



Walkability & Climate

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People go out into their local neighbourhood for various reasons; to socialize, exercise, get fresh air and experience nature. Environments that make it easy and enjoyable to go out can have a crucial influence on the activity levels, general health and quality of life of older adults. There is growing evidence that well-designed outdoor spaces can enhance the long-term health and wellbeing of those who use them regularly (Abbott, 2009). As a disease prevention strategy, increasing community walkability, in all seasons, may lower health care costs and improve quality of life for older adults.

Seasonal factors can reduce the walkability of communities for older adults

The climate issue

Walking outdoors in poor weather conditions can often be difficult or impossible for many older adults. The World Health Organization’s Rural and Remote Communities Guide identifies seasonal factors, such as snow, ice and rain, that reduce walkability and “scooterability” (W.H.O, 2010) A study by Yue Li and others found that cold weather itself does not impact how frequently older adults go outdoors; however icy sidewalks, puddles at street crossings, and curb ramps noticeably keep older adults at home during poor weather conditions (Li, Yue; J. Anna-Hsu; and G. Fernie, 2012). The researchers discovered that in times of poor weather, if disabled individuals cannot take the same means of transportation they normally use, they may not go out at all. The accessibility of the route will impact where older adults choose to go, especially in winter. The researchers concluded that environmental factors significantly influence the destinations disabled adults are able to travel to.

What needs to be done?

A critical focus needs to be applied to sidewalk design that incorporates the needs of older adults in situations where unexpected or severe weather can impact the walkability of a path. Good sidewalk design is inclusive- it provides places that we can all use with equal ease and can help users when the elements present challenges in times of rain, snow and wind. This guide serves as a resource for communities who hope to incorporate climate responsive design principals in sidewalk design.



Photo Credit: W. Chinnock

Figure #1: Older adults are reluctant to leave their homes when the sidewalk conditions are poor

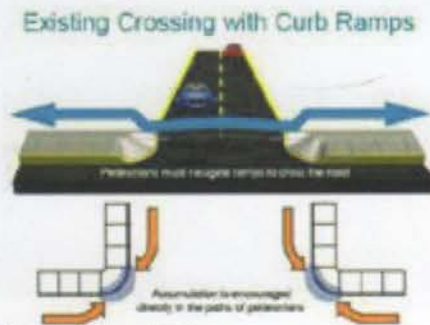


Figure #: 2 Current design

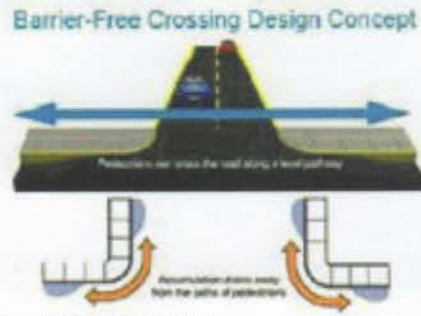


Figure #:3 Barrier-free design

Photo Credit: UD E-World

Keeping seniors active

Climate responsive design principals offer a variety of methods for mitigating the effects of rain on the pedestrian. For example covered pedestrian streets have been developed in Thunder bay, Ontario (Pressman, 1995). Other options include galleries, canopies, rain shelters, and atriums. To keep older adults active in poor weather conditions, The W.H.O Rural and Remote Communities guide suggests setting up indoor walking clubs to promote walking and physical activity. Outdoors however, snow removal should be prompt, and give consideration to how snow is piled up for seniors who may use wheelchairs or scooters, as well as how it impacts the ability of those with wheelchairs getting in and out of parked vehicles. The W.H.O guide also notes that non-slip, well-maintained and accessible sidewalks encourage walking.

Non-slip, well-maintained and accessible sidewalks encourage walking

Slippery Surfaces

Snow and ice present significant obstacles for older adults. When snow compacts on sidewalks it can become dangerously icy; a solution is to install slip-proof pads to reduce slippage. Well lit sidewalks can also make ice easier to see for pedestrians. Pressmen (1996) offers cutting-edge solutions for preventing ice build up on sidewalks; such as warming the pavement through recycled heat from refuse combustion. Hanen and Associates (1999) offer innovative ideas in reducing rain and slush build up around sidewalks, including placement of rainwater drains in the middle of intersections. Additionally, landscaping can be used to mitigate the flow of water onto sidewalks from buildings, causing icy conditions (See figure #4) (Ryser and Halesth, pg 43, 2008). The Center for Inclusive Design and Environmental Access offers online design resources in respect to pedestrian winter accessibility; they include alternative designs to curb ramps to provide barrier free pedestrian crossing and prevent accumulation of rain or slush at crossing (See figures #2 and #3).



Photo Credit: L. Ryser
Figure # 4: Landscaping can mitigate the flow of water onto sidewalks from buildings.

Figure #5:
Innovative
shelter design
by IMB



Photo Credit: IBM

Figure #6:
Example of
sheltered Bus
Stop in Winnipeg



Photo Credit: R. Hayer

**Building design
should also
incorporate
climate
responsive
design elements**

Climate Responsive Design

Climate responsive design principals can also be incorporated into building design. Participants in a study by Ryser and Halesth (2008) identified several climate responsive design principals that can be incorporated into building design, including glazed building canopies to allow warm sunlight to reach the sidewalk; multiple entrances to provide quick and easy access; planting deciduous trees to provide shade in the summer and allow sufficient sunlight in winter; shorter building setbacks to prevent snow removal challenges (See figure #7).

The City of Ottawa's Community Plans and Design Guideline provides comprehensive and accessible design guidelines for sidewalks and pedestrian thoroughfares. The guide outlines several suggestions for accessible sidewalk design, as well as examples for protecting pedestrians from the effects of sun, rain snow and wind; such as creative use of building insets, cantilevered buildings, overhangs, tree canopies and wide storefront awnings to prevent drips on pedestrians. The guide also offers comprehensive suggestions for incorporating landscape elements such as trees, shrubs and other vegetation as climate responsive design.



Photo Credit: L. Ryser

Figure #7: An example of a building
with good climate responsive design
elements.

The City of Ottawa also offers a Rural Villages guide that offers streetscape design guidelines for rural and remote areas that incorporate climate responsive design features such as wide sidewalks to accommodate snow storage, transit shelters, intelligently placed vegetation that offers shade and protects from wind.

Bus Shelters

Often bus shelters are cited as a means of keeping transit riders protected from poor weather conditions, but they can also assist pedestrians caught suddenly in bad weather (See figure #5 and #6 for examples of shelter design). Although not all rural and remote communities have transit systems, the City of Providence's Rhode Island public Transit Authority has created a comprehensive and accessible guide for bus shelter design that incorporates public art as well as functionality into bus shelter design.

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