

Promoting safe active travel through residential development projects assessment

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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



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Credit: Ville de Sainte-Catherine & Plania



Île de la Voie
Maritime

Boul Marie-Victorin

Rue Centrale

HERINE

Parc
Terry-Fox

Rue Centrale

Boul Saint-Laurent

Rue Brébeuf

SAINTE-CATHERINE

132

132

730

132

Boul Monchamp

132

Rue Brébeuf

132

Catherine

Credit: Ville de Sainte-Catherine & Plania

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

200 m
1000 ft

A matrix to guide the analysis and recommendation process



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Safe active travel

Source: commune
de Koeniz



Safe and friendly for most people,
and most daily activities


Source:
Wikimedia
Commons
Photograph:
Yuba Bicycles



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A difficult context



Source: Wikimedia Commons
Photographer: Richard Smith



Source: Wikimedia Commons
Photographer: Blacknight



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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)



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A difficult context



Source: Archives, Ville de Montréal



Source: Wikimedia Commons
Photographer: Dondon83



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A difficult context



Source: Archives, Ville de Montréal



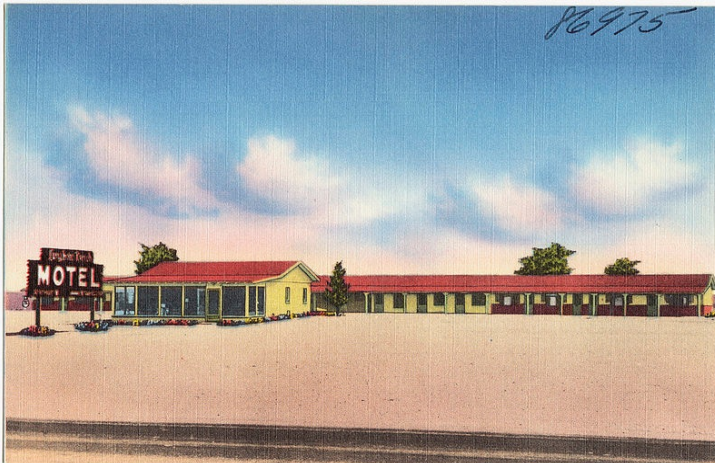
Photographer:
François Gagnon



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A difficult context



Source: Boston Public Library



Source: Wikimedia Commons
Photographer: Jean Gagnon



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A difficult context



Low density

Segregated
functions

Disconnected
networks

Unsafe

Source: Wikimedia Commons Photographer: Yellomonkey



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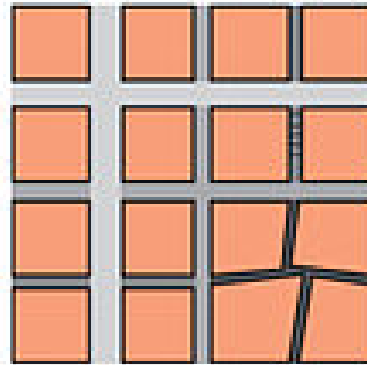
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But changes are possible

Connectivity for cyclists and pedestrians



Connectivity versus Permeability

Source: Wikimedia Commons
Photographer: Fgrammen

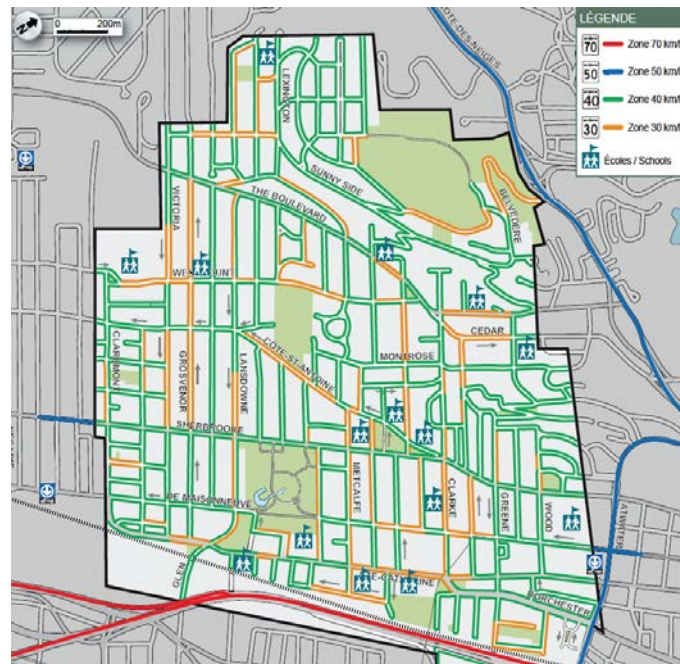


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But changes are possible

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>



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A matrix with 2 axes

	<i>Development area</i>	<i>Study area</i>
<i>Origins/ Destinations</i> <i>Density</i> <i>Functional mixity</i> <i>Buildings</i> <i>Parking provision</i>	<i>Supportive of safe AT?</i> <i>Detrimental to safe AT?</i> <i>Unknowns?</i>	
<i>Trips (or routes)</i> <i>Connectivity</i> <i>Conviviality</i> <i>Streets; cycle paths; sidewalks</i>		



Analyzing the development area



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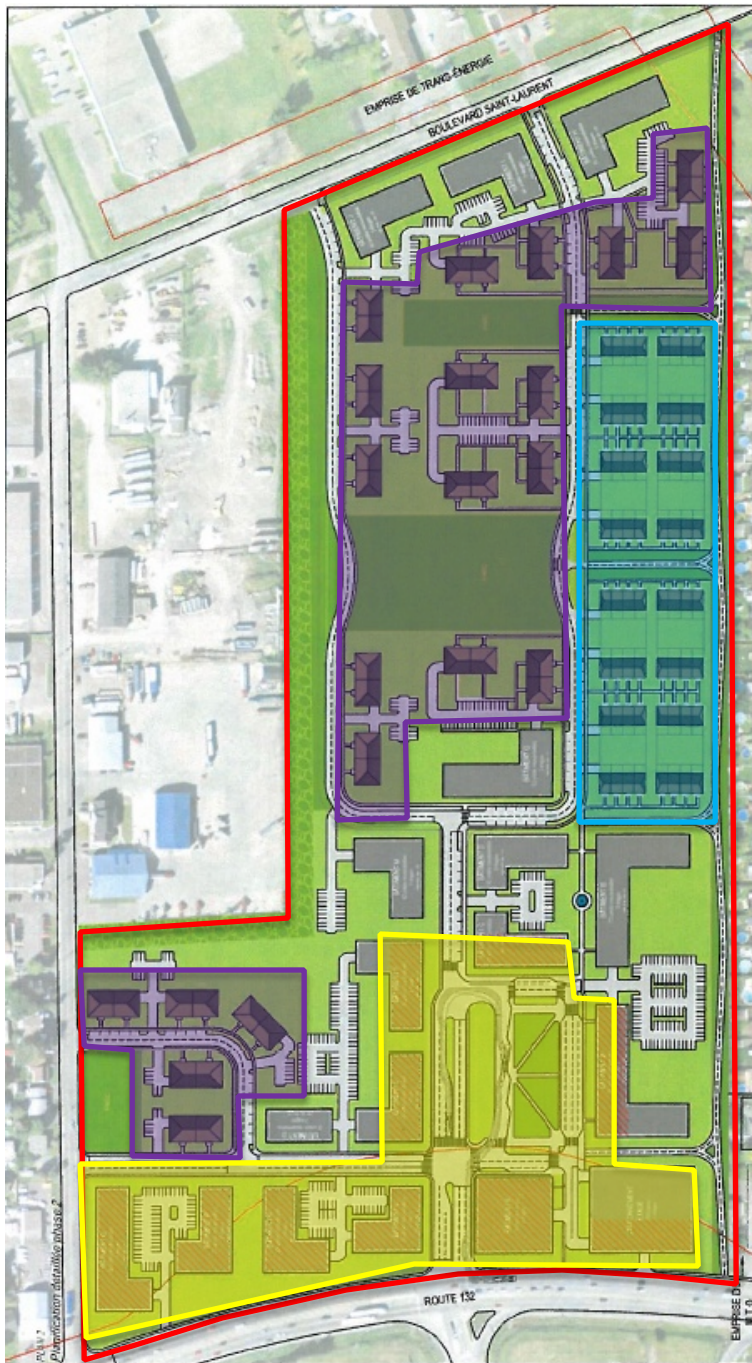
Residential density

Townhouses

Multi-unit buildings
(6 units per 3-storey building)

Commercial & residential
(30-70 units per 3-storey building)

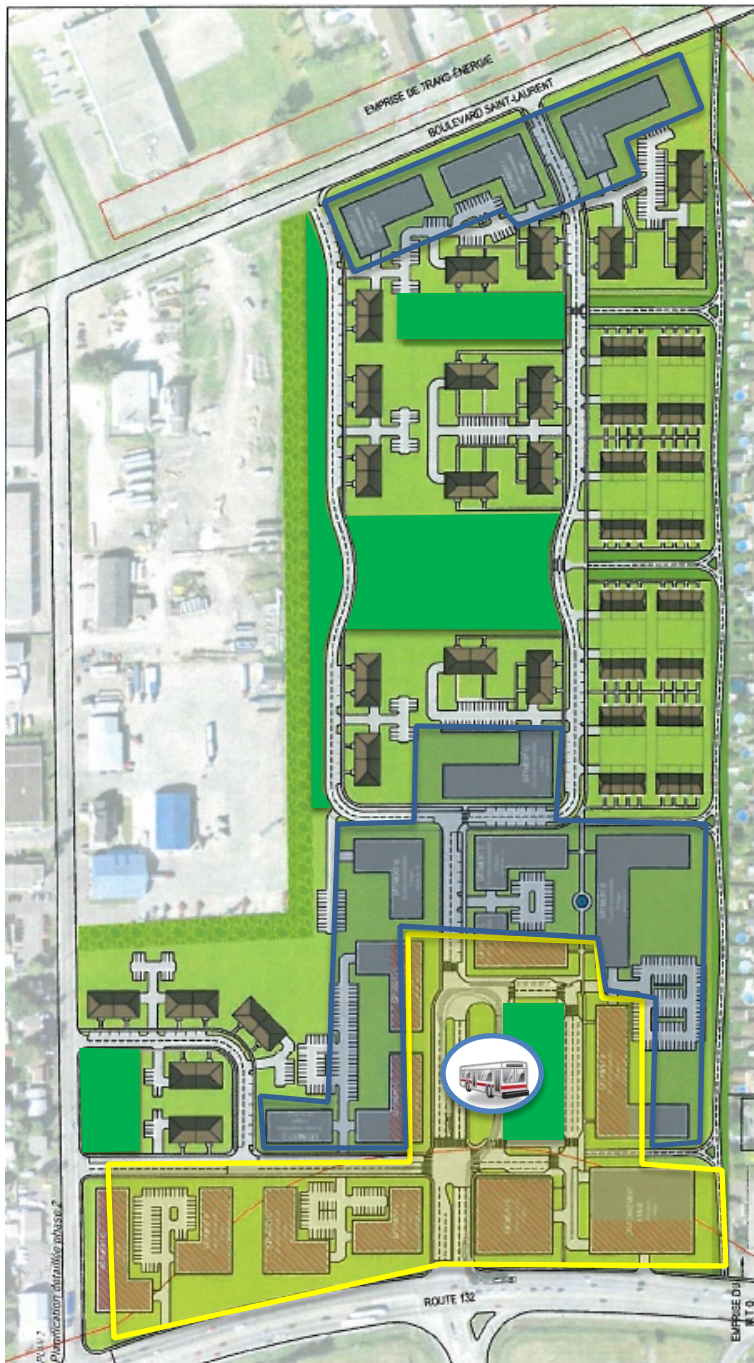
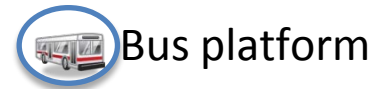
45 dwellings/hectare



Destinations

Commercial

Commercial & residential
(Ground floor = commercial)



Parking

Residential parking:

- exterior: 501
- interior: 1275
- on street: 111

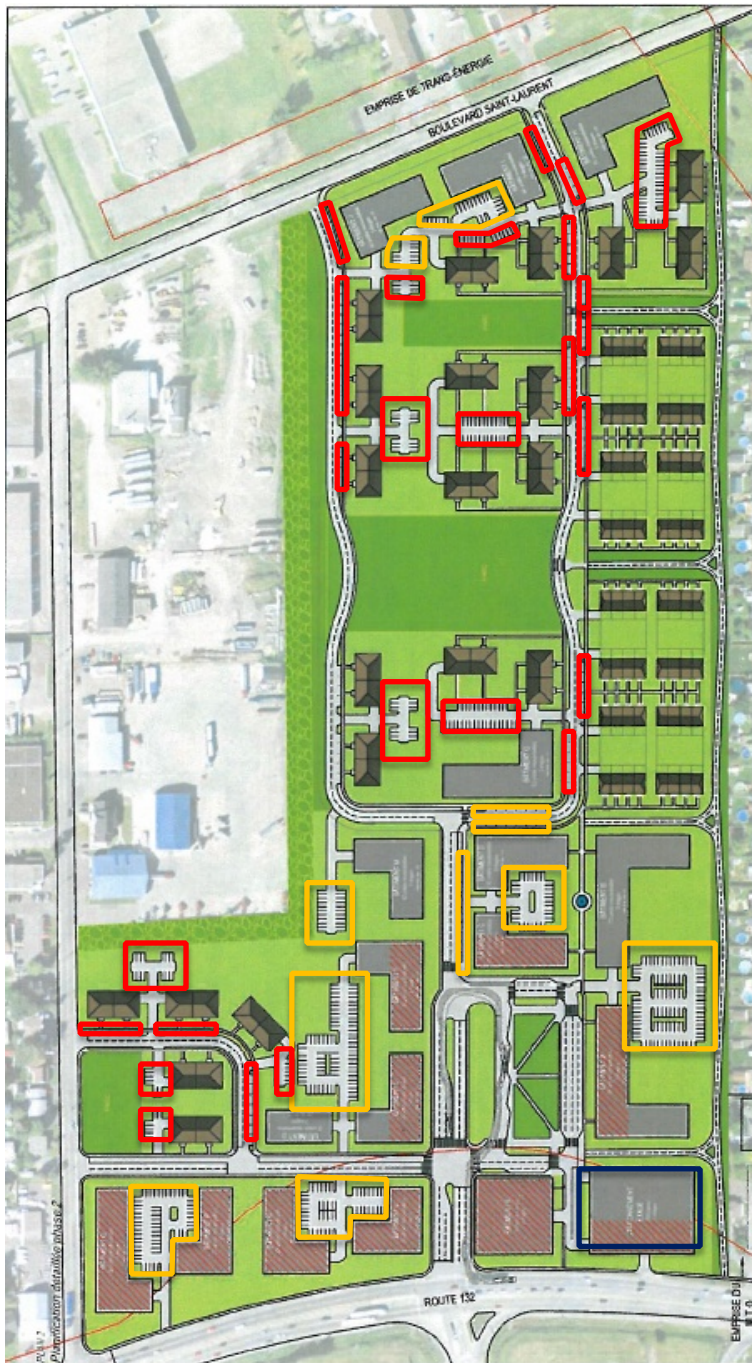
Total: 1887

Commercial parking: 465

Park and ride:

- parkade: 288

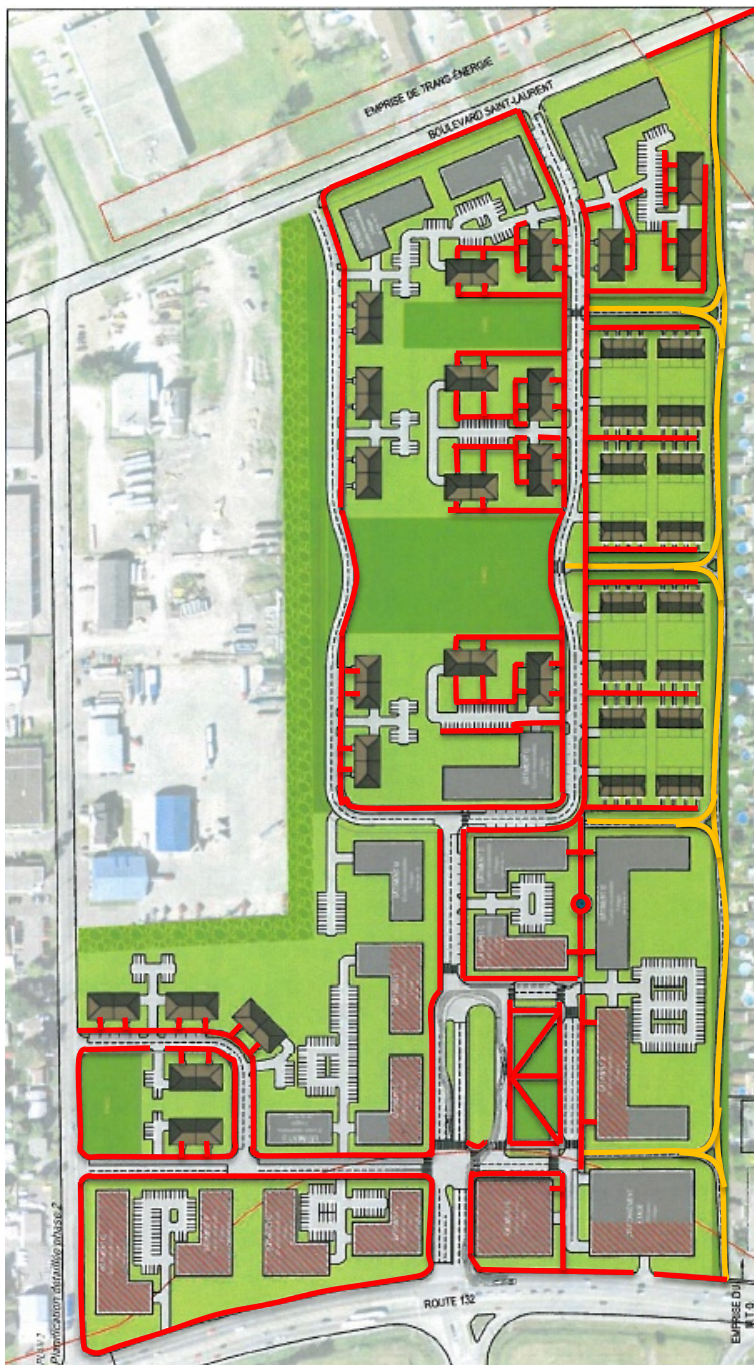
Total: 288



Connectivity

Sidewalk

Bike path



Recommendations (development area):

- 1.
- 2.
- 3.
- 4.
- 5.



Analyzing the study area

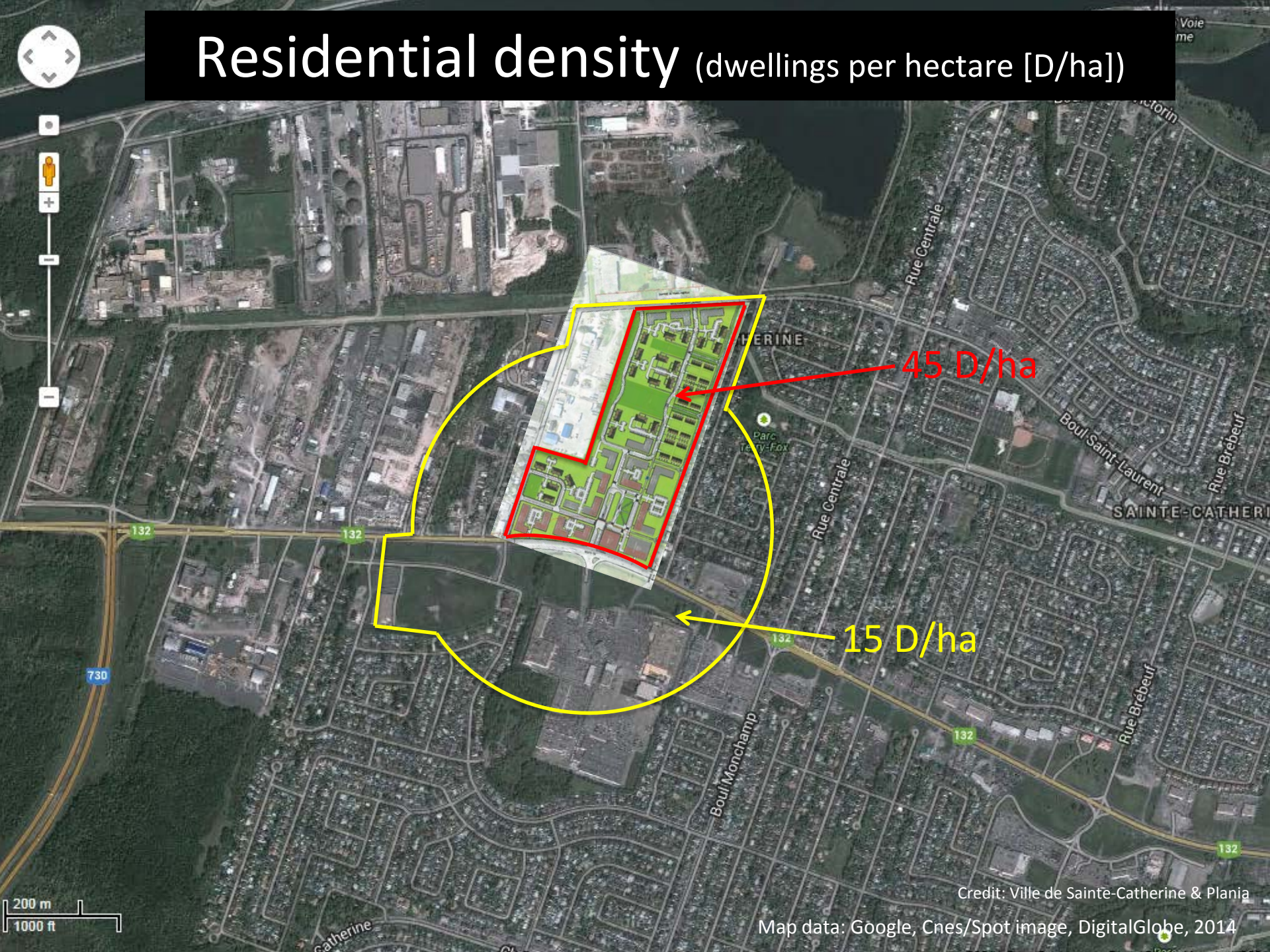


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Residential density (dwellings per hectare [D/ha])



Credit: Ville de Sainte-Catherine & Plania

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

Destinations



Bus platform



Daycare facility



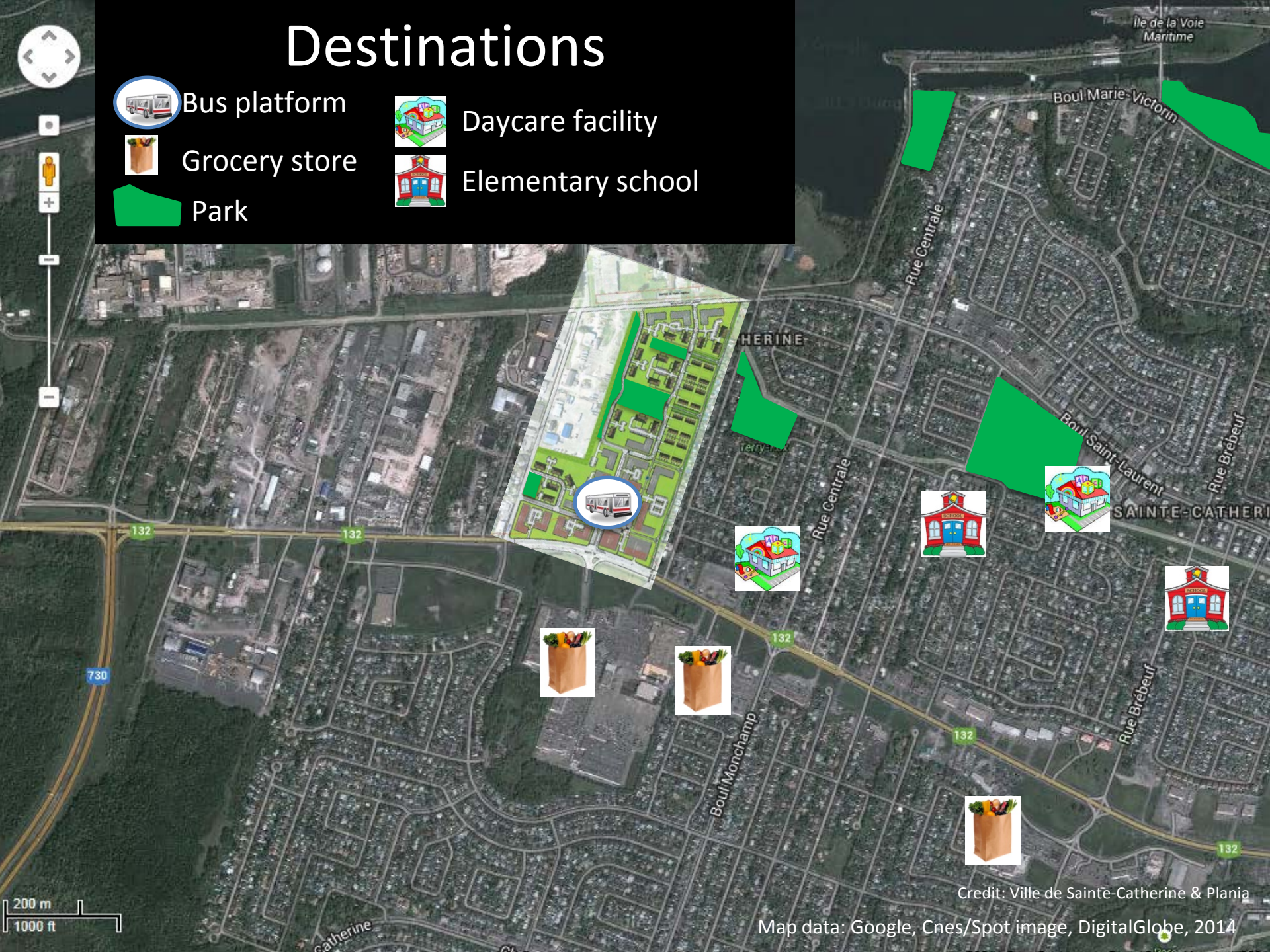
Grocery store



Elementary school



Park



200 m
1000 ft

Credit: Ville de Sainte-Catherine & Plania

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

Connectivity

Sidewalk

Bike path



Bus platform



Grocery store



Park



Daycare facility



Elementary school

200 m
1000 ft

Credit: Ville de Sainte-Catherine & Plania

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

Connectivity

Sidewalk

15 min. walk

Bike path

15 min. by bike



Bus platform



Grocery store



Park



Daycare facility



Elementary school

200 m
1000 ft

Credit: Ville de Sainte-Catherine & Plania

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Recommendations (study area):

- 1.
- 2.
- 3.
- 4.
- 5.




Presenting a coherent set of recommendations



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Comparing with the “real” report



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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.).





Credit: Ville de Sainte-Catherine & Plania

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.





Sidewalk

Bike path

HERINE

Parc Terry-Fox

Île de la Voie Maritime

SAINTE-CATHERINE

Credit: Ville de Sainte-Catherine & Plania

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

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