PLANNING HEALTHY COMMUNITIES FACT SHEET SERIES

№1

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ACTIVE TRANSPORTATION, HEALTH AND COMMUNITY DESIGN:

What is the Canadian evidence saying?

Healthy Community Design: the big picture

Numerous studies from Canada and around the world demonstrate a relationship between the physical design and layout of cities and towns – also known as "the built environment" – and the health of people living in them. Community form is associated with varying levels of physical activity, diet, safety and injury rates, and how easily people can access work, shops, services and schools.

According to a 2009 report from the Canadian Senate, some 10% of population health outcomes can be attributable to our physical or built environment, with an additional 50% being related to social and economic determinants, many of which are deeply interconnected with environments.[1] Hence, creating physical environments that facilitate healthy living is a critical component of supporting individuals in making better choices for their health.

Our Built Environment

The built environment refers to the human-made surroundings that provide the setting for all human activity, including those places where people live, work, learn, rest and play. These spaces range from rural streets to bustling downtowns and all the places in between.

Planning Healthy Communities: How can this fact sheet be useful to me?

Canadian research on the associations between health and built environment is expanding and becoming more sophisticated. While much work remains to unravel the complex relationships between physical activity, body weight and the built environment, the research is at a point where the planning implications are clear – healthy community design matters.

The purpose of this fact sheet is to provide Canadian planning practitioners and community stakeholders with a summary of the most current "made in Canada" research on healthy communities. It highlights leading edge Canadian research carried out between 2007 and 2011 and is meant to better equip planning practitioners, local government officials and community leaders to work more closely with researchers and public health officials in charting next steps in research and evidence-informed policy-making.

Active Transportation, Health and Community Design: Issue Overview

In recent years, Canadians have become less and less physically active.[2] This is a public health concern. Together with being overweight and obesity, lack of physical activity is considered a "conveyor belt" to heart disease, stroke and other chronic conditions, including cardiovascular disease, diabetes and various cancers.[3] On the other hand, physical activity is associated with more positive health outcomes, including improved physical, mental and social health.

Active Transportation

Active transportation is any form of human-powered transportation. It is any trip made for the purposes of getting yourself, or others, to a particular destination - to work, to school, to the store or to visit friends. Walking and cycling are the most popular forms of active transportation and are often combined with other modes, notably public transit.

Community design that supports active transportation has been demonstrated to provide multiple transportation, environmental and public health benefits, including promoting physical activity, improving air quality, reducing contributions to climate change, and even improving community livability. Built environment improvements that support active transportation – e.g., traffic calming, streetscape improvements, traffic speed reductions, and road space reallocation, etc. – can also generate safety advantages and reduce injury risks, which is a benefit not only for pedestrian and cyclists, but also transit riders and other road users.

Key Research and Findings

The section provides some general background facts on health, physical activity and weight, followed by more specific, Canadian research findings around active transportation, body weight and the built environment. The highlighted findings come from a review of 96 peer-reviewed journal articles and 16 reports from respected Canadian agencies published between 2007 and 2011.

Physical inactivity and obesity are growing issues of concern in Canada.

- 69% of Canadian adults and 91% of Canadian children and youth are not getting the recommended levels of daily physical activity. [4]
- One in four Canadian adults are considered obese, along with about one in ten Canadian children and youth between the ages of 6 and 17. [5]
- 2008 economic costs of obesity are conservatively estimated at $4.6 billion using the eight chronic diseases most consistently linked to obesity. This is up about 19% from 2000. [6]
- Numerous studies and recent research from across Canada have linked the lack of physical activity as a key contributor to Canada's high (and growing) obesity rates. [7] [8]
- It is estimated that if all Canadians engaged in 60 minutes of physical activity per day, 33% of all deaths related to coronary heart disease, 25% of deaths related to stroke, 20% of deaths related to type 2 diabetes, and 20% of deaths related to hypertension could be avoided.[9]

Bringing destinations closer together is one of the most effective ways to facilitate active transportation.

- Shorter distances for daily trips are achieved in areas with higher building density and greater mix of land uses (e.g., residential, commercial, office, community service/institutional, etc.). Most studies agree that these two elements of the built environment are positively associated with walking and cycling for utilitarian trips. [10] [11] [12]
- An evaluation of transportation behaviours in new urbanist developments (higher building densities and a greater mix of land uses) in Calgary, Markham, and Montreal found that 51% of residents of new urbanist communities used active transportation for local services compared to only 19% in more conventional communities. [13]
- A Montreal study found that adults aged 45 and older exhibited a greater likelihood of walking at least 30-minutes a day, five days a week if they lived in a neighbourhood with a greater density of destinations. [14]
- Research on the factors that influence cycling in Metro Vancouver found that odds of cycling were higher in areas of greater land use mix and higher population density. This study found that neighbourhood-scale commercial destinations attracted cycling trips, but that large "big-box" commercial uses deterred cycling. [15]

Safe and pleasant routes for cyclists and pedestrians are key attractors for increasing active transportation mode share.

- Many walkability and cycling studies determined that safety and comfort concerns caused by vehicle traffic (e.g., traffic speed, volume, road crossing conditions, etc.) were a primary influence on mode choice. [16] [17]
- Studies from several Canadian cities and regions show that perceptions of safety and the aesthetic quality of a route play an important part in influencing people's decision to walk or bike, both for themselves and their children. [18] [19] [20]
- Path connections and quality, street trees, and scenery are all aspects of route quality identified as having a positive relationship with people's decisions to walk or bike. [21] [22] [23]
- For many cyclists, the characteristics of the route were more important than those of the origin or destination of travel. [24]
- A Metro Vancouver study found that cyclists were likely to detour from the shortest possible route in favour of routes with features such as traffic-calming measures, signage, tree cover, and bicycle-activated crossing signals. [25]
- Occasional, or so-called "near market" cyclists, are more likely to choose off-street paths and physically separated routes for their trips according to a Metro Vancouver study. [26]

There are likely benefits in considering each community's unique context and to target specific user groups when designing active transportation programs and strategies.

- A Canada-wide study suggests that standardized, or uniform, active transportation promotion strategies may be less effective than more diversified initiatives targeting more specific groups (e.g., older walkers/cyclists, youth, new Canadians, etc.). [27]
- There are considerable regional differences in active transportation participation rates. As examples, the likelihood of walking is higher in the Northwest Territories (for men) and lower in Quebec (both women and men); cycling shows higher rates in the West, and lower in the Atlantic provinces. These trends may be related to other factors, which need to be considered (e.g., climate, socio-economic status, etc.). [28] [29]

FIGURE: On 350 calories a cyclist can travel 16 kilometres, a pedestrian 5.6 kilometres, and an automobile 30.4 metres. [30]

- A study of Vancouver and Toronto found that the walkability index, and its components related to land-use mix, residential density and street connectivity were significant predictors of Body Mass Index (BMI) in Vancouver, and that only residential density was predictive in Toronto. The authors suggest that the difference in influences may be due to differences in neighbourhood design, as well as the substantial climatic variation between these cities. [31]

- Studies conducted in Montreal found that people with disabilities were more likely to engage in leisure time physical activity and active transportation in neighbourhoods with streetscape adaptations and supportive features. [32] [33]

Within these research areas there are still many unpredicted results, which may reflect the variety in built environments across Canada and the range of influences on health (e.g., individual physiology, socio-economic status, etc.). More research is needed to strengthen the evidence base.

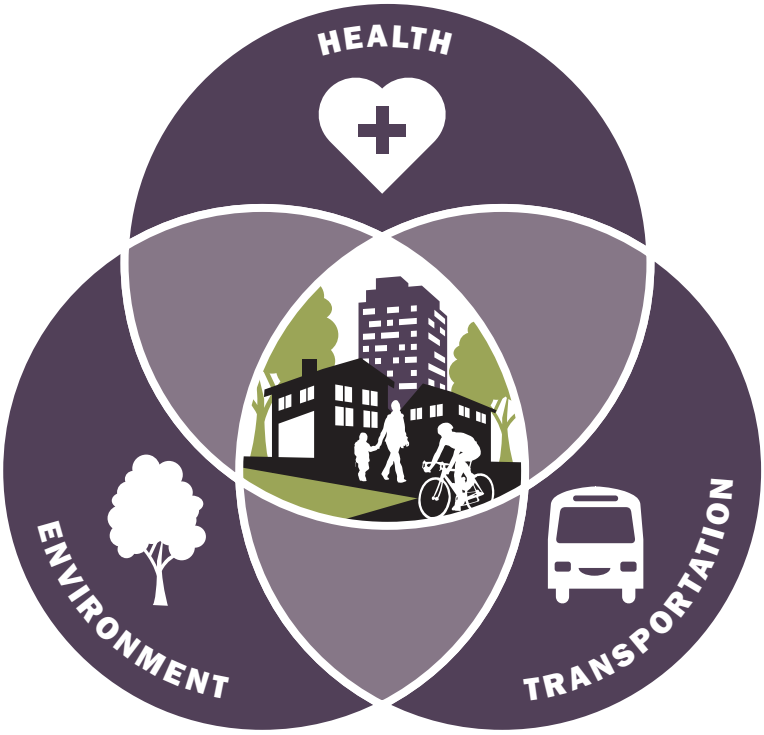
- A Montreal study found that presence of active transportation infrastructure (e.g., safe, well-lit sidewalks, etc.) within different neighbourhoods was not positively associated with walking. Somewhat counter intuitively, this research also found that a low perception of safety was associated with a greater likelihood of walking. The researchers speculate that older, denser neighbourhoods, which were associated with higher walking rates, may be the very ones with poor infrastructure and perceptions of poor safety. [34]

- A six-year study of adults in Edmonton called into question the relationship between neighbourhood walkability and changes in Body Mass Index (BMI), while accounting for people's perceptions and attitudes toward their neighbourhood settings. By tracking changes over time (longitudinal survey), instead of just between places (cross-sectional survey), the study was able to follow health status over time. An analysis of the 500 individuals surveyed who did not change homes during the study period revealed no relationship between neighbourhood walkability and change in BMI[35]. It reported that age, neighbourhood socio-economic status (SES), and perceptions of high traffic were the only significant predictors of changes in BMI. Specifically, younger participants, those living in low SES neighbourhoods, and those who reported that traffic made walking difficult were more likely to have increases in BMI.

- A second analysis of this study included those who moved within the six-year period to understand how their reasons for choosing the new location may affect the links between neighbourhood features and BMI[36]. Findings confirmed people's values are influential on their behaviors. In particular, amongst those who moved, people who reported that ease of walking was not important in selecting a neighbourhood had larger increases in weight, in comparison to those who felt it was important. However, those who remained in the

same home over the study period did not show this trend between their values and their BMI. This could indicate that those who choose to live in walkable neighborhoods because it reflects their underlying values will walk more. In contrast, those individuals already living in highly walkable neighborhoods, and who are not inclined to walk, may not be influenced by neighborhood features only. The researchers point out that this does not disprove the link between the built environment and health outcomes, only that the complexity of the relationship must be considered, and more longitudinal studies are needed.

- In a study of factors that influenced the decisions of key stakeholders to develop walkable neighbourhoods, Edmonton City Councillors identified "car culture" as a barrier to change, underlining the social willingness to purchase housing that requires driving to work, school, and shopping, and the reluctance to use active transportation or take public transit. [37]



Healthy Community Design - A Triple Win
Active transportation friendly communities can provide multiple health, environmental and transportation benefits. [38]

Conclusions

This fact sheet presents research highlights from a wide body of work, with a focus on larger urban centres. This section summarizes key "take home" points that emerged as common, overarching themes from the review.

- ★ **Physical activity is among the most significant modifiable behaviours that can influence a person's likelihood of developing chronic diseases, such as diabetes, heart disease, stroke or cancer.**
- ★ **Recent Canadian research, supported by a considerable body of US and international data, has associated the built environment, including active transportation and physical activity infrastructure, with more physically active lifestyles.**
- ★ **Healthy community design has been demonstrated to support health objectives, including facilitating physical activity, reducing injury risks for pedestrians and cyclists, and improving public safety and perceptions of safety.**
- ★ **Community design alone may not make more active living the most prevalent choice for individuals. Changes to the built environment might need to be supported by communications and education programs to help shift the societal values that are associated with the daily choices people make about where to live, how to get around, and personal health.**
- ★ **Additional Canadian research is required to continue building the evidence base, particularly studies over a longer-term period of time (i.e., longitudinal studies) and research that considers multiple built environment variables simultaneously (street connectivity, density and land uses, etc.), and their collective influences on physical activity and health.**

Complete streets *are designed for the safe use of all users, including pedestrians, bicyclists, motorist and transit riders of all ages and abilities. Complete streets make it easy and safe to cross the street, walk to shops, and bicycle to work, and are a key component of successful active transportation strategies.*

What can planners do?

Whatever the context – from smaller towns to major urban centres – evidence points to several options for planners to be involved in encouraging and supporting healthy community design and more active transportation choices. Some actions planners might consider are briefly outlined below. Most of them are aligned with work planners may already be pursuing through their environmental and sustainability planning. See the next section for links to helpful resources and more information.

Reviewing current and long-range planning: There are many opportunities for planners to get involved in bringing health back to the planning table.

1. **Look for opportunities** to include health objectives and active transportation goals and objectives in your community's plans. Ensure that your public health department and/or relevant health organizations and agencies are involved in plan review.

2. **Review and update** street standards to include better and safer pedestrian and bicycle infrastructure with your jurisdiction's transportation engineers (or equivalent) and, where necessary and required, provincial transportation departments.

3. **Develop and adopt** a "Complete Streets" policy that ensures all users and age groups are accommodated in new street designs, construction, and improvements to existing streets and roads. There are numerous sample policies available for communities of all sizes.

4. **Encourage** compact, higher density, mixed-use development with a high quality public realm and safe, accessible, pleasant multi-modal connections between destinations wherever practical and possible.

5. **Consider** using social marketing and/or other communications strategies to support community uptake of any built environment strategies implemented.

Staying informed and exploring new opportunities: Healthy community design is rapidly growing field with new research and evidence, and standards coming out continually.

1. **Network** with other municipalities, provincial planning agencies, and health authorities who have undertaken healthy community design plans, projects and policies and who could support your work. Some provinces have established grant programs and resource networks.

2. **Establish** a healthy communities "knowledge broker" in your planning department capable of working with and liaising between the multiple public and private sector players involved in healthy community design (e.g., public health officers, developers, civil engineers, etc.).

3. **Support** healthy built environment research that occurs in your community. From research design to analysis and interpretation of findings, planners can support researchers and use resulting data to support evidence-informed, healthy community design policy-making.

4. **Explore Health Impact Assessments:** Used increasingly in the US and other jurisdictions, health impact assessments (HIAs) are used with larger development proposals to determine their potential health impacts and mitigate them. Quebec is actively exploring their use along with Peel Region in Ontario. New Canadian research on HIAs is emerging.

Building the case for healthy community design: Whether planning for small towns or major cities, it is important to cultivate support from key community stakeholders including elected officials, the public, local neighbourhood and business associations, local planning commissions and review boards, public health officials, etc. Build awareness of healthy community design and its health, fiscal and environmental benefits with these stakeholders.

1. **Establish** a healthy community design or active transportation task force or committee to help develop evidence-based healthy community design policies, programs and plans.

2. **Educate** other planners, local government officials and community leaders about the public health implications of land use and transportation planning choices, including the economic burden of associated health costs.

3. **Partner** with the local public health office to get local health data and/or invite the Chief Medical Health Officer, or equivalent, to speak to Council on the benefits of healthy community design and active transportation.

4. **Network** to develop a broader healthy community design constituency, particularly those organizations and groups with an interest in healthy community design – e.g., cycling groups, seniors organizations, school boards, public health agencies, developers, etc.

More Information and Resources

There is a wealth of information and resources available to planners interested in learning more about healthy community design and planning. For more information, or to access additional Planning Healthy Communities Fact Sheets, please visit:

- **National Collaborating Centre for Environmental Health - Healthy Built Environment Inventory:** A searchable catalogue of healthy communities case studies, guidelines, tools and key scientific papers.
  http://ncceh.ca/en/major_projects/built_environment
- **Heart and Stroke Foundation:** A resource site with links to research, healthy physical activity guidelines and healthy community design information.
  www.heartandstroke.ca/healthycommunities
- **Urban Public Health Network - Healthy Canada by Design:** A clearinghouse of healthy community design resources and links.
  www.uphn.ca/CLASP/
- **Canadian Institute of Planners:** Information and links to a variety of healthy community planning resources, including a new Healthy Communities Practice Guide.
  www.cip-icu.ca
- **Public Health Agency of Canada:** Maintains a built environment webpage with helpful information and evidence.
  www.phac-aspc.gc.ca/hp-ps/hl-mvs/be-eb-eng.php
- **Canadian Institute of Health Information:** A wide variety of resources and research studies on population health and environmental factors, including the built environment.
  www.cihi.ca

Planning Healthy Communities Fact Sheets: *For information on child and youth specific active transportation and/or healthy community design please see Planning Healthy Communities Fact Sheet #2 –* ***Active Living, Children and Youth: What is the Canadian evidence saying?***

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