How to Measure and Plan the Walkability of a Territory?
Three Applications of the Walkability Assessment Tools for Seniors (WATS)
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Walking among seniors

Barriers to walking (Lockett et al. 2005; Kerr et al., 2012)
- Indicators of danger
- Risks related to traffic
- Risks of falling

Incentives to walking (Kahana et al. 2003; Risser et al., 2010; Michael et al., 2006)
- Diversity of destinations, Community based activities
- High quality landscape, Greenery
- Street furniture
- Public transportation

Audit tools to evaluate walkability
- Alternative to usual data base (Handy et Clifton, 2001; Talen, 2003; Paez et al., 2010).
- First urban audits
  - Systematic Pedestrian and Cycling Environmental Scan (SPACES) (Pikora et al. 2002)
  - Irvine-Minesota Inventory (IMI) (Day et al., 2006).
  - Pedestrian Environmental Data Scan (PEDS) (Clifton et al., 2007)
  - Senior Walking Environmental Assessment Tool (SWEAT) (Cunningham et al., 2005; Michael et al., 2009).

- Development of WATS (Walkability Assessment Tools for Seniors -MAPPA)
  - Adapted for seniors in Montreal
  - Data collected for each side of the street
  - Paper (first version) and Tablet (recent)
  - Integration into a GIS
Application # 1: Do commercial destinations have walkable environments?

Incorporate simple adjustments in order to improve the walkability significantly.
### Application #2: Where do seniors walk?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Dollard-des-Ormeaux (N=352)</th>
<th>Montréal-Nord (N=890)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help to cross at the intersection</td>
<td>20%</td>
<td>64%</td>
</tr>
<tr>
<td>Stop sign</td>
<td>73%</td>
<td>9%</td>
</tr>
<tr>
<td>Pedestrian crossing: Two lines</td>
<td>51%</td>
<td>82%</td>
</tr>
<tr>
<td>Traffic light</td>
<td>1%</td>
<td>87%</td>
</tr>
<tr>
<td>Pedestrian light</td>
<td>2%</td>
<td>27%</td>
</tr>
<tr>
<td>Deterioration of the crossing area</td>
<td>16%</td>
<td>44%</td>
</tr>
<tr>
<td>Front yard with vegetation</td>
<td>100%</td>
<td>96%</td>
</tr>
<tr>
<td>Less than 3 feet</td>
<td>0%</td>
<td>28%</td>
</tr>
<tr>
<td>Between 10-20 feet</td>
<td>2%</td>
<td>35%</td>
</tr>
<tr>
<td>Between 20-30 feet</td>
<td>78%</td>
<td>12%</td>
</tr>
<tr>
<td>More than 30 feet</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>Presence of sidewalks</td>
<td>30%</td>
<td>97%</td>
</tr>
<tr>
<td>Width &lt; 4 feet</td>
<td>1%</td>
<td>13%</td>
</tr>
<tr>
<td>Between 4 - 6 feet</td>
<td>99%</td>
<td>82%</td>
</tr>
<tr>
<td>More than 6 feet</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Obstacles on the sidewalks</td>
<td>26%</td>
<td>40%</td>
</tr>
<tr>
<td>Good quality sidewalks</td>
<td>52%</td>
<td>72%</td>
</tr>
<tr>
<td>Commercial activities and services (1)</td>
<td>16%</td>
<td>30%</td>
</tr>
<tr>
<td>Presence of a bus-stop</td>
<td>14%</td>
<td>42%</td>
</tr>
<tr>
<td>Benches</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Shade (vegetation)</td>
<td>73%</td>
<td>56%</td>
</tr>
<tr>
<td>Speed reduction measures</td>
<td>16%</td>
<td>38%</td>
</tr>
<tr>
<td>Lighting for pedestrian</td>
<td>20%</td>
<td>2%</td>
</tr>
</tbody>
</table>

1. (1) Help to cross at the intersection
2. (2) Front yard with vegetation
3. (3) Shade (vegetation)
4. (4) Presence of sidewalks
Application #3: Combining Safety, Comfort and Appealing for seniors

6 ranks of Safety + Comfort: sidewalk, obstacles, kerbs, crossing, benches
4 ranks of Appealing: greenery, public spaces, front yards, buffer zone, bus stop, speed reduction
3 ranks of Walkability: 2 to 10 points

A platform to help decision-making
Concluding remarks

Thanks for your questions
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References