Promoting safe active travel through residential development projects assessment

CPHA Pre-conference | Toronto | May 2014

Olivier Bellefleur, Julie Castonguay, François Gagnon and Louise St-Pierre
National Collaborating Centre for Healthy Public Policy

Émile Tremblay
Direction de la santé publique de la Montérégie
How it will unfold

1. HIA in Sainte-Catherine
2. Focus on safe active travel (AT)
3. Concluding thoughts
The case: the transit-oriented development (TOD) neighbourhood project in Sainte-Catherine
A matrix to guide the analysis and recommendation process
Safe active travel

Safe and friendly for most people, and most daily activities

Source: commune de Koeniz

Source: Wikimedia Commons
Photograph: Yuba Bicycles
A difficult context
A difficult context

- 20M vehicles and 332B vehicle-kms travelled in 2007*
- All trips exclusively by car: 74%**
- Modal shares in urban centres: 12% biking and walking***

*Natural Resources Canada (2009)
**Statistics Canada (2008)
***Pucher and Dykstra (2003)
A difficult context

Source: Archives, Ville de Montréal

Source: Wikimedia Commons
Photographer: Dondon83
A difficult context

Source: Archives, Ville de Montréal

Photographer: François Gagnon
A difficult context

Source: Boston Public Library

Source: Wikimedia Commons
Photographer: Jean Gagnon
A difficult context

- Low density
- Segregated functions
- Disconnected networks
- Unsafe
But changes are possible

Connectivity for cyclists and pedestrians

Source: Wikimedia Commons
Photographer: Fgrammen
But changes are possible

Safety and sense of safety for cyclists and pedestrians

Source: City of Westmount
A matrix with 2 axes

1. Origins/destinations - trips
A matrix with 2 axes

2. Study area - Development area
A few words on the approach

Iterative

Quantitative & qualitative

Presence/absence

Sidewalks?

Photographer: wattle leaf
Source: http://is.gd/laefBN
## A matrix with 2 axes

<table>
<thead>
<tr>
<th>Development area</th>
<th>Study area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origins/ Destinations</strong></td>
<td>Supportive of safe AT?</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Functional mixity</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Buildings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Parking provision</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Trips (or routes)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Conviviality</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Streets; cycle paths; sidewalks</strong></td>
<td></td>
</tr>
</tbody>
</table>
Analyzing the development area
Residential density

- Townhouses
- Multi-unit buildings (6 units per 3-storey building)
- Commercial & residential (30-70 units per 3-storey building)

45 dwellings/hectare

Credit: Ville de Sainte-Catherine & Plania
Residential parking:
- exterior: 501
- interior: 1275
- on street: 111
Total: 1887

Commercial parking: 465

Park and ride:
- parkade: 288
Total: 288
Connectivity

- Sidewalk
- Bike path

Credit: Ville de Sainte-Catherine & Plania
Recommendations (development area):

1.
2.
3.
4.
5.
Analyzing the study area
Residential density (dwellings per hectare [D/ha])

- 15 D/ha
- 45 D/ha

Map data: Google, Cnes/Spot image, DigitalGlobe, 2014

Credit: Ville de Sainte-Catherine & Plania
Destinations

- Bus platform
- Grocery store
- Park
- Daycare facility
- Elementary school

Map data: Google, Cnes/Spot image, DigitalGlobe, 2014
Credit: Ville de Sainte-Catherine & Plania
Connectivity

Sidewalk - 15 min. walk
Bike path - 15 min. by bike

Bus platform
Grocery store
Park
Daycare facility
Elementary school

Map data: Google, Cnes/Spot image, DigitalGlobe, 2014
Credit: Ville de Sainte-Catherine & Plania
Recommendations (study area):

1.
2.
3.
4.
5.
Presenting a coherent set of recommendations
Comparing with the “real” report
Development area

1. Limit residential parking to 1.5 lots/residential unit.
2. Set up a secure bike parking station close to the park-and-ride lot, protected bicycle racks and storage spaces in the garages of multi-dwelling buildings (for at least 30% of occupants) and close to businesses (at least one parking space per 465 m² of business surface area [= 40 spaces]).
3. Place the main entrances of residential and commercial buildings facing the streets (not the parking lots).
4. Design *woonerfs* between parking areas to increase connectivity in the northern sector and facilitate east to west travel for pedestrians and cyclists.
5. Design streets in the TOD neighbourhood based on the *Zone 30* concept (30 km/h speed limit, horizontal deflection, raised crosswalks, etc.).
Study area

1. Increase density in residential sectors adjacent to the TOD neighbourhood to reach at least 17 dwellings per hectare for the wider TOD area.

2. Install two crossings for pedestrians connecting the TOD neighbourhood to the neighbourhood on the east, one near the north end of the project and one near the south end of the project.

3. Connect the north-south bike path in the TOD neighbourhood to the east-west bike path on the east side of the project. Add a crossing for cyclists connecting from the south to the neighbourhood on the east side of the project.

4. Redesign the intersection of Route 132 and rue Léo to strike a balance between traffic fluidity and the safety of drivers, cyclists and pedestrians (study the feasibility of installing a roundabout and/or program crossing times acceptable for the young and the elderly [calculated at 0.9 m/s]).

5. In collaboration with the City of Saint-Constant and the owner of the shopping centre, redesign the latter’s parking lot so as to make it safer and more user-friendly for pedestrians and cyclists.
You’re interested in this topic?

Visit us at www.ncchpp.ca for more resources

Olivier Bellefleur   olivier.bellefleur@inspq.qc.ca
Julie Castonguay    julie.castonguay@inspq.qc.ca
François Gagnon     francois.gagnon@inspq.qc.ca
Louise St-Pierre    louise.st-pierre@inspq.qc.ca
Émile Tremblay      emile.tremblay.agence16@ssss.gouv.qc.ca