Healthy City: Interactions Between Public Health and Toronto’s Urban Fabric

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Research support: Mitacs Globalink/ DAAD Rise; 2017 Faculty of Engineering & Architectural Science Dean Research Fund (Travel), Ryerson University; Travel funds, Verein der Freunde der Universität Freiburg, Germany.
1. Introduction

2. Open & Green Spaces
   2.1. Health Context
   2.2. Open and Green Spaces in Toronto
   2.3. Planning

3. Walkable Spaces
   3.1. Health Context
   3.2. Walkable spaces in Toronto
   3.3. Planning

4. Discussion
**Focus:** Relationships between urban spaces, infrastructure and health

**Case:** Toronto, Canada; Open and Public Spaces; Walkability and Health

**Method:**
- Research and review key recent planning documents including the Toronto Official Plan, reports, policies, guidelines, Toronto Public Health publications and by-laws related to public health and design.
- Map and provide a comprehensive picture of open, green and walkable spaces and their potential health effects
2. Open and Green Spaces: Health Context

- The illustration on the right is divided into three categories:
  - Physical health
  - Mental health
  - Social health

- Interconnections between each segment (e.g. physical activity positively affects mental health)

- Health effects
2. Open and Green Spaces: Toronto

Squares | Privately Owned Publicly Accessible Spaces (POPS) | Parks | Parkettes | Green Streets | Park-like structures (e.g. cemeteries)

Open & Green Spaces

Worth $ 7.1 Billion
Ecological Services $ 28.2 million/yr

Street Trees
City Parks / Natural Area
Private Property


Source: Parks, Forestry and Recreation. "Every Tree Counts. A Portrait of Toronto's Urban Forest." Toronto: City of Toronto, 2013a
2. Open and Green Spaces: Toronto
2. Open and Green Spaces: Planning documents

- Official Plan 2015
  - Protecting, enhancing & restoring public lands
  - Protecting & enhancing natural environments
  - Parkland acquisition strategies
  - Protecting natural heritage
  - Reconnecting water's edge with city
  - Minimizing shadows, noise, traffic affecting Green Space from adjacent building
  - Improving & preserving of the Green Space system
  - Extensive network of places
  - Pedestrian-friendly design
  - Safe, comfortable & accessible spaces

- Active City Designing for Health 2014
  - High-quality design standards

- Parks Plan 2015 - 2024
  - "Maintain quality parks"
  - "Improve system planning"
  - "Reserve and promote nature"
  - "Communicate and connect with users"

- Toronto Strategic Forest Management Plan 2012 - 2022
  - Increasing awareness of urban forest
  - Equitable distribution of tree canopy
  - Increasing biodiversity of natural areas
  - Increasing of canopy cover
  - Promoting stewardship for trees on private property
  - Improving monitoring of the urban forest for proper management

- Trees & Urban Elements
  - Tree Protection Policy
  - Parks, Street Trees, Ravine & Natural Features, Private Tree By Law

- Neighbourhood
  - TO Core Proposals Report 2016
  - Ten Great Streets for a Thriving Grid
  - Core Circle
  - Local places and Over-Looked Areas
  - Park District Anchors
  - The Stitch
  - Around the Bay
  - Portal Parks
  - Maintenance strategies
  - Increase of parkland in high growth areas
  - Investment in urban forest in Downtown Area

- Streetscape
  - "Greening Surface Parking Lots"
  - Standard Planning Options Toronto Street Trees

- Improving landscaping & streetscaping
  - Increasing pedestrian safety, comfort & amenity

Document name
3. Walkable Spaces: Health Context

- The diagram is divided into three categories (Physical health, mental health, social health)

- Interconnections between each segment (e.g. physical activity positively affects mental health)

- Health effects
3. Walkable Spaces: Toronto

8513 km of sidewalks, walkways, pathways and recreational trails

1194 km of roads without sidewalks

Source: Toronto Transportation Services. “Sidewalk Inventory.” City of Toronto 2015. Web. 05/22/2017

Commuting to work

69.9%  4.3%  3%  1.2%

Walkable Spaces: Toronto | Walkability index

**Walkability Index** for the City of Toronto, by Census Tract

*Walkability index comprised of:
1. Population density
2. Residential dwelling density
3. Street connectivity
4. Number of retail outlets in a 10 minute walk

**Walkability Index** Quintiles by 2006 Census Tract (CT)

- Quintile 1: Less Walkable
- Quintile 2: Slightly Walkable
- Quintile 3: Neutral Walkable
- Quintile 4: Slightly Walkable
- Quintile 5: More Walkable

CT excluded from analysis
Census Tract boundary
Major street
Highway/expressway
### 3. Walkable Spaces: Planning Documents

<table>
<thead>
<tr>
<th>Toronto Pedestrian Charter 2002</th>
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</thead>
<tbody>
<tr>
<td>An urban environment that encourages and supports walking</td>
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<tr>
<td>Safety from other modes of transport</td>
</tr>
<tr>
<td>Safe social environment</td>
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<tr>
<td>Mixed-use development</td>
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<tr>
<td>Pedestrian-friendly infrastructure and facilities</td>
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<tr>
<td>Accessibility for pedestrians</td>
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<tr>
<td>Linkages to streets, parks and open spaces</td>
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<tr>
<td>Safety through a high quality of design/maintenance</td>
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<tr>
<td>Comfortable walking environment</td>
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<tr>
<td>Appropriate design aesthetics</td>
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<tr>
<td>Integration and promotion of natural features</td>
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<tr>
<td>Focus on car-reduced spaces</td>
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<tr>
<td>Creating spaces &amp; places for people</td>
</tr>
<tr>
<td>Integrating networks for walking</td>
</tr>
<tr>
<td>Upgrading &amp; extending of street, park &amp; open space linkages</td>
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<tr>
<td>Focusing on priority &amp; tower renewal projects</td>
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<td>Designing streets for pedestrians</td>
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<tr>
<th>Toronto Complete Streets Guideline 2016</th>
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<tbody>
<tr>
<td>Investments in street infrastructure</td>
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<tr>
<td>Appropriate street design for different road types</td>
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<tr>
<td>Streets for people, place-making and prosperity</td>
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<tr>
<td>Linking pedestrians movement to future areas of growth</td>
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<td>Improving pedestrian safety and wayfinding</td>
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<td>Activating laneways</td>
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<td>Pedestrian-friendly public transport</td>
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<td>Turning King Street into a &quot;true transit-priority&quot; street</td>
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<tr>
<td>Implementation/maintenance of a “family of beautiful, functional, technologically flexible, durable and coordinated furniture”</td>
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<tr>
<td>Improvement of the movement, accessibility, safety of pedestrians, as well as the attractiveness/identity of Toronto’s streetscape</td>
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<tr>
<td>Providing accurate design/placement guidelines to harmonize the design, form, scale, material and placement of future street furniture investments</td>
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</tbody>
</table>
Based on the literature, one can compose a comprehensive visualization of a number of health factors that open, green and walkable spaces can potentially contribute to.

The resulting picture can be a useful tool for cities to think of their public spaces beyond beautification, revitalization and accessibility.

The City of Toronto is such a case.
This study proposes that health indicators are ushered to the forefront.

Various actors are already engaged in monitoring individual aspects of a public space’s quality: Toronto’s walkability index; air quality.

We recommend to implement such monitoring technologies across key parks, streets and public spaces. Additional metrics could also include noise, vibration and heat as well as field sports facilities and fresh food-related spots (e.g. farmers’ markets).
4. Discussion

We also recommend to determine and distinguish which spaces have what positive health effects based on the monitoring and itemization of real-time variables (heat, air and pollution levels).

This extensive network of sensors and information could help make smart decisions about urban health.

Main recommendation: itemize, monitor and comprehensively present these indicators that together compose the qualities of public spaces (through, for example, an app or other user-friendly programs).
This paper reviewed *how public health and the urban fabric are related*.

To provide a more comprehensive picture of potential health benefits related to these spaces, it synthesized this information into a *chart*.

It *surveyed key planning documents* of the City of Toronto, identifying efforts to make it a healthier environment.

It put forward a recommendation for *optimizing and personalizing the health effects* of such spaces.

Further research steps include the creation of partnerships with experts, monitoring, modelling, visualizing and communicating information catered to the public and to users towards *making cities smarter and healthier*. 
This research was partly funded by the 2017 Mitacs Globalink program / DAAD Rise and a 2017 Faculty of Engineering and Architectural Science Dean Research Fund (Travel) from Ryerson University. Travel to the conference was also supported by Verein der Freunde der Universität Freiburg, Germany.