On the Path to a Healthy Community

Claire Williams, Dalhousie University
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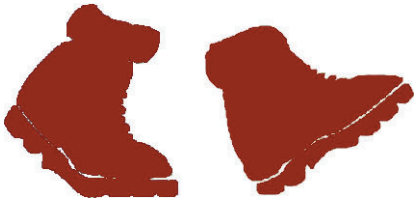
Why We Need Sidewalks

In many communities sidewalks are either missing altogether or are not continuous. Do planners and developers assume that everyone wants to drive and that sidewalks are an unnecessary expense? Pedestrians are forced to walk along the edges of roadways or on worn and uneven surfaces, often placing them in harm's way. The effect is that few people choose to walk and many are leading sedentary lifestyles.



According to the Heart and Stroke Foundation of Nova Scotia over half (51 percent) of the population is physically inactive[1]. The same study established that regular physical activity could prevent 40 percent of chronic illness; it suggests that urban planning could offer opportunities for increased physical activity[2]. The purpose of this paper is to explore briefly how the availability, characteristics and quality of sidewalks may affect opportunities for promoting health and avoiding injury.

To improve the pedestrian environment researchers often consider sidewalks and crosswalks jointly; however, this inquiry will focus on sidewalks alone. Best practices from communities across North America will be presented, with recommendations made for urban communities in Nova Scotia. In an attempt to make the research meaningful and useful to those advocating for local improvements, we have developed a hands-on tool to assist community members in assessing sidewalks in their neighbourhoods.

Pedestrians and Land Use Planning

Walking is a natural human activity. From an early age we learn the mechanics of movement using our own two feet. Beginning with our first steps as toddlers, walking is the means by which we move through our everyday environment. It is the most basic and common form of transportation and is crucial to maintaining our physical well being. Why then are pedestrians so often left out of the process of land use planning, particularly in the planning and design of our communities?

Since the invention of the automobile, land intensive, exclusionary zoning practices and independent, disconnected development patterns have contributed to a lifestyle that renders walking and cycling irrational modes of travel[3]. Sidewalks and safe walking routes are often absent in new communities. Many suburbs lack destinations for people to walk to. As noted by the Bicycle Federation of America Campaign, the decline in walking can be attributed to the decline in safe, convenient and inviting pedestrian facilities, to a lack of investment in safe pedestrian facilities and to the increasing number of people who live in places where walking is more dangerous due to absence of sidewalk infrastructure[4].

The number of people who walk differs from one community to another, and is influenced by density, diversity and design. Research shows a correlation between walkable environments and an increase in walking. Well designed and maintained pedestrian facilities encourage walking and promote higher levels of physical activity[5]. Neighbourhoods that feature continuous sidewalks are often pleasant places to walk and encourage physical activity. Communities must therefore prioritize sidewalk maintenance, construction and connectivity in order to successfully integrate routine physical activity into daily lives.

The Nova Scotia Context

Nova Scotia faces growing air pollution from vehicle emissions, in addition to a population that is increasingly overweight and unhealthy. Compared to other Canadians, Nova Scotians have particularly high rates of chronic illness[6]. They have the highest death rates from cancer and respiratory disease, the highest rates of arthritis and rheumatism and the second highest rate of circulatory deaths and

diabetes in the country[7]. Coupled with the findings that 51 percent of Nova Scotians are physically inactive, the prognosis is worrying.

Each year over 700 Nova Scotians die prematurely due to the health effects of physical inactivity[8]. This translates into personal and economic losses that have tremendous impact on the provincial health care system. According to a report prepared by Marshall Macklin Monaghan Ltd. physical inactivity costs the Nova Scotia health care system approximately $66.5 million per year with the impact on all direct health costs being $107 million per year[9]. Furthermore, physical inactivity costs the Nova Scotia economy an additional $247 million per year in indirect productivity losses due to premature death and disability[10]. These costs are significant; investment in more walkable communities may be instrumental to their mitigation.

Take a Walk

Apart from a good pair of shoes, walking requires little equipment. Hess and Milroy note that walking is most easily built into everyday routines because: i) few/zero resources are needed to engage in the activity; ii) it is open to people across the whole spectrum; and, iii) it combines a meaningful activity, like going to work or school, with exercise[11]. Given a supportive environment, walking to work or to run errands is the mode of transport favoured by most Canadians. In a 2005 Canada-wide survey on active transportation more than 60 percent of the population declared that they would walk more often if safe sidewalks existed close to their homes, schools and for places of business[12].

In addition to its convenience, routine walking improves our well-being. Research by Frank and Engelke show that significant health benefits can be achieved through accumulating moderate physical activity in regular short bouts[13]. A 1998 study reported that people who engaged in brisk walking for thirty minutes on most days of the week ranked in the second highest quintiles for cardio-respiratory fitness[14]. The key is to integrate such activity into a daily routine.

Incorporating physical recreation into everyday activities is no easy task. However, lifestyle interventions that encourage physical activity in daily life demonstrate long term effects in increasing overall participation rates[15]. This is especially significant for people who dislike structured activity, do not have access to facilities or do not have time for structured activities[16]. Given the fast-paced world we live in, increasing the opportunity for people to walk in their daily lives is fundamental.

Public Heath and Urban Planning

Research linking public health to land use planning has established that the contemporary design of urban and suburban neighbourhoods is an obstacle to promoting health. In many neighbourhoods the urban form is tailored to the automobile and pedestrian infrastructure is substandard at best. This has a tremendous effect on the number of people who engage in both utilitarian walking and walking for recreation.

A simple neighbourhood tour will confirm that walking has generally received little or no attention in the design of many communities. Suburbs without sidewalks abound across the country and residents who choose to walk do so at their own risk. Transport Canada reports that in 2001, 334 pedestrians were killed and 13,475 were injured[17]. Canada's seniors were particularly vulnerable. People 65 and over accounted for a third of pedestrian fatalities in 2001, even though they represented only 12.6 percent of the population[18]. Communities need comfortable and safe places for people of all ages to walk.

In her book, Walk for Your Life, Marie Demers notes the decline in walking is closely linked to the decrease of space in which to walk. Neighbourhoods that are designed so that it is not safe or convenient to travel on foot discourage walking[19]. Time constraints and urban form force the convenience of the car upon us. With no sidewalks in some communities people have little incentive to walk.

Although many Canadians walk for leisure or recreational activity, 70% never walk to work[20]. In many cities, long distances between home and the workplace make walking to work impractical. This is complicated by a low density urban form, devoid of pedestrian infrastructure, and with restricted public transit routes. Collectively, these factors reduce the

number of partial journeys made on foot and the overall level of utilitarian walking in Canada.

The factors that dictate pedestrian activity vary. Research shows that walking for recreation is repeatedly associated with aesthetics, convenience of facilities and traffic volumes. Walking for transportation is related to traffic concerns, access to open space and design of neighbourhoods that allow walking to nearby destinations[21]. For seniors, walkability depends on the distance to stores, length of blocks and perceived safety. The common ingredient shared between these activities is the need for a safe path on which to travel: a sidewalk

"If we build it, will they come?" The Halifax Regional Municipality (HRM) Active Transportation Plan argues that people who have access to a sidewalk are 28% more likely to be physically active and people who have access to walking and jogging areas are 55% more likely to be active[22]. A system of continuous sidewalks that links destinations encourages pedestrian activity and increases levels of physical activity. A recent study in Atlanta, Georgia, found that a decrease in the risk of obesity was strongly associated with walkability and connectedness of neighbourhoods[23]. These figures confirm that the design choices we make can affect the health of our communities.

Policy and Design: The Ingredients of a Good Sidewalk

Efforts to create pedestrian-friendly environments are on the rise. Many strategies have been developed to improve community walkability. Learning from the Europeans, planners and health officials from across North America are devising creative solutions to make communities more walkable. Through policy instruments and urban design interventions, cities are becoming more effective at planning for pedestrian travel; as a result more people are walking.

Many municipalities have created comprehensive policy and design guidelines to encourage the development of effective pedestrian environments. These guidelines vary according to environmental requirements and should be tailored to local conditions. School areas, commercial streets and transit stations have different needs in light of their urban form, pedestrian flow and traffic volumes. The key is to avoid a cookie-cutter approach to planning and to create a set of design objectives appropriate to the local context.

In 2002, the City of Toronto adopted North America's first Pedestrian Charter. Unveiled by Councillor Jane Pitfield and internationally renowned urbanist Jane Jacobs, the Charter upholds the rights of pedestrians of all ages and abilities to safe, convenient, direct and comfortable walking conditions. Under the rubric of six guiding principles, it encourages policies that reduce conflict between pedestrians and other users of the public right-of-way. Designed to address local challenges, the Charter promotes an urban environment that encourages and facilitates walking and supports community health, vitality and safety in the City of Toronto[24].

On a broader level, Washington's National Centre for Bicycling and Walking produced a guide to creating walkable communities. Designed as a tool for local governments across America, it identifies nine measurable criteria designed to assess and improve the walkability of a neighbourhood (coherence, continuity, equilibrium, safety, comfort, sociability, accessibility, efficiency and attractiveness)[25]. These criteria will vary from one community to the next; used effectively, they promote a pattern of design and usage that unifies the pedestrian system.

A More Walkable Nova Scotia

Providing safe places for people to walk is an essential responsibility of government entities involved in constructing or regulating the construction of public rights-of-way.
In both urban and suburban neighbourhoods, residents in the HRM have expressed a strong desire for increased or improved sidewalks[32]. In urban neighbourhoods, sidewalks are often found on both sides of the street; however, the sidewalks are in varying states of repair. In newer suburban developments, sidewalks usually feature on main thoroughfares, but are absent from local streets, particularly cul-de-sacs.

Improvements to pedestrian infrastructure are needed throughout the HRM. In the downtown core, some sidewalks are too narrow or have obstructions that

partially block the path. This can make independent mobility for children and the elderly a challenge to achieve. Retrofitting these streets with wider sidewalks is not always an option in light of costs and spatial constraints. Instead, the city must consider the needs of different users for future plans and development.

Once sidewalk infrastructure is in place, appropriate management and maintenance is critical to determining how well sidewalks serve their intended purpose[33]. In a recent survey, the North End Walkers, a local citizens group whose members keep fit with daily exercise, expressed the need for sidewalk maintenance and repair. Throughout the city, lengths of pavement are often uneven and walkways are cracked or heaved by tree roots. As a measure against injury prevention, sidewalks should be subject to regular inspection; those with a vertical pop-up of greater than 0.5 inches should be replaced.

In the winter, the prompt removal of snow and ice is also of concern, especially with respect to injury prevention for less mobile walkers. Every year hundreds of Nova Scotians injure themselves slipping on icy sidewalks[34]. In many cities, sidewalks are considered to be lower priority with respect to snow removal and can therefore be challenging to use during the winter months. At times pedestrians are forced to use the road for passage. This increases their chance of conflict with oncoming vehicles and hence the incidence of injury.

The slope of the sidewalk is also a concern. Research finds that excessive cross-slope is the single greatest barrier to travel along sidewalks for pedestrians who use wheelchairs, walkers and crutches and those with gait, balance and stamina requirements[35]. Cross slopes that exceed two percent significantly impede progress forward on an uphill slope and compromise control and balance in downhill travel and turns[36]. Given the unique topography in parts of HRM, this is near impossible to avoid on some streets, particularly in the downtown core. On sidewalks located on excessively steep slopes, thought should be given to using surface materials and design interventions that provide for the safest passage possible.

Learning by Example

Pedestrian design guidelines abound in the literature. Georgia, Denver, Vermont and Portland each have comprehensive planning documents and design guidelines for creating pedestrian infrastructure. Successful design balances the desire for pedestrian amenities, such as benches and street trees with an understanding of the functional aspects of the street and sidewalk[26]. The sidewalk should feature a clear path of travel and be wide enough to accommodate two people walking side-by-side with bags or two adults with strollers[27] As part of a transportation network, sidewalks should be continuous and fully accessible, maintaining a fairly level surface where possible.

As a safety measure and aesthetic treatment, landscape buffers should separate the pedestrian right-of-way and the curb. Tree grates should be flush with the sidewalk to prevent accidental tripping and sidewalks should be free of signs or posts. Sidewalks at street corners should be clear of obstructions and have enough room for curb ramps. Curb ramps should run perpendicular to the path of pedestrian travel to direct pedestrian flow. This is especially important for the visually impaired as the change in grade provides an important tactile cue to directionality.

Selection of materials is an important consideration in sidewalk design. Given the diversity of users, sidewalks should employ secure and negotiable paving materials[29]. These materials will vary depending on a region's climate, as well as the need for durability, tactility and attractiveness. As they are increasingly incorporated into urban redevelopment projects, design standards require that surface patterns are even, consistent and slip resistant and not visually confusing for users[30]. Used at store entrances, street crossings or when there is a change in grade, surface patterns serve as a valuable cue for pedestrians and other users of the right-of-way[31].

Measuring Up – A Walkable Sidewalk Audit

The pedestrian environment in Halifax varies from one neighbourhood to another. Some areas in the city require extensive reconstruction, whereas others need only a few simple repairs. In order to help identify problem areas we have developed a sidewalk audit to test for walkability. Designed to be user friendly, this tool allows community members to assess the condition of the sidewalks in their neighbourhoods.

The HRM Active Transportation Plan urges people to choose active transportation more often and reduce their current dependence on the private automobile. Using the Walkable Sidewalk Audit tool, communities can determine the health of their pedestrian environment in order to achieve this goal. At the municipal level, the findings of a neighbourhood sidewalk audit can inform the development of policy and design guidelines, and clarify the need for regular maintenance and repair of pedestrian infrastructure.

Those who perform the audit are encouraged to select a segment of the sidewalk no longer than a block in length. (Make a copy of the audit form for each block segment to be evaluated.) Designed to be conducted on a community walking tour of the neighbourhood, the tool allows for the easy assessment by filling in the various categories listed. Audit groups may include members of the community from children to seniors. Larger groups can break up into several teams in order to cover the area. Using the list of nine criteria, community members can identify poorly constructed and maintained sidewalk segments. Bringing this information to the attention of local decision makers can help them set priorities for local improvements. Thus the audit plays a role in the effort to prevent injury, increase mobility, and improve health.

Walking for Health

Effective urban planning can create increased opportunity for pedestrian activity in our communities. The quality and character of the built environment can affect the walkability of a community, thereby increasing or decreasing physical activity. Research shows that within urban centres density, diversity and design contribute to a higher level of total physical activity and the layout of the street network impacts the directness and quality of travel[37]. The research is clear: the design choices we make can affect the health of our communities.

As the connection between health and the built environment becomes clear, community members need to mobilize to create walkable communities from the grassroots up. Community members can take the lead in identifying priorities for improvements in their neighbourhoods. Bringing information about built environment conditions to local government is an important first step in making changes that lead to healthy communities.

Urban planners and public health officials are beginning to forge stronger relationships that may contribute to greater community health. While policy tools and design interventions are important, partnerships that involve community action to help identify local issues and offer viable options for improvement constitute the first step on the path to healthy communities where more people in Nova Scotia choose to walk.

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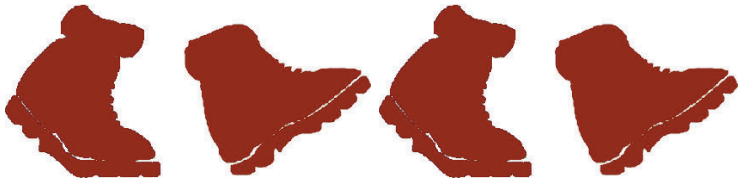
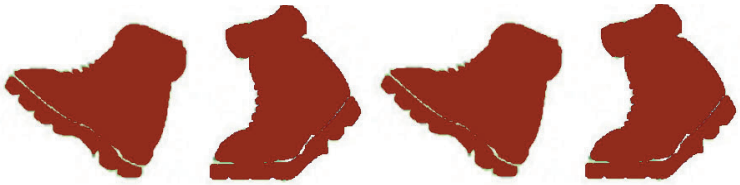


Take A Walk



Promoting Neighbourhood Health: A Walkable Sidewalk Audit

Location:

Date: Auditor:

Comments and Observations:

Sidewalk Width:
- 3 ☐ Sidewalk width is 5' or greater
- 2 ☐ Sidewalk width is between 3'-5'
- 1 ☐ Sidewalk width less than 3'

Comments and Observations:

Construction Material:
- 3 ☐ Materials are consistent
- 2 ☐ Materials sometimes vary
- 1 ☐ Materials differ throughout

Comments and Observations:

Sidewalk Condition:
- 3 ☐ Very few bumps and cracks
- 2 ☐ Some bumps and cracks
- 1 ☐ Many bumps and cracks

Comments and Observations:

Seasonal Maintenance:
- 3 ☐ Sidewalk is free of debris
- 2 ☐ Sidewalk is partially clear
- 1 ☐ Sidewalk is obstructed

Score: _____

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Comments and Observations:	Slope: 3 ☐ Sidewalk is even 2 ☐ Incline less than 0.5” 1 ☐ Incline more than 0.5”
Comments and Observations:	Buffers: 3 ☐ Hard buffer (fence, trees) 2 ☐ Soft buffer (grass, landscaping) 1 ☐ No buffer between
Comments and Observations:	Connectivity: 3 ☐ Sidewalks are continuous 2 ☐ Segments are missing 1 ☐ Sidewalk comes to a dead end
Comments and Observations:	Barriers to Movement: 3 ☐ Obstacle free path 2 ☐ Partially obstructed path 1 ☐ Path has many obstacles
Comments and Observations:	Curb Cuts: 3 ☐ Curb cuts properly placed 2 ☐ Curb cuts placed centrally 1 ☐ No curb cuts

Total Score: ___ Good: 20 - 27 Fair: 16 - 19 Poor: 15 and below

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