15 Community Principles developed by LGC, many are related to the pedestrian realm and at least three are directly applicable to walking:

- Community Principle 3. “Community size should be designed so that housing, jobs, daily needs and other activities are within easy walking distance of each other.”
- Community Principle 4. “As many activities as possible should be located within easy walking distance of transit stops.”
- Community Principle 11. “Streets, pedestrian pathways and bicycle pathways should contribute to a system of fully-connected and interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees and lighting; and by discouraging high speed traffic”.*(40)*

4.2.3 Smart Growth

Smart Growth recognizes connections between development and quality of life. It leverages new growth to improve the community. In general, smart growth invests time, attention, and resources in restoring community and vitality to city centres and older suburbs. *Smart Growth* is more town-centred, is transit and pedestrian oriented, and has a greater mix of housing, commercial and retail uses. It also preserves open space and many other environmental amenities. (http://www.smartgrowth.org/Default.asp?res=1024)

Smart Growth is about creating active and livable communities, and these communities have a number of characteristics in common: *(41)*

Niagara-on-the-Lake, ON

- Mixed-use development that brings housing, commercial, retail, civic and office development into closer proximity placing more destinations within reach of a short walk, bicycle ride or transit trip.
- Compact development that makes more efficient use of land, preserves open space, lowers infrastructure costs, supports neighbourhood retail and transit services, and brings destinations closer together.
- A mix of housing types that provides housing choices and equitable access to services for people of all income levels and life cycles.
- Slow, interconnected traffic-calmed streets that promote safe, convenient pedestrian circulation without impeding vehicle circulation.
- Pedestrian-scale design that balances automobile circulation and focuses on making environments that are comfortable, pleasant and pedestrian-oriented.
- Transit-oriented and transit-adjacent development that places higher intensity development within close proximity to transit stops, making transit a more viable alternative to the automobile. Increasing ridership in turn generates revenue to fund higher levels of transit services.

Among the 10 principles of the *Smart Growth* philosophy, one addresses transportation and one is directed specifically at walking:

40 http://www.lgc.org/ahwahnee/principles.html”
41 http://www.smartgrowth.org/default.asp

- Create walkable neighbourhoods, and
- Provide a variety of transportation choices.

4.2.3.1 Creating Walkable Neighbourhoods

Walkable communities are desirable places to live, work, learn, worship and play, and therefore a key component of *Smart Growth (42).* To foster walkability, land uses must be mixed and built communities must be compact, pedestrian routes must be safe and inviting. Two key factors contribute to making communities walkable:

- Easy and safe walks to goods (i.e. work, home and shopping) as well as easy and safe walks to services (i.e. transportation, schools, libraries) that residents need and use on a regular basis.
- Creating streetscapes that better serve pedestrians, bicyclists, transit users and automobiles, therefore expanding viable transportation options.

Walkable communities are nothing new; however public and private actions that have taken place over the past 50 years have created obstacles to walkable communities. Conventional land use regulation often prohibits the mixing of land uses, regulatory bias against mixed-use development is reinforced by private financing policies that view mixed-use development as riskier, and many communities employ street and development design practices that reduce pedestrian activity, particularly those that are dispersed and dependent on travel by automobile.

As the benefits of pedestrian friendly communities become more apparent (i.e. lower transportation costs, more social interaction, better environmental and personal health, and expanded consumer choice), the demand to explore development scenarios that improve walkability is increasing. Land use and community design plays a vital role in encouraging pedestrian environments through encouraging the creation of multiple destinations within close proximity.

4.2.3.2 A Variety of Transportation Choices

In concert with the principle of creating walkable neighbourhoods with access to goods and services nearby, designing communities with a broader range of viable transportation options helps to relieve pressures on existing transportation networks and helps to reduce additional pressure on transportation networks from new development. Many communities are now taking a more holistic view of their transportation systems, and are implementing new approaches to transportation planning, better coordination of land use and transportation; improving transit service and ensuring connectivity between pedestrian, bicycle, transit, and road facilities.

"Remember that a pedestrian friendly city is a public transit friendly city. They are interconnected."

Ottawa Resident

4.2.4 "Complete" Streets

The National Complete Streets Coalition *(43)* is a US organization with over 25 member organizations and coalitions representing a wide range of interests including:

- Planning, Engineering and urban design/Landscape Architecture;
- Senior citizens;
- Persons with disabilities;

42 http://www.smartgrowth.org/default.asp
43 http://www.completestreets.org

- Public transportation;
- Parks and open space;
- Smart Growth and community planning;
- Pedestrians and bicyclists;
- Parks, and;
- Natural resource protection.

The mission of the coalition is to work together in support of streets that are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities are able to safely move along and across streets. Creating complete streets means changing the policies and practices of transportation agencies to ensure that the entire right of way is routinely designed and operated to enable safe access for all users that are appropriate for local context and needs.

Complete streets:

- Improve safety by reducing collisions through safety improvements.
- Encourage more walking and bicycling by providing adequate and well designed facilities for pedestrians and cyclists.
- Help ease transportation pressures by providing travel options and increase the overall capacity of the transportation network.
- Help children get physical activity and gain independence.
- Are good for air quality as they result in fewer traffic jams and lower emission levels.
- Make financial sense by integrating sidewalks, bike lanes, transit amenities, and safe crossings into the initial design of a project and avoids expensive retrofits down the road.

According to the National Complete Streets Coalition, the elements of a good *Complete Streets* policy include:

- A clear statement specifying that “all users” includes pedestrians, bicyclists, transit vehicles and users, and motorists, of all ages and abilities, and that “all users” are considered during the planning and design process.
- Recognition of the need for flexibility which implies that all streets are different and user needs will be balanced.
- Ensures that any exceptions are specifically and clearly stated and sets a clear procedure requiring high-level approval for exceptions.
- Aims to create a comprehensive, integrated, and connected network of transportation facilities to meet the needs of all users.
- Directs the use of the latest and best design guidelines and standards in the development of solutions that fit within the context of the community.
- Applies to both new and retrofit projects, and includes the entire life cycle of a project (i.e. planning, design, operation and maintenance) for the entire right of way.
- Establishes performance standards with measurable outcomes, and;
- Is adoptable by all agencies to cover all roads.

4.2.5 "Shared" Streets

The *Shared Street* concept (sometimes also referred to as "*Naked Streets*") works on the premise of regulating behaviour through urban design/design cues rather than relying on typical signage, pavement markings and certain types of traffic calming measures that have been traditionally used to segregate cars from pedestrians. The model for the *Shared Street* concept takes its cues from pre-automobile European streets dating back to a time when the street's purpose as a meeting and goods exchange place took precedence over the modern model where the street is more of a conduit to connect destinations. *Shared Streets* allow pedestrians, cyclists and motorists to use a common space.

The *Shared Street* concept was first tested on low speed streets in Holland, partly in response to growing national concern about rising child pedestrian casualties. Authorities who were unconvinced by conventional traffic calming measures, piloted projects that removed "highway" measures such as pavement markings, signs, chicanes and speed humps. These were replaced with techniques that emphasized the distinctive history and context of the settlements where the pilot projects were located, (i.e. "*making a village more like a village*"*(44))*.

Reductions in traffic speeds of more than 40% were recorded; an improvement over the typical 10% reductions achieved through more traditional traffic calming measures. Following on this success, additional calming measures were added, resulting in further reductions in speeds and the severity of accidents. A pilot project on Kensington High Street, UK yielded a 60% reduction in collisions on a street with 22,000 vehicles per day and 3,000 pedestrian crossings per day "*Cars slow down because, without signs that the road is theirs, the drivers perceive risk. And, in the new thinking, risk is good*" *(45).*

Persons with impairments have voiced concerns with *Shared Streets* as the mobility needs and legal rights of persons with visual impairments may not be adequately accommodated. For example, the edge of a sidewalk or barrier curb helps the visually impaired navigate through the pedestrian zone and stay out of the motorist zone. These way-finding cues are lacking in shared streets. The visually impaired may also be unable to detect potential conflicts with motorists and would have to rely on the motorist to detect them, reducing their overall accessibility and independence. Mobility specialists have suggested that *Shared Streets* must have a "safe space" for vulnerable pedestrians, which is clearly defined, visible and physically detectable. More research is likely needed before this technique can be applied in Ottawa.

4.2.6 Encouraging More People to Walk More Often

In addition to better planning, design, operation and maintenance of transportation facilities that consider pedestrians as a vital part of the picture, exemplary pedestrian initiatives strike the balance among better infrastructure, programs to promote walking, and education of pedestrians and users of other travel modes. Much work is being done in this regard by various organizations and includes a wide range of programs and initiatives:

- TDM .
- Automobile driver and pedestrian awareness and safety campaigns and enforcement strategies.

---

44 Monderman H. *Presentation at WALK21 Conference,* Toronto Canada. 2007.
45 Baille, B.H.,in Clover C (Ed.) http://www.telegraph.co.uk . 11-12-2007.

- Programs linked with, or in cooperation with other agencies and partners such as public transit, public health and police departments.
- Formalizing and promoting specific walking routes according to various themes such as community history and tourism attractions.
- Developing programs targeted at specific sectors of the population and/or specific types of pedestrian trips such as seniors and school aged children.
- Developing, supporting and participating in events that encourage physical activity and in particular pedestrian activity.
- Developing incentive programs that give employees options for commuter travel and work arrangements.

Encouragement through education and promotion in the Ottawa context is discussed in greater detail in **Chapter 11** of this report.

4.2.7 Exemplary Pedestrian Plans

Through the development of Pedestrian Master Plans, many jurisdictions in Canada, the US and Europe have been applying current thinking and techniques related to pedestrian planning, design and encouragement for increased pedestrian activity. The following is a comparative analysis of 6 exemplary pedestrian plans that are founded on, or contain key elements that could potentially be applied in Ottawa. A number of these possibilities are further explored and developed in the Ottawa context through recommendations in **Chapters 6** through **12** of this report.

4.2.7.1 Madison, WI. Pedestrian Transportation Plan (1997)

http://www.cityofmadison.com/trafficEngineering/programsPlanTransportation.cfm

Description

An early pedestrian plan intended to guide the City of Madison in developing and maintaining a pedestrian transportation system, as well as to educate people about pedestrian transportation. Key components included:

- Why develop the Plan? – In response to National, State, Regional and local policies and interest in supporting and improving pedestrian transportation.
- Importance and viability of pedestrian transportation, including travel patterns and benefits of walking.
- Pedestrian environment - Information on pedestrian movement and how the physical environment impacts pedestrians.
- Vision, Goals, and Objectives are given, describing the ideal pedestrian environment which Madison should strive for.
- A review of current conditions for pedestrians in Wisconsin, including location, design, construction and maintenance of the pedestrian environment. Current policies and practices in Madison are reviewed. This section also develops recommended actions for improving walking in Madison based on identified issues, policies and practices.
- Implementation priorities based on goals of the pedestrian plan and implementation opportunities based on available funding and staff resources.
- Appendices include a “Citizen Guide for Making Madison an Even Better Place to Walk”, a review of existing pedestrian plans, and relevant definitions and abbreviations.

Relevance to Ottawa Pedestrian Plan

The pedestrian plan for Madison is one of the earliest formal pedestrian transportation plans. It summarizes many of the original government studies and surveys that demonstrated a formal commitment to pedestrian planning. A significant section of the plan describes the history and importance of pedestrian planning, as well as the importance of "thinking like a pedestrian" when planning the pedestrian environment.

4.2.7.2 Portland, OR Portland Pedestrian Master Plan (1998)

https://www.portlandonline.com/transportation/index.cfm?&a=90244

Description

An early example of a comprehensive pedestrian plan. A separate document was generated with detailed pedestrian design guidelines. Key areas addressed included:

- Walking as transportation, context of the Pedestrian Plan relative to the Portland Transportation System Plan
- Goals, policies and objectives relative to pedestrian transportation, street classifications, recommended pedestrian action plan
- Designing an environment that promotes walking (pedestrian design guidelines and implementing the guidelines)
- Priorities for pedestrian improvements (engaging the community in the plan, assessing the pedestrian network needs, requests for improvements, pedestrian-auto collision locations, process for developing and selecting projects for pedestrian improvements)
- The project list (types of projects, project maps)
- Funding the plan (capital funding, funding strategies and recommendations)

Relevance to Ottawa Pedestrian Plan

- An emphasis on retro-fitting large neighbourhoods where roadway design was auto-centric.
- Identification of Pedestrian Districts based on land use, transit, configuration and size.
- A simple process for identifying and prioritizing pedestrian improvement projects based on a Pedestrian Potential Index and a Pedestrian Deficiency Index.

4.2.7.3 Cambridge, MA Cambridge Pedestrian Plan (2000)

http://www.cambridgema.gov/~CDD/et/ped/pedplan/ped_plan_all.pdf

Description

This plan focuses on improving the pedestrian environment through site design and policy recommendations. Key areas addressed in the Plan included:

- Purpose of the plan,
- Benefits of walking
- Existing conditions/context (role walking plays in Cambridge, the existing Cambridge pedestrian realm)

- Pedestrian Design Guidelines (state and federal guidelines, pedestrian path of travel-sidewalk zones, sidewalk width, curb cuts, street furniture)
- Traffic Issues and operations (general considerations, vehicle volumes and speeds, separate pedestrian pathways, crosswalks, traffic signals, traffic calming)
- Complements to walking (transit access, delivery services, taxi escort services
- Cambridge plan (street classification, major nodes-public squares, spines-streets and avenues, other major commercial areas, neighbourhoods, pedestrian networks-paths, routes and recreational areas
- Policies regulations and standards (sidewalk cleanliness, sidewalk maintenance)
- Implementation Plan

Relevance to Ottawa Pedestrian Plan

The Cambridge plan is sensitive to the differences in layout and design of the City's many neighbourhoods, recognizing that historic context influences walkability. Consideration is also given to traffic calming measures which improve walkability in neighbourhoods, and improving complementary services such as transit.

4.2.7.4 Oakland, CA Pedestrian Master Plan: The City of Oakland (2002)

http://www.oaklandnet.com/government/pedestrian/index.html

Description

This plan focuses on improving pedestrian safety and making connections to transit. It addresses:

- Goals
- Benefits of a walkable community
- Existing conditions (walking rates, pedestrian-vehicle collisions, connections to transit, education and enforcement)
- Policy recommendations (pedestrian safety, pedestrian access, streetscape and land use, education
- Pedestrian route network (selection of routes for different districts, Safe routes to school, safe routes to transit)
- Design elements (sidewalk guidelines, crossing treatments, traffic calming)
- Implementation Plan (policy implementation, priority projects, pedestrian route network by district, staffing and community outreach)

Relevance to Ottawa Pedestrian Plan

- Excellent use of pedestrian-vehicle collision data from the City for developing the pedestrian network
- Good suggestions for traffic calming and crossing treatments
- Simple criteria for prioritizing pedestrian facility improvement projects

4.2.7.5 Pasadena, CA Pasadena Pedestrian Plan for a Livable and Walkable Community (2006)

http://cityofpasadena.org/trans/TPD/ped2006final/Index.pdf

Description

A very extensive and comprehensive master plan, results are summarized in several volumes. Two main volumes were:

Volume 1

- Purpose of Plan, focusing on benefits (i.e. improved transit/pedestrian services, traffic signal technology upgrades, traffic management, public safety and health outreach to encourage physically active lifestyles)
- Analysis (population characteristics and travel behaviour, identification of active pedestrian places and popular destinations such as schools, parks, and transit)
- Pedestrian policy framework (City plans and policy documents, highlighting policies for a livable and walkable community)
- Pedestrian needs and infrastructure improvements (Identification of pedestrian characteristics and needs, pedestrian infrastructure improvements; examination of intersections and pedestrian safety, traffic signal system, and safety/accessibility; examination of routes to school and supportive infrastructure; review of transit stops, neighborhood traffic management programs, and the role of landscape design in pedestrian comfort and use of an area.
- Implementation Plan (summary of implementation initiatives and schedule, departmental roles and responsibilities, sources of funding)

Volume 2

- Detailed account of specific initiatives to be undertaken including design guidelines, issue specific initiatives and location. Pedestrian improvements for the various zones were undertaken as a second phase of the project following acceptance of the rationale, process and general recommendations (as summarized in Volume 1)
- Detailed summary improvements in seven specific project areas

Relevance to Ottawa Pedestrian Plan

The purpose/basis of the plan is founded on the wide ranging benefits of a more walkable city. Recognizing that Pasadena is a geographically large place, pedestrian improvements are organized around specific initiatives, issues and geographic zones. Detailed studies for pedestrian improvements for the various zones were undertaken as a secondary project

4.2.7.6 Sacramento, CA Sacramento County Pedestrian Master Plan (2007)

http://www.sacdot.com/projects/ADA%20and%20Pedestrian%20Projects/documents/SAC_PED_PLAN_FINAL__042807_Small.pdf

Description

This county-wide plan was created in parallel with the Americans with Disabilities Act Transition Plan. Key components of the plan included:

- Introduction – The purpose of this pedestrian master plan is to identify and address the pedestrian needs of the unincorporated areas of Sacramento County.
- Community outreach was extensive, taking place over several years. A particular effort was made to reach out to visually impaired residents of Sacramento County.

- Existing conditions were documented by field survey crews, with emphasis on identifying ADA non-compliant pedestrian facilities. The county also conducted a pedestrian demand survey, supported by existing and projected demographic data.
- Goals, policies and action items are recommended for Sacramento County based on the findings of the current study and previous studies from other municipalities.
- The Implementation plan provides a framework for prioritizing pedestrian improvements, identifies a ten-year capital improvement plan and recommends funding strategies. Prioritization criteria included existing condition, accessibility, adjacent land uses, public input, collision history and cost effectiveness

Relevance to Ottawa Pedestrian Plan

The primary goals of this plan are to improve pedestrian safety and access on public streets, and to ensure compliance with the Americans with Disabilities Act. As a County plan, the emphasis of this plan is to connect the lower density areas of the County to the pedestrian networks of the incorporated centres. Extensive public input from residents across the county was used to identify the preferred pedestrian network and recommend appropriate policies.

4.3 Challenges to Overcome in Making Ottawa More Walkable

As noted in **Chapter 3**, the City of Ottawa has already implemented a number of high-level policies and strategies to create more vibrant and useful pedestrian places. The completion of the Ottawa Pedestrian Plan represents another major contribution towards the goal of making Ottawa a more walkable place. Like most other cities Ottawa faces a number of challenges in becoming a more walkable place.

Ottawa is a large city, both in terms of population and area. In many instances there are:

- dispersed or separated land uses with long distances to walk between them;
- parts of the city that are not pleasurable places to walk;
- perceptions that the pedestrian environment is unfriendly in some locations;
- some parts of the city that have no sidewalks or pathways to connect them with other places;
- some parts of the city that lack interesting places to walk to;
- physical barriers to walkability such as a disconnected street system of cul-de-sacs and winding collector roads; and ;
- auto-oriented land uses adjacent to the sidewalk including large parking lots and large “pedestrian unfriendly” commercial developments.

Ottawa is an amalgamation of 11 former municipalities, each having a distinct character and having evolved independently of one another over a long period of time. As such, there are a number of things that need to be considered including:

- A wide range of places with various densities, scales and growth patterns in a variety of urban, suburban, village, agricultural and rural contexts.

- A variety of places with unique characteristics that need to be understood and respected.
- Varying degrees of quality and quantity of pedestrian facilities that currently exist.
- Different policies, standards, by-laws, guidelines and practices related to development and community design and the provision of pedestrian facilities.

Chapter 5 provides further insight into the opinions of Ottawa's citizens and stakeholders regarding the status of the pedestrian environment in the city. **Chapters 6** through **12** provide recommendations for overcoming these challenges.