> "Many Canadian cities plow their sidewalks, as well as roads. Like drinkable water and street lights that work, clear sidewalks are a basic municipal service in these urban centres."[1]

Cities in the US and around the world increasingly are trying to become more walking-friendly, believing it will make them more attractive to younger residents. Meanwhile, especially in the older (and snowier) cities of the Northeast and Midwest, cities' populations are aging as the population bubble of the Baby Boom approaches retirement age—fully a quarter of the population of Minneapolis is over 60.[2] Many places are even beginning to realize that, just like the sought-after younger residents, older generations need and want walkable places to live as well.[2,3] However, often overlooked is what happens in such places in the winter: Do these cities' commitments to walkability hold once the snow starts falling?

One of the many reasons that cities are moving to increase walkability is for the public health benefits. "Walking is recognised to be the perfect exercise to make regular physical activity available, affordable and easily accessible to all".[4] However, the public health risks of shoveling are also well known: tens of thousands of people are injured every year, and hundreds die, while shoveling snow.[5,6] Additionally, as *Maclean's* notes, delegating sidewalk clearance to owners and tenants of individual neighboring properties often means that the quality of the work varies widely from lot to lot.[1] Individuals trying to walk down a road are often forced to choose between walking on segments of uncleared, semi-cleared, and/or icy sidewalk where they risk fall injuries, and walking in the street where they risk being hit by a car. The elderly in particular are faced with a conundrum: often warned against shoveling, which is bad for both hearts and backs, but pushed by their doctors to get out more and especially to walk more, they often find themselves in an environment where they cannot move because they and their neighbors can't clear the sidewalks, and walking in the road is too dangerous. In many places with heavy snows, city road plows may leave "impassable berms" of snow packed into driveway ends and sidewalk curb ramps, which are often even more difficult for shovelers to clear and insurmountable for older walkers, especially those using canes or other mobility aids, and anyone using a wheelchair.

Many cities in the US and Canada require individual property owners and/or tenants to remove snow from their sidewalks. Their laws are often similar to Pittsburgh's:

> "Every tenant, occupant or owner having the care or charge of any land or building fronting on any street in the city, where there is a sidewalk paved with concrete, brick, stone or other material shall, within twenty-four (24) hours after the fall of any snow or sleet, or the accumulation of ice caused by freezing rainfall, cause the same to be removed from the sidewalk."[7]

According to Canadian newsmagazine *Maclean's*, "Vancouver residents are expected to have their sidewalks cleaned for pedestrians by 10 a.m. daily. Saskatoon gives its citizens 24 hours to get the job done", and, remarkably, Calgary not only requires residents to clear sidewalks within 24 hours, but "any community trails that abut their property as well".[1] It's not clear how much these cities spend enforcing these requirements, but many cities and their residents claim that it would be too expensive for the government to clear the sidewalks. However, *Maclean's* reports that the city of Winnipeg, Manitoba, "manages to keep its sidewalks free from snow and ice for $2 million a year, or less than $7 per household."[†]

Winnipeg in 2011 had a population of about 663,000 in 269,000 households on nearly 180 square miles, or twice as many people and units as Pittsburgh on more than three times as much land—Pittsburgh in the 2010 Census had about 306,000 people in 132,000 households, on 55 square miles.[9,10] The cities receive similar amounts of snow; Winnipeg averages 44.76 inches of snow per year while Pittsburgh receives an average 38.19 inches.[11,12] While the various costs that go into that $7 per household (such as, presumably, wages and other labor costs for the city staff, fuel and maintenance costs for the vehicles and equipment used, and so on) will likely vary between the two cities, especially across the border, it seems that it should follow that Pittsburgh should be able to clear its similar quantity of snow from its much smaller geographic area for an even lower cost.

The public health benefits alone of not forcing individuals who may not be physically able to shovel snow, and of making it easier for people of all ages and conditions to walk and get exercise, should push places toward municipal path-plowing. There's also the economic benefit: while there would presumably be lower retail sales of shovels and rock salt, there would also be much lower incidence of lost work-time and productivity due to injury from falls and shoveling strains, not to mention fewer people hit by cars after being forced to walk in the street. And, as Winnipeg demonstrates, it doesn't even need to cost that much—potentially even less than the cost of enforcement against non-compliant properties.

Arlington's Mobility Lab summarized a 2017 study evaluating a Utah "complete street" as showing that "When people consider a street 'walk-friendly,' simply put, they are more likely to walk".[13] Cities that truly are interested in becoming walkable and creating "complete streets" should also plow their snowy sidewalks.

[†]On the date the article was published, the Canadian and US dollars were nearly at par—$1 Canadian was worth approximately $1.01 US[8]—so these values were approximately $2.02 million and $7.09 US respectively.

References

[1] "Down shovels: The city should clear the sidewalks," *Maclean's* (Mar. 17, 2011), https://www.macleans.ca/news/canada/down-shovels-the-city-should-clear-the-sidewalks, accessed Nov. 28, 2017.

[2] Peck, Claude, "What helps Minnesota seniors age in place?: U researcher has some clues," *Star Tribune* (Feb. 24, 2017), http://www.startribune.com/414724473/, accessed Nov. 29, 2017.

[3] Quednau, Rachel, "Walkability isn't just for millennials," *Strong Towns* (Aug. 21, 2017), https://www.strongtowns.org/journal/2017/8/18/seniors-walkability, accessed Nov. 29, 2017.

[4] Claris, Susan and Scopelliti, Demetrio, *Cities Alive: Towards a walking world* (London, UK: Arup Group Limited, June 2016), https://www.arup.com/publications/research/section/cities-alive-towards-a-walking-world.

[5] Miller, Kelli, "Snow Shoveling Injures Thousands Each Year" (Jan. 20, 2011), https://www.webmd.com/a-to-z-guides/news/20110120/snow-shoveling-injures-thousands-each-year, accessed Nov. 29, 2017.

[6] Jolly, Jo, "Why do so many people die shovelling snow?" *BBC News Magazine* (Feb. 9, 2017), http://www.bbc.com/news/blogs-magazine-monitor-30119410, accessed Nov. 29, 2017.

[7] "Removal of Snow and Ice," *City of Pittsburgh Code*, Title Four, Chapter 419, Section 419.03, https://library.municode.com/pa/pittsburgh/codes/code_of_ordinances?nodeId=COOR_TITFOURPUPLPR_ARTIPURI-W_CH419REAC_S419.03RESNIC, accessed Nov. 29, 2017.

[8] "Canadian Dollars (CAD) to US Dollars (USD) exchange rate for March 17, 2011" (Mar. 17, 2011), https://www.exchange-rates.org/Rate/CAD/USD/3-17-2011, accessed Dec. 12, 2017.

[9] *Winnipeg, Manitoba (Code 4611040), Census Profile*, 2011 Census, No. Catalogue no.98-316-XWE (Ottawa: Statistics Canada, 2012), http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Geo1=CSD%5C&Code1=4611040%5C&Data=Count, accessed Nov. 29, 2017.

[10] US Census Bureau, "Pittsburgh city, PA," https://www.census.gov/quickfacts/fact/table/pittsburghcitypennsylvania/LND110210, accessed Nov. 29, 2017.

[11] *Winnipeg Richardson International Airport*, 1981 to 2010 Canadian Climate Normals station data (Ottawa: Environment Canada, 2017), https://v.gd/KDihkT, accessed Nov. 29, 2017.

[12] *Precipitation Anomalies*, State of the Climate: National Climate Report for Annual 2016 (NOAA, National Centers for Environmental Information, 2017), https://www.ncdc.noaa.gov/sotc/national/201613/supplemental/page-2, accessed Nov. 29, 2017.

[13] Robbins, Ashley, "Research: Walkability makes a street more 'complete'," *Mobility Lab* (Nov. 8, 2017), https://mobilitylab.org/2017/11/08/research-walkability-makes-street-complete/, accessed Nov. 29, 2017.