Assessing walkability in the Montréal metropolitan area

The potential of three urban forms from 1920 to 1990

Sébastien LORD, Prof.
François RAULIN, Postdoc
Paula NEGRON-POBLETE, Prof.

Intstitute of Urban Planning
Ivanhoe-Cambridge Observatory
Université de Montréal

Presentation Plan

1. Exploring territorial issues related to…
   • More active mobility / easier transition of modes of transportation
   • Urban quality of new residential / retrofitted habitats

2. Questioning the walkability for three significant urban forms in North-America

3. Using the Walkability Assessment Tool for Senior (WATS)

   1. Proposing discussions and working hypothesis
Toward ‘walkable’ residential environments

Key-elements of favourable environments for walking...

- **Proximity / Accessibility to local amenities** (Rosenberg, Everitt, 2001; Aparicio, Séguin 2006, Negron et al., 2012).

- **Availability of transportation options, in connection with the car**... (Banister, Bowling 2004; Fobker, Grotz 2006).

- **Positive experiences / outcomes of getting around** (Borst et al., 2009; Lockett, et al., 2005; Lavery et al., 1996; Stahl et al., 2008).

In the context of aging to walk...

- **Allows the realisation of activities** (Banister, Bowling, 2004; Fobker, Grotz 2006).

- Has **psychological and physical benefits** (Banister, Bowling 2004; Spinney et al., 2009; Fobker, Grotz 2006)

- Gives a **sense of autonomy** (Metz 2000).

- Is an essential element of ‘**active aging**’ (Walker 2002).

« For older adults, maximizing the attractiveness or safety of a walking path is more important than minimizing the distance to a destination » (Michael et al., 2006: 738).
Connection between theory and practice

Walkability key-criteria observed in empirical literature are closely related to those developed in planning practice – e.g. Bentley et al. (1985) for a more ‘responsive’ urban design.

1. Permeability
2. Variety
3. Robustness
4. Visual appropriateness
5. Richness
6. Personalization

Evidence-based planning and actions

Data-driven approaches in the context of person-environment research

Urban audit
Spatial analysis
Etc.

Focus groups
Interviews
Etc.

Objective realities (uses)

Individual / collective meanings

Subjective realities (representations)

(Beauchemin, 2015; Lord, Després, 2012; Lord, Negron, 2014; Negron, 2015; Plante, 2015)
Research questions

With the process of metropolitanization urban forms are juxtaposed then multiplying issues associated with walkability.

• How urban form does affect walkability?

• What differences and potentials in walkability can be found within territories developed at different periods of time?
Selection of 3 urban forms

Selection of 3 commercial destinations

Masson Avenue – Rosemont
Shopping mall – Duvernay
Public place – Bois-Franc

(Credits: Combe, 2013)
Former working-class neighbourhood.

Built in the first half of the 20th century.

Orthogonal street grid composed of contiguous 2-3 stairs housing

Traditional ‘walkable’ urban streets

46 housing units per ha.

Post-War suburban neighbourhood

Erected in the 1960s

Car-dependent habitat composed of ranch houses

Curvilinear streets grid and segments poorly interconnected

17 housing units per ha.
New Urbanism-type neighbourhood

Created in the late 1990s

Street grid that is hierarchical and pedestrian-friendly

Neighbourhoods articulated around squares and parks

30 housing units per ha.

Walkability Assessment Tool for Senior (WATS)
Typology of walkability

<table>
<thead>
<tr>
<th>Street segment level of walkability</th>
<th>Type of street segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>Type 1 – Without comfort and safety.</td>
</tr>
<tr>
<td></td>
<td>Type 2 – Minimal safety.</td>
</tr>
<tr>
<td></td>
<td>Type 3 – Minimal safety and comfort</td>
</tr>
<tr>
<td></td>
<td>Type 4 – Relative safety and comfort.</td>
</tr>
<tr>
<td>HIGH</td>
<td>Type 5 – Great safety and comfort.</td>
</tr>
</tbody>
</table>

Walkability levels for the 3 urban forms

Street segments distribution (%) according to urban forms

- Type 1 - Without comfort and safety
- Type 2 - Minimal safety
- Type 3 - Minimal safety and comfort
- Type 4 - Relative safety and comfort
- Type 5 - Great safety and comfort
Walkability levels for Vieux-Rosemont

Type 2

Type 3

Type 4

Type 5

Walkability levels for Duvernay

Type 1

Type 2

Type 4

Type 5
Même si tu ne mets pas de légende détaillée, tu pourrais au moins indiquer la barre qui va du rouge au vert en indiquant Without safety and comfort et Great safety and comfort
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Findings and perspectives

- In suburbs walkability is not as low as what we hypothesized – great pedestrian potential is observed.

- Contrary to urban neighbourhood, walkable suburban streets are local, those lacking of utilitarian destinations.

- Leisure walking is feasible in the suburbs, even easier than urban districts due to the presence of low obstacles.
Findings and perspectives

- Utilitarian walking in the suburbs is limited by distance and morphological barriers.

- This permeability issue gives arguments to think about walkable routes and mixed-uses poles.
  - Morphological unit transition to another
  - Street segments conducting to the barrier
  - Strategic passage nodes
  - Etc.

- In New-Urbanism neighbourhood most streets have high walkability level.

- This reflects the quality of urban design, which is a founding criterion of this approach.

- However, distances remain high and the less walkable street segments are those leading to planned amenities.

- A great functional walkability that is planned ‘on paper’ seems to be not enough, especially if the environment lacks of mixed-uses.
Next steps for walkability research

• To explore with neighbourhoods’ residents, especially seniors, ways for combining and weighting criteria.

• To approach both theoretically and empirically the notion of walkable ‘ambiance’.

• To develop criteria linked to environmental variability and variety.

Next steps for research and actions

• To develop WATS with focus groups, interviews, and collaborative tables.

• To add other metropolitan areas to the WATS database.

• To contribute to age-friendly municipalities program through collaborations with cities.

• To steer an action-research on aging, planning, and health in medium-sized cities in the Province of Québec.