Y. Li, J. Hsu, G. Fernie. Winter accessibility survey results: Inadequate consideration of weather elements in the development of pedestrian facilities. Gerontechnology 2010;9(2):301; doi:10.4017/gt.2010.09.02.195.00 **Purpose** Walking outdoors is often difficult and sometimes impossible for seniors and people with disabilities during winter. However, there is no systematic research on how winter weather changes a normally accessible route to an inaccessible one, and how pedestrian facilities can be designed to remain usable in all weather conditions[1]. Several studies indicate that most outdoor falls occur on sidewalks, curbs, and streets[2], and the largest proportion of falls take place during the winter months[3]. Icy surfaces are one of the most cited factors that lead to falls[4]. People with functional limitations have reported that curb ramps (curb cuts, dropped curbs) become particularly hazardous in winter[5]. **Method** We used a web-based survey method to evaluate the winter accessibility of commonly used pedestrian facilities, including sidewalks, street crossings, curb ramps, outdoor stairs and ramps, building and transit entrances, bus stops, and driveways. **Results & Discussion** A total of 183 individuals, aged 18 to 85 completed our survey. The results of this study shed some light on the effect of winter weather and surface conditions, on the perception of winter accessibility, showing that cold weather itself had little impact on the frequency of outdoor excursions among middle-aged and older adults, while the presence of snow and ice on the ground noticeably kept people, especially older adults at home (*Table 1*). Our study added to the results of the few existing studies on outdoor activity levels in winter by providing more information about specific outdoor hazards. The survey found that the key elements decreasing winter accessibility were icy sidewalks and puddles at street crossings and curb ramps (*Figure 1*). While communities have recognized the need to improve snow and ice removal, little attention has been paid to curb ramp design which is especially ineffective in winter when the bottom of the ramps pool with rain, snow and ice, making it hazardous and inaccessible to nearly all users. The current design of curb ramps causes many street crossings in the Toronto area to become barriers to access throughout the winter months. Given the extreme weather conditions associated with Canada's winter climate, pedestrian safety concerns require civil engineers and urban planners to not only address the need for prompt and efficient snow and ice removal from sidewalks, but also to promote development and evaluation of alternative designs for street crossing and curb ramps that take into account winter conditions.

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Table 1: % Respondents who went out at least once per day in 3 weather conditions by age group

Respondents	Autumn	Winter with bare ground	Winter with snow/ice on the ground
18-34 yrs (n=112)	91% (n=102)	84% (n=94)	70% (n=78)
35-59 yrs (n=42)	83% (n=35)	83% (n=35)	69% (n=29)
60-85 yrs (n=27)	67% (n=18)	67% (n=18)	37% (n=10)

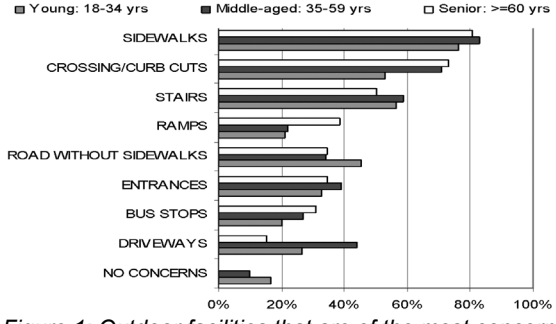

Figure 1: Outdoor facilities that are of the most concern for survey participants