# Co-Designing the Active City


## *Participatory* Urban Planning:

## An Approach to Foster the Development of Healthy Built Environments

Our mission today

Help you understand the impacts of urban planning on health and equity, and the importance of using a particiaptory co-design approach!

Centre d'écologie urbaine de Montréal

the centre for active transportation

Sustainable Calgary

# Today's Presenter

## FRANCIS NASCA

**Evaluation Coordinator**
Active Neighbourhoods Canada

**Project Manager**
The Center for Active Transportation

**Master of Arts in Sustainability Studies**
Trent University

# Active Neighbourhoods Canada (ANC)

**CO-DESIGNING THE ACTIVE CITY**

- **Partnership between 3 Canadian organizations**
  1. Montreal Urban Ecology Centre
  2. The Centre for Active Transportation
  3. Sustainable Calgary

- **Develop, pilot, and share approaches to co-designing active neighbourhoods**
- **Support walking, cycling, and other means of active transportation for everyone, by providing safe and welcoming urban design**
- **Health, Equity, and Built Environment = Participatory Planning**

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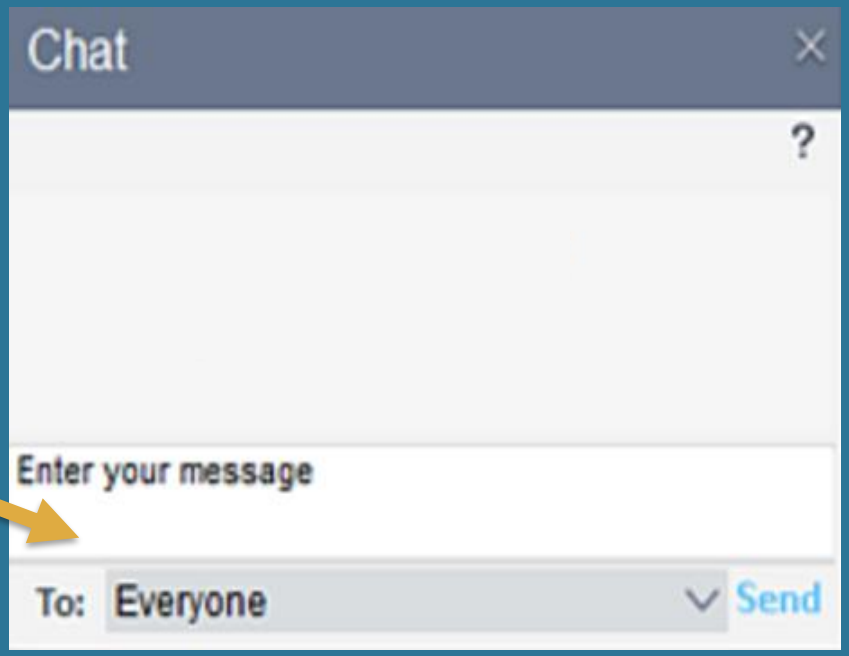
# Today's Plan

1. Citizen Participation: what you need to know
2. Participatory Planning Health Impacts
3. Case study – Laval, Quebec
4. Participatory Planning Equity Impacts
5. Case studies – Toronto & Montreal
6. Q&A (15 min)

# Q&A Session

Ask your questions here!




ParticipatoryPlanning.ca

# Citizen Participation

# Principles of Co-Design

- Residents are **experts**
- Participation builds **equity**
- Planning can be **FUN!**
- **Combining knowledge** creates strong outcomes
- **Collaboration** is key
- Community plans are **living documents**

# Citizen participation: why?


- **Supplement the technical knowledge** of urban deisgn professionals by informing them about day-to-day use of an area
- Prioritize needs of specific populations, and target **specific locations**
- Build community ownership of the project, and enhanced buy-in **by the community**, etc.

# What literature tells us…

" Residents need to be involved in shaping their neighbourhoods because they hold knowledge that is qualitatively and quantitatively different from that of urban planners. "

(Cohen, 2014)

Community Development Journal

# Citizen participation:
# How to Increase it and Make it Inclusive?

- No **finished** project **before** public consultation
- Not necessary to ask everyone's opinion all the time: find multiple opportunities and mechanisms to engage diverse voices
    - Immigrants, the elderly, young people, women, etc.
- Consult **beforehand** and from the **start** and **throughout** the process
- Find solutions **collectively**

# Participatory Urban Planning Process

## 1. LAUNCH

*Establish a partnership with local stakeholders and define the action plan.*

- Municipal elected officials, professionals
- Community organizations
- Citizens

## 2. UNDERSTAND

*Create a diagnostic portrait of the use of public space.*

- Exploratory walks
- Survey
- Asset mapping observation

## 3. EXPLORE

*Identify design scenarios that will meet the needs and resolve issues.*

- Co-design workshops

## 4. DECIDE

*With the different stakeholders, validate and improve the solutions developed.*

- Work session
- Validation workshop
- Develop Vision document

## 5. ACT

*Implement the design solutions and offer public commitments.*

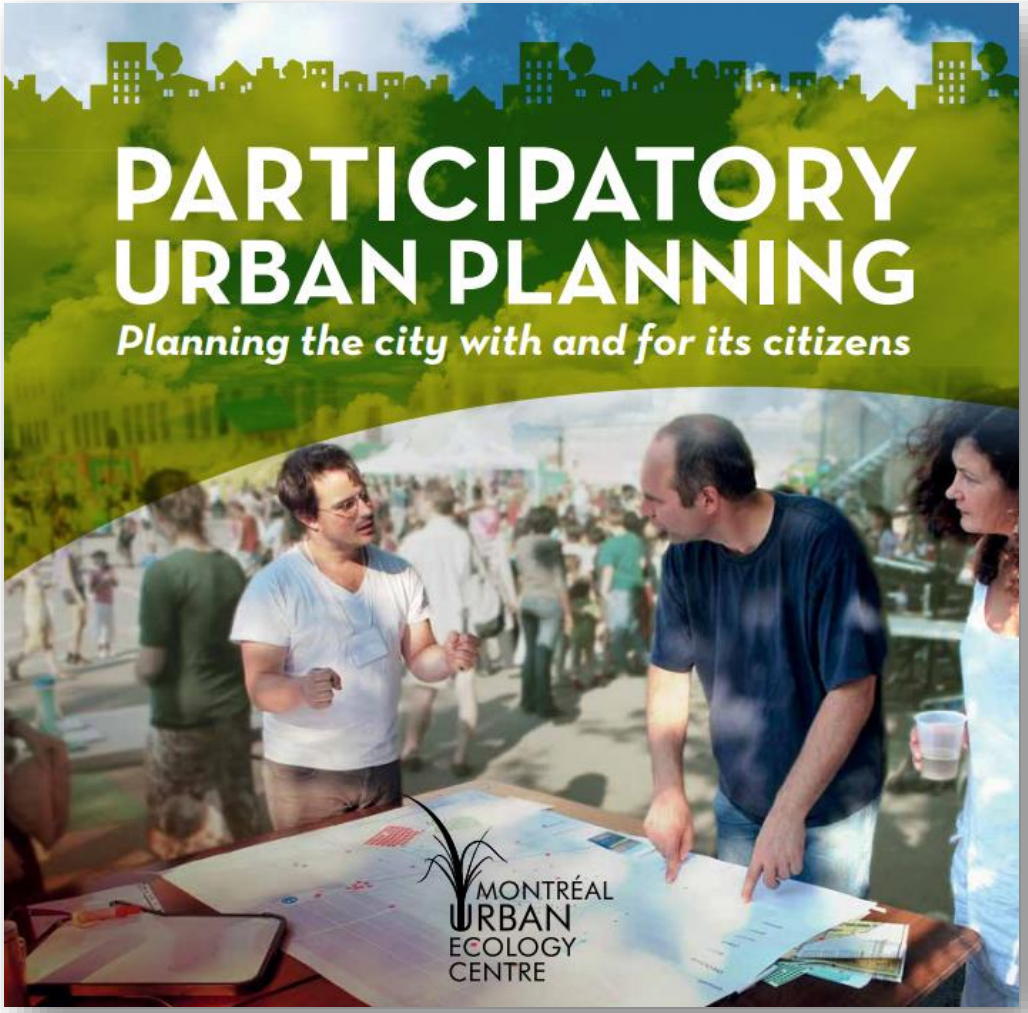
- Planting
- Pilop project
- Implementation

## 6. INAUGURATE

*Celebrate the project's accomplishments with a mobilizing event.*

- Launching celebration
- Press conference

# Participatory Urban Planning Guide

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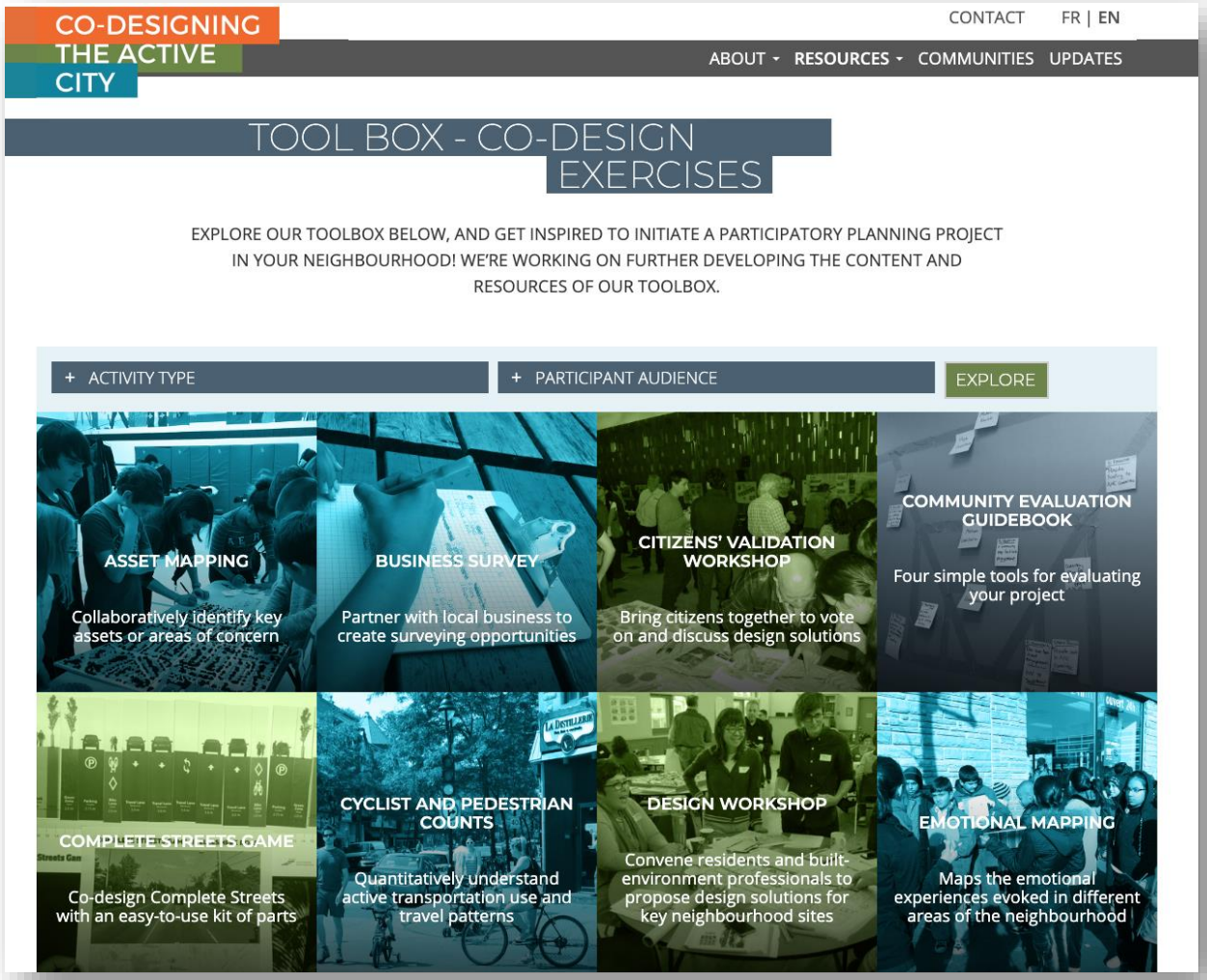
# Tools for Participatory Planning



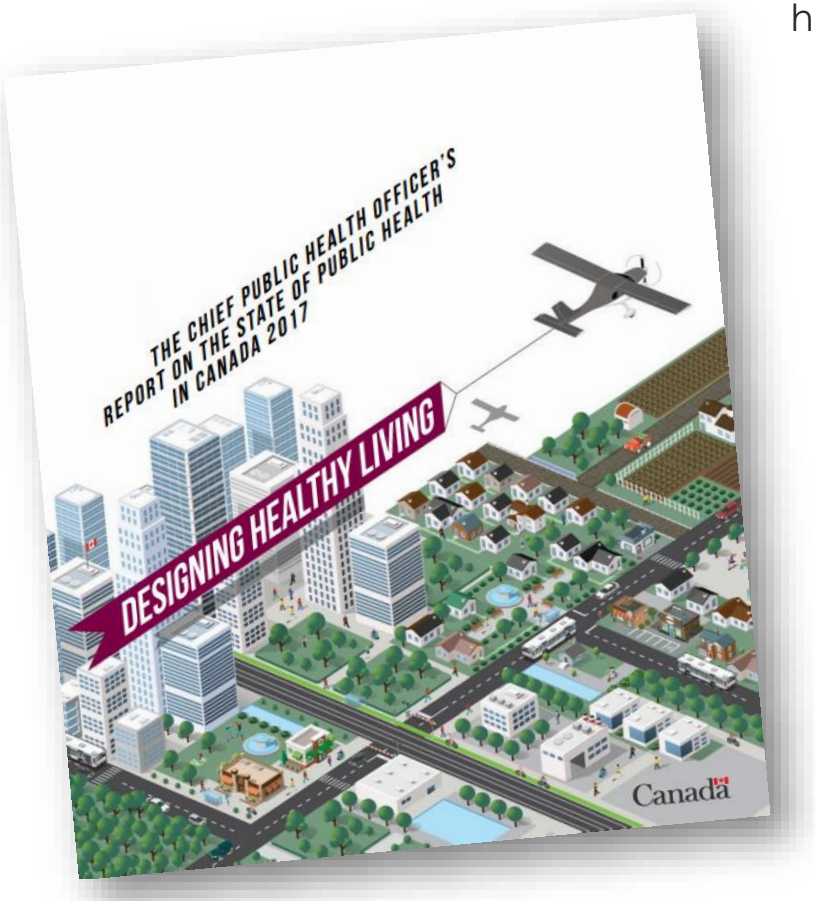
# Participatory Urban Planning & Impacts on Health

# Canadians are sedentary

## Obesity and Excess Weight Rates


Source: Public Health Agency of Canada. (2017). Tackling Obesity in Canada

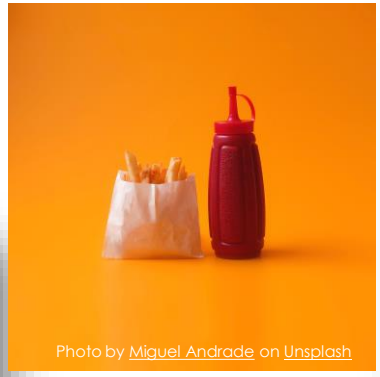
# Link between built environment & health



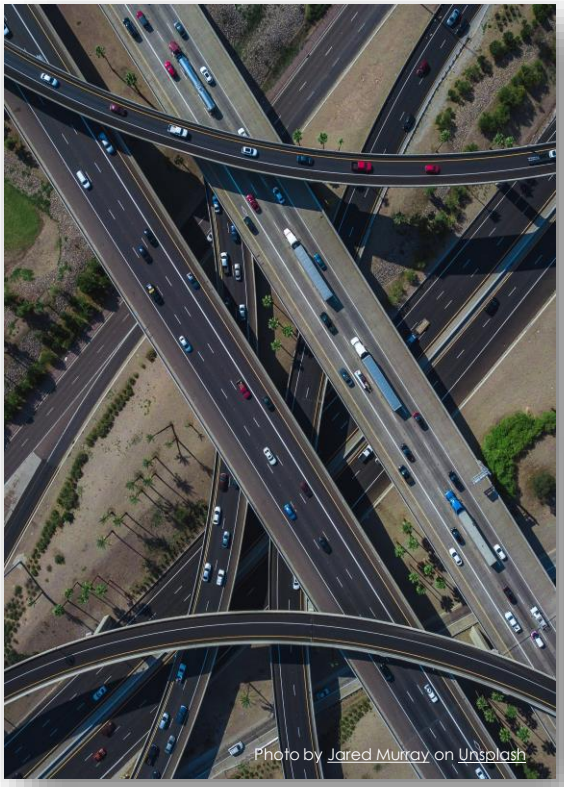

" Without being aware of it, our neighbourhoods and how they are built influence how healthy we are. "

**Dr. Theresa Tam**
Chief Public Health Officer of Canada

# Decline in Physical Activity & Health Problems: Why?








# Built environment benefits on Health

## Neighbourhood Features

- Mixed land use
- Compactness
- Connectivity
- Destinations nearby
- Public transit
- Sidewalks, bike lanes
- Recreation areas and facilities
- Green space
- Attractiveness

## Human Response

- Physical activity

## Health Outcomes

Reduced risk for:

- Premature death
- Obesity
- Diabetes
- Cardiovascular disease
- Cancer
- Poor mental health

# Neighbourhood Features that Favor Active Transportation

**Neighbourhoods Features**

- Mixed land use
- Compactness
- Connectivity
- Destinations nearby
- Public transit
- Sidewalks, bike lanes
- Recreation areas and facilities
- Green space
- Attractiveness

" Mixed land use refers to the presence of **different activities in the same place**: residential and socio-economic activities (offices, shops, institutions, public services, parks, etc.) "

(Vivre en Ville)

# Neighbourhood Features that Favor Active Transportation

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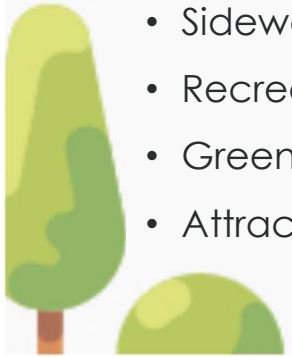

" Compactness refers to the relation built and undeveloped environment. It is a way of land use by **limiting gaps and discontinuities**. The compactness allows to create living environments both **dense** and friendly, respectful of the human scale, and favorable to creating a city of short distances. "

(Vivre en Ville)

# Neighbourhood Features that Favor Active Transportation

## Neighbourhoods Features

- Mixed land use
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" Good connectivity means that the streets allow **varied and continuous routes** within the neighbourhood and out of it. This feature promotes walking and cycling, by providing **more travel options and maximizing their efficiency**. "

(Vivre en Ville, 2012)

# Neighbourhood Features that Favor Active Transportation

## Neighbourhoods Features

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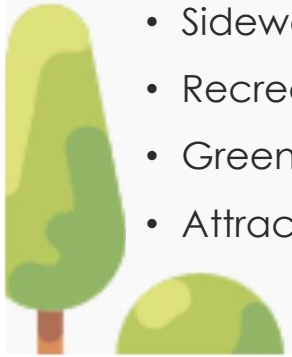


- Well maintained sidewalks with reasonable width
- Unidirectional bike lanes
- Human scale lighting
- Greenery (trees and other plants)
- Furniture (benches, tables, parklets)

# To Avoid

# What literature tells us…

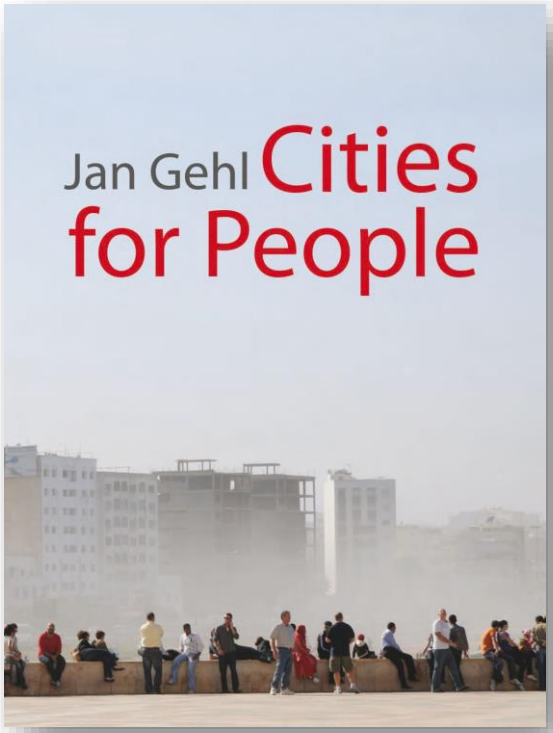
" Providing new sustainable transport infrastructure is effective in promoting an increase in active commuting. "

(Panter & al. 2018)

AJPM American Journal of Preventive Medicine

A Journal of the American College of Preventive Medicine and Association for Prevention Teaching and Research

# What literature tells us…




" If old and new neighbourhoods were built so that walking and cycling would meet the needs of daily transportation, a lot of health problems would be solved. "

(Gehl, 2012)

# What literature tells us…

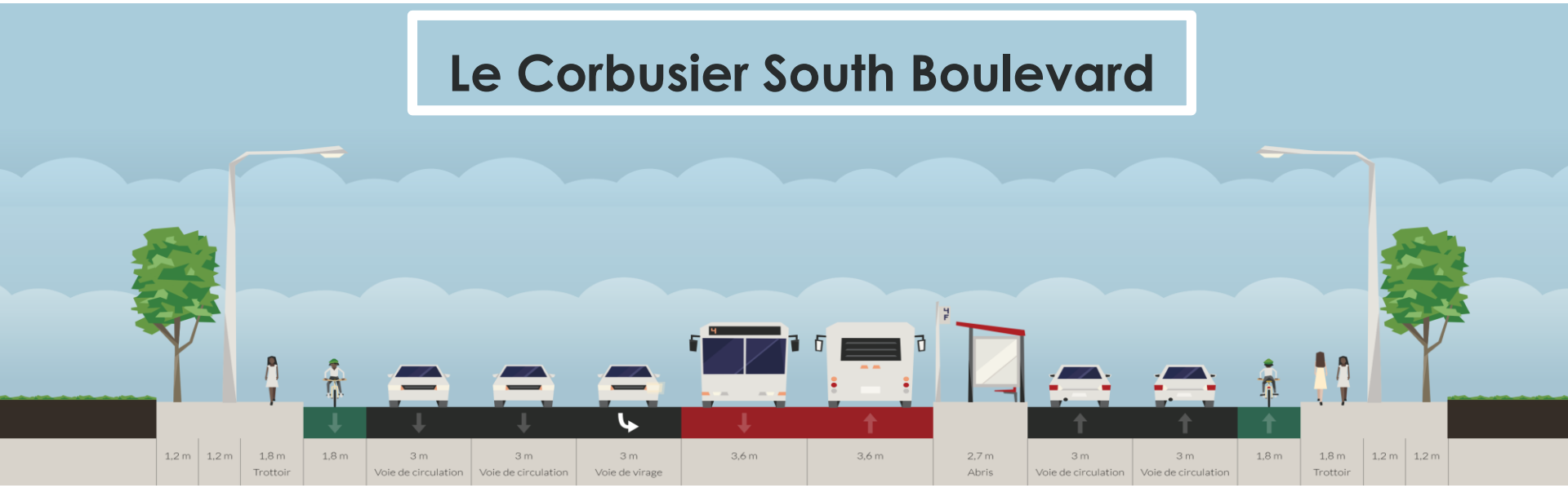
" If the built environment stimulates increased vehicular travel, this may increase per capita vehicle emissions, and these may increase exposure to pollutants and risk of respiratory and cardiovascular ailments. "

(Frank & al., 2006)

# Case Study – Laval

## Le Corbusier South Boulevard

# Case Study – Laval



# Case Study – Laval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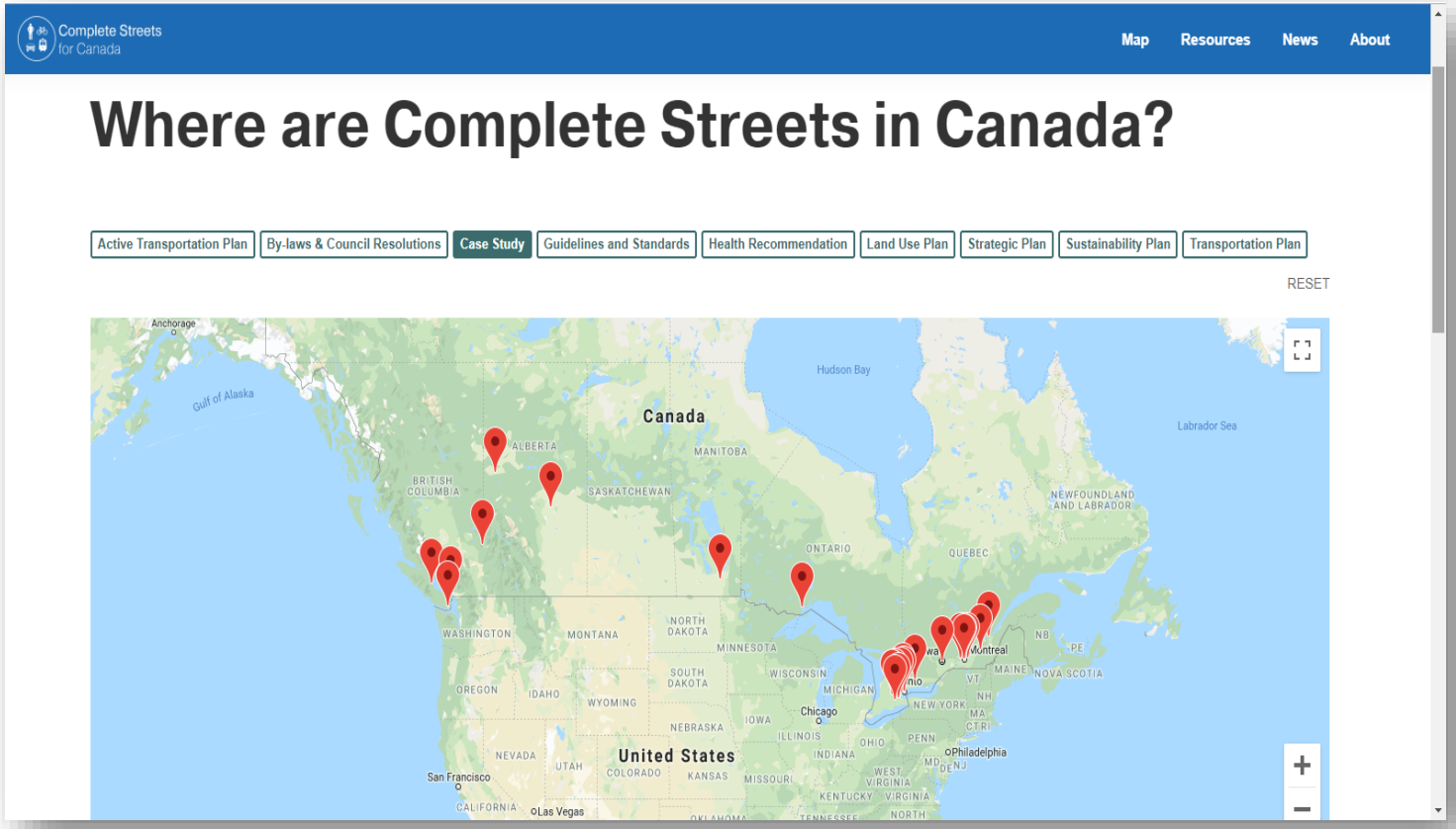



CompleteStreetsForCanada.ca

# Participatory Urban Planning & Impacts on Equity

# What is Equity?

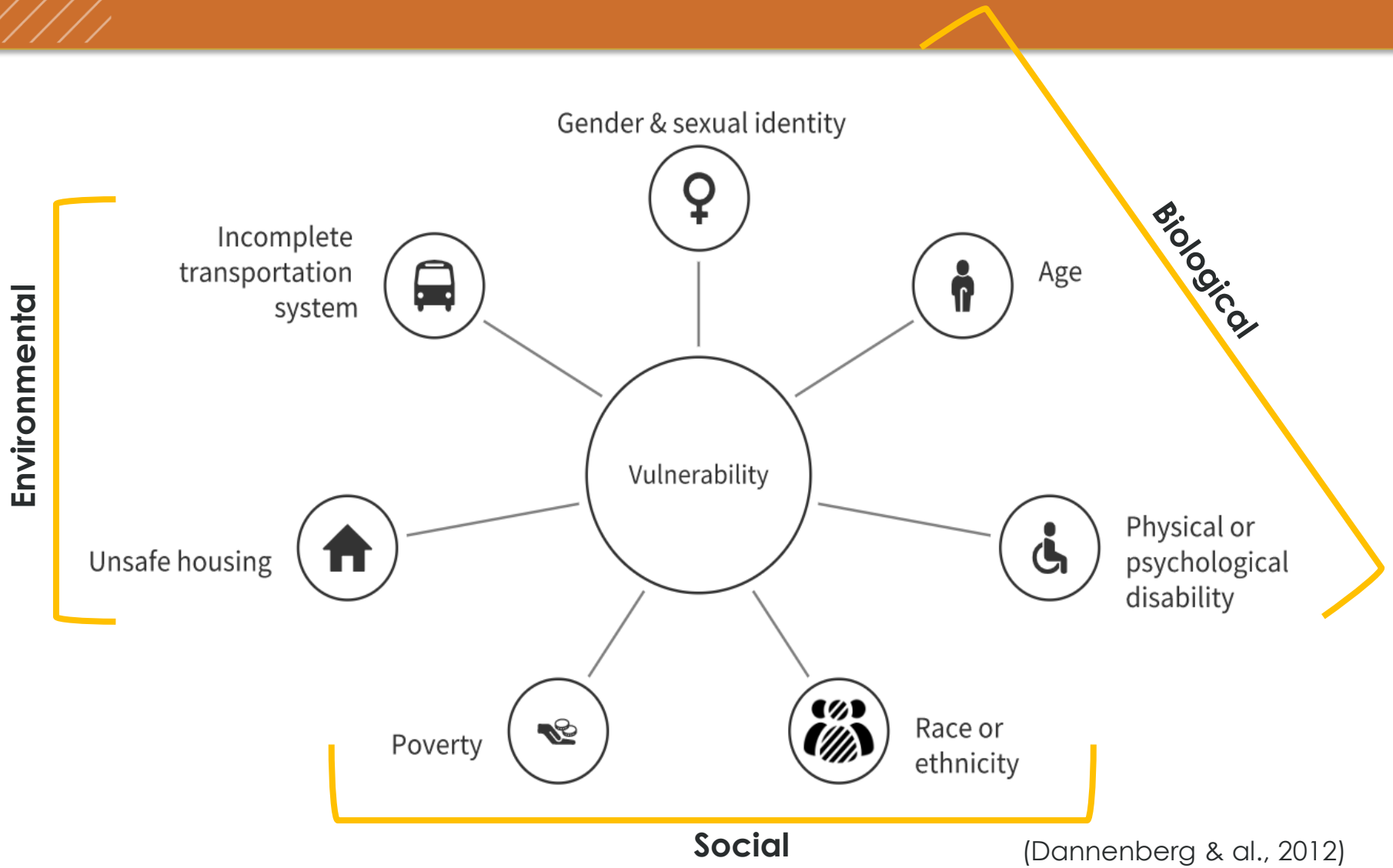

" The **fair** and **impartial** allocation of resources based on the **needs** of the population. "

(Martinson, 2018)

# What is Equity?

***Participatory*** **Planning = Equity Tool**

# Who does vulnerability affect?




(Dannenberg & al., 2012)

# Who does vulnerability affect?

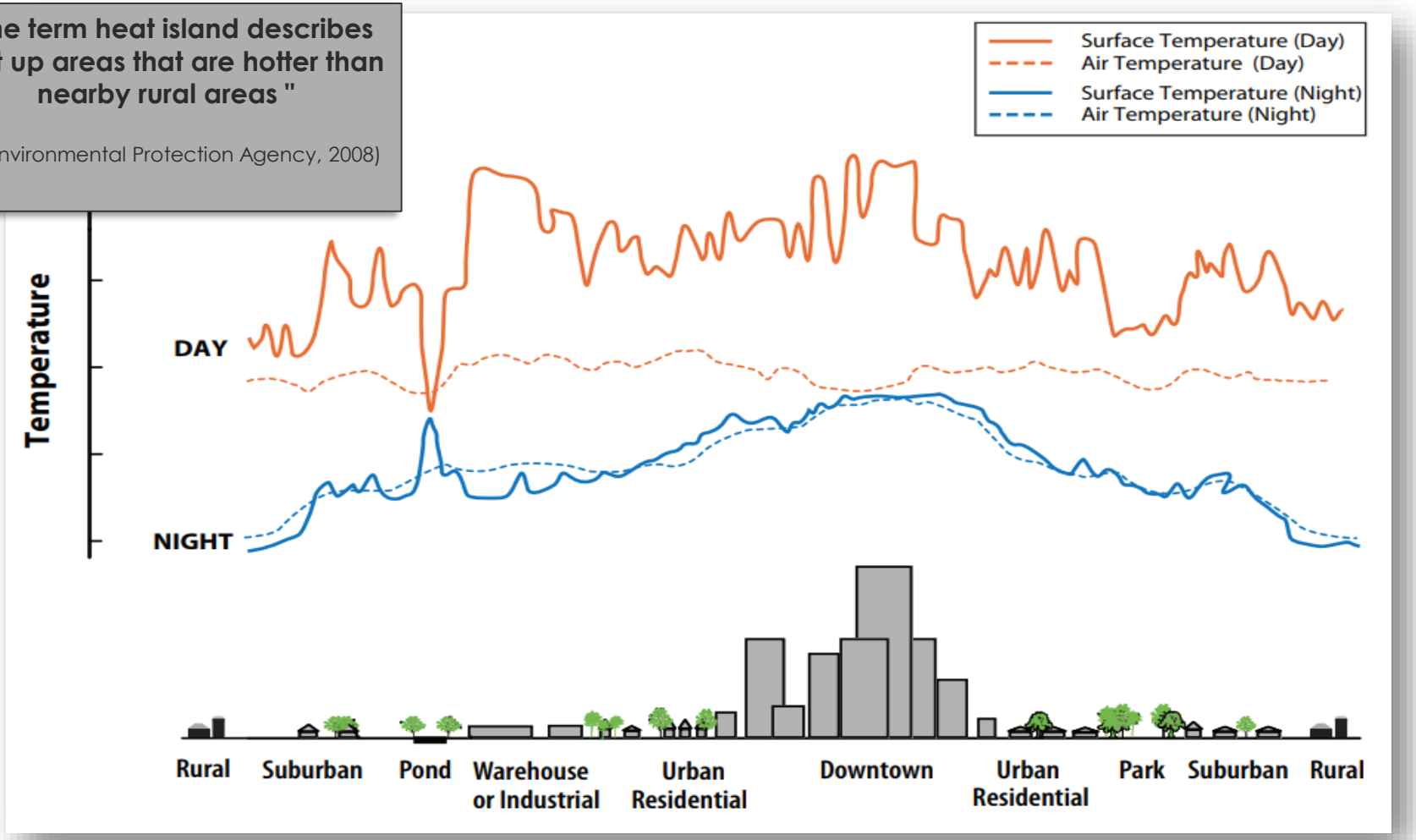
**The environement in which we are born and grow up determines vulnerability.**

(Santé Montréal, 2014)

# Inequity: Heat Islands & Vulnerability

**" The term heat island describes built up areas that are hotter than nearby rural areas "**

(US Environmental Protection Agency, 2008)

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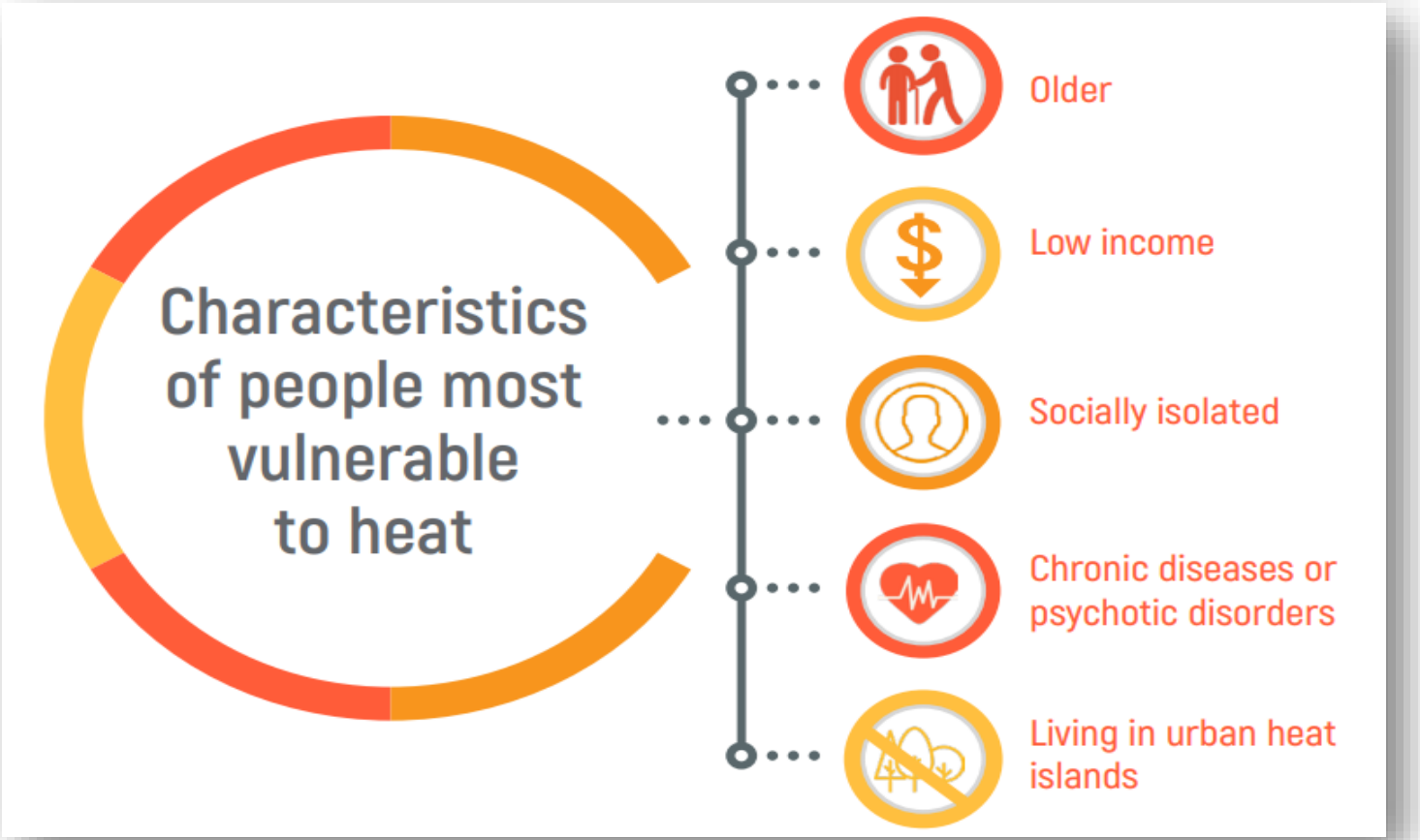
# Inequity: Heat Islands & Vulnerability




(US Environmental Protection Agency, 2008)

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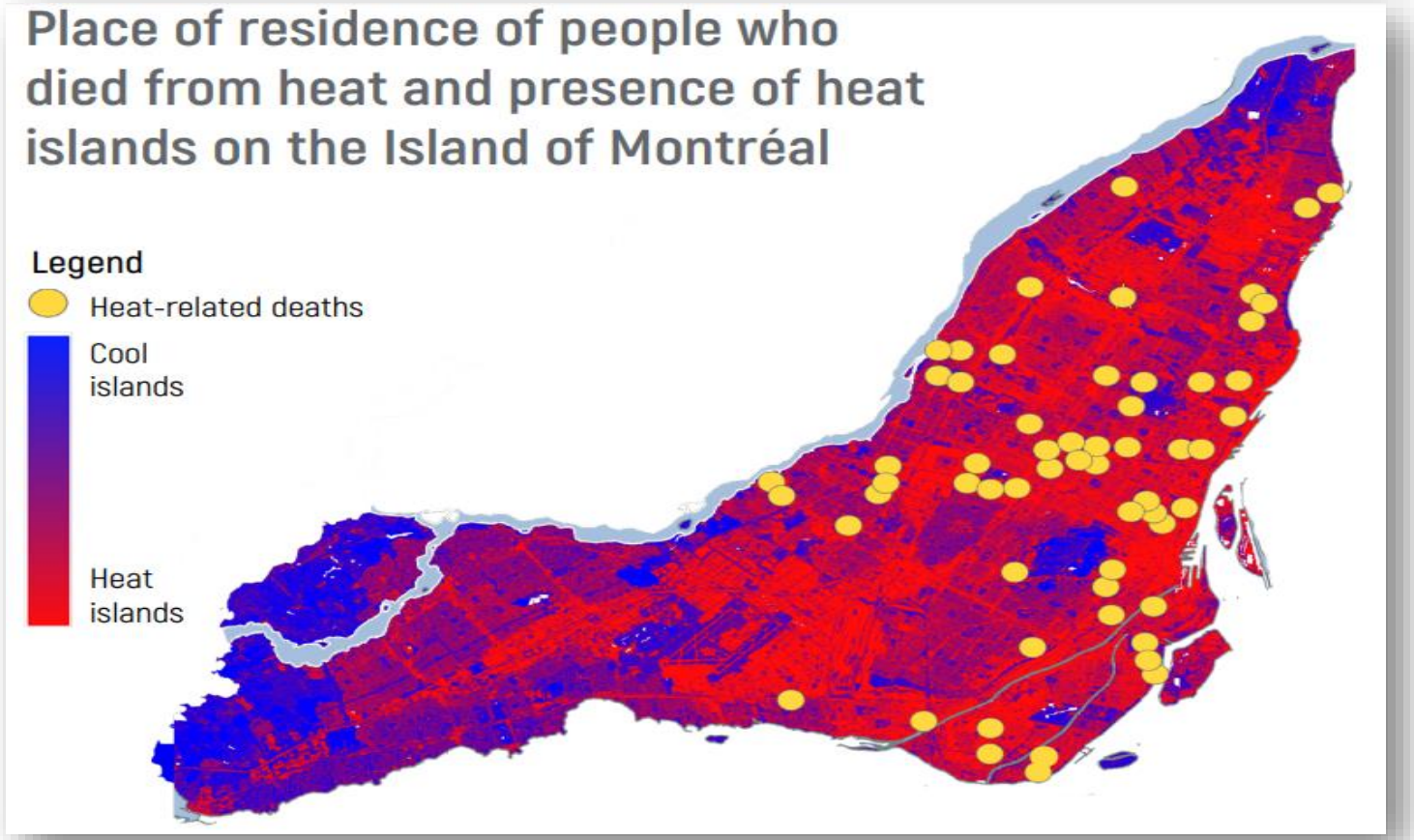



(Direction générale de santé publique, 2018)

# Inequity: Heat Islands & Vulnerability

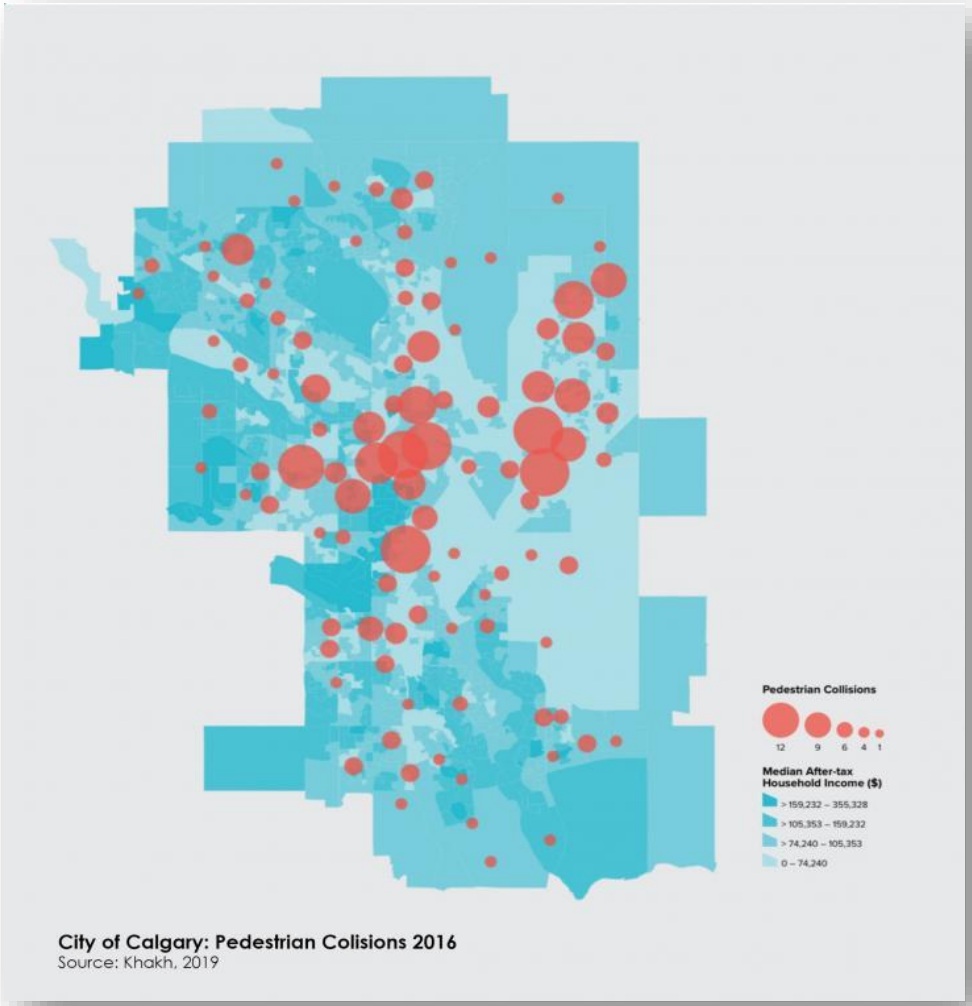
**Vulnerable people are twice as likely to die during an extreme heat event**

(Direction générale de santé publique, 2018)

# Inequity: Heat Islands & Vulnerability

- Reduction of concrete areas
- Increase the amount of green space
- Tree plantation
- Adoption of a regulation, etc.

# Inequity: Collisions & Vulnerability




City of Calgary: Pedestrian Colisions 2016
Source: Khakh, 2019

" […] most of these **collisions** happened in the North-Eastern part of the city. These neighbourhoods are not only some of Calgary's **lowest income communities**, but they also have a higher proportion of new Canadians. "

# Inequity: Collisions & Vulnerability

## Neighborhood Social Inequalities in Road Traffic Injuries: The Influence of Traffic Volume and Road Design

Patrick Morency, MD, PhD, Lise Gauvin, PhD, Céline Plante, MSc, Michel Fournier, MA, and Catherine Morency, PhD

*Objectives.* We examined the extent to which differential traffic volume and road geometry can explain social inequalities in pedestrian, cyclist, and motor vehicle occupant injuries across wealthy and poor urban areas.

*Methods.* We performed a multilevel observational study of all road users injured over 5 years (n = 19 568) at intersections (n = 17 498) in a large urban area (Island of Montreal, Canada). We considered intersection-level (traffic estimates, major roads, number of legs) and area-level (population density, commuting travel modes, household income) characteristics in multilevel Poisson regressions that nested intersections in 506 census tracts.

*Results.* There were significantly more injured pedestrians, cyclists, and motor vehicle occupants at intersections in the poorest than in the richest areas. Controlling for traffic volume, intersection geometry, and pedestrian and cyclist volumes greatly attenuated the event rate ratios between intersections in the poorest and richest areas for injured pedestrians (–70%), cyclists (–44%), and motor vehicle occupants (–44%).

*Conclusions.* Roadway environment can explain a substantial portion of the excess rate of road traffic injuries in the poorest urban areas. (*Am J Public Health.* 2012;102:1112–1119. doi:10.2105/AJPH.2011.300528)

Injuries resulting from road crashes are leading causes of death and disability worldwide.[1] Although the number and rate of road deaths have decreased in industrialized countries, they remain a major public health burden, with approximately 40 000 and 3000 road deaths annually in the United States and Canada, respectively, and thousands more injuries.[1,2] For pedestrians, decreases may reflect a reduction of the exposed population, as, currently, fewer people walk as a mode of transportation.[3–5]

There are significant social inequalities in road crashes, injuries, and deaths between and within countries.[1,6–8] Within countries and cities, motor vehicle injury and death rates have been shown to vary according to individual and neighborhood socioeconomic positions, with greater rates among the least well off.[9–13]

Although many different factors, related either to individuals, vehicles, or the environment, contribute to creating such social inequalities, they should be understood in light of some mechanisms involved in the occurrence of road traffic injuries (RTIs). First, moving vehicles are the primary cause of road crashes: deaths and injuries result from the transfer of a motor vehicle's kinetic energy at a rate that exceeds the human body's protective capacity.[14] Second, the burden of RTIs on population health is related to exposure to risk of crash.[1] Risk exposure can be estimated by distance traveled for drivers or traffic volume for streets and intersections.[15,16] Two California studies on neighborhood exposure to motor vehicles showed a greater likelihood of higher traffic volumes in the poorest census block groups and around schools in deprived areas.[17,18] Third, the number of injured pedestrians and cyclists is also related to the number of people exposed.[19,20] Thus, in a given environment, the more people walking, the more injured pedestrians. Fourth, the physical environment has a strong influence on the likelihood of injuries.[21] Road widening increases crashes, whereas traffic calming and 20 mile per hour zones greatly reduce their occurrence.[22–26] In London, United Kingdom, the deprived areas have a larger proportion of traffic-calmed roads,[27] whereas in Montreal, Canada, urban environment safety for pedestrians and cyclists is associated with greater neighborhood affluence.[28]

Two broad categories of factors—individual and contextual—can explain neighborhood inequalities in RTIs.[12,13] Although income and education levels are well-documented individual factors, a recent multilevel analysis demonstrated that the socioeconomic characteristics of individuals and communities exerted independent and additive effects on risk of road death.[9] Cross-sectional surveys have shown that children from lower income families and those living in downtown areas cross more roads, encounter more motor vehicles every day, and have a higher risk of injury.[29–34]

Several ecological investigations have shown the influence of population characteristics and environmental context on the geographical distribution of pedestrians and cyclists injured in urban settings.[13,35–46] In the United States, at the county level, urban sprawl and lower density—which are known to generate more traffic—have been associated with a greater incidence of pedestrian fatalities.[35] Within a city, it is generally observed that the per capita or per road kilometer rate of injured pedestrians in a neighborhood increases with population density.[36–41] However, 1 study showed an inverse relationship when other factors were taken into account.[42] Urban areas with better public transit availability,[43] more traffic,[38,41,44] greater density of major roads, or more traffic-generating activities[37,42,45] have a higher incidence of injured pedestrians. In some studies, the proportion of low-income households, the proportion of people without access to a motor vehicle, or an index of multiple deprivation were independent risk factors for pedestrian injury.[13,39,41,43,46] The ecological design of these investigations precludes conclusions about relationships at the street or intersection level.[47]

At the intersection level, estimates from mathematical models have shown that the mean number of pedestrian crashes is approximately proportional to the square root of



6,3 times more pedestrians injured at intersections in the poorest census tracts

(Morency & al., 2012)

# Inequity: Collisions & Vulnerability


Lower collision rates in downown area

(Toronto Public Health, 2012)

# Inequity: Collisions & Vulnerability

- Pedestrian crossings
- Traffic calming
- Pedestrian traffic island, etc.

# Vision Zero

VISION ZERO

TORONTO'S ROAD SAFETY PLAN

ParticipatoryPlanning.ca

# Vision Zero

**NO LOSS OF LIFE IS ACCEPTABLE**

# Vision Zero

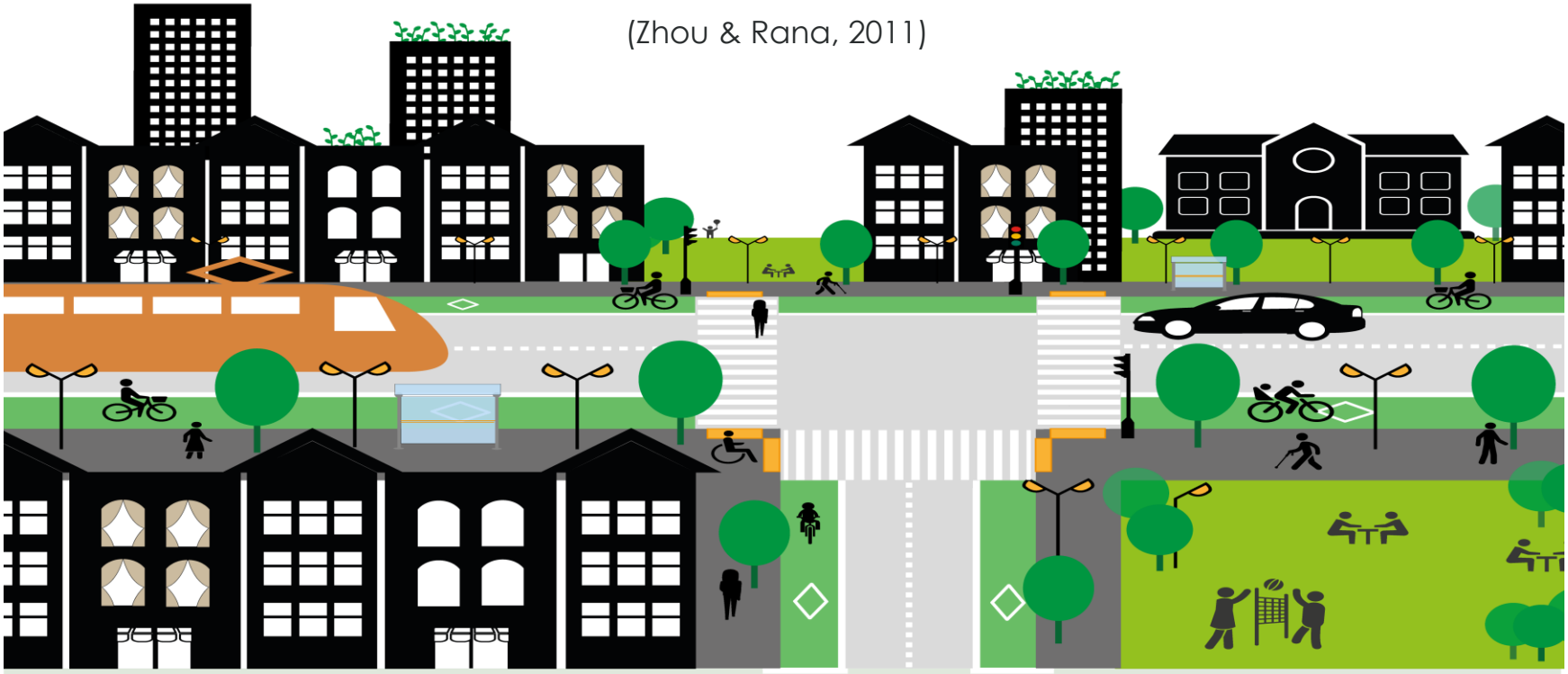
# Vision Zero


5 YEAR ACTION PLAN
2017
2018
2019
2020
2021
REDUCE AND ULTIMATELY ELIMINATE FATALITIES ON OUR ROADS

# Green Space

**“ Urban green space can be understood as an integrated area comprising natural, seminatural, or artificial green land, providing manifold benefits to different groups of people within the city extent. ”**

(Zhou & Rana, 2011)



# Green Space

School yards

Parks

Woodlands

Community gardens

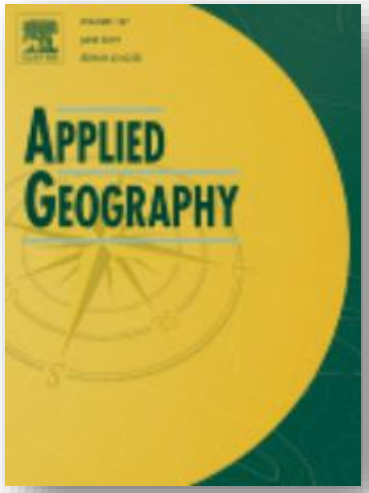
Playgrounds

Watersides

# What literature tells us…

**“ […] the access to green space which benefits the wealthy in the densest areas on the island of Montreal. ”**

(Ngom, Gosselin & Blais, 2015)



# What literature tells us…

**“ Researchers have linked poorer green space access to higher rates of overweight and obesity, […] and higher mortality risks ”**

(Dai, 2011)

**“ stress reduction ”**

(Schipperijn & al., 2009)

**“ […] promotes psychological well-being ”**

(Wolch & al., 2014)

# What literature tells us…

**“ […] alleviate public health expenses in a context of aging societies ”**

(Ngom, Gosselin & Blais, 2015)

# Case Study – Toronto

## Don Valley Ravine

The worn footpath was evidence of demand for access at this location.

# Case Study – Toronto

the centre for active transportation

"Gaining access to the ravine is key. There is so much wonderful green space bounty - yet very challenging to access."

# Recommendations

# Case Study – Montreal

**CLSC (health institution) in Hochelaga-Maisonneuve**

# Case Study – Montreal

- Inconvenience of the area
- Traffic and speed
- Lack of greenery
- Few spaces to protect pedestrians

# Case Study – Montreal

Countdown crosswalks

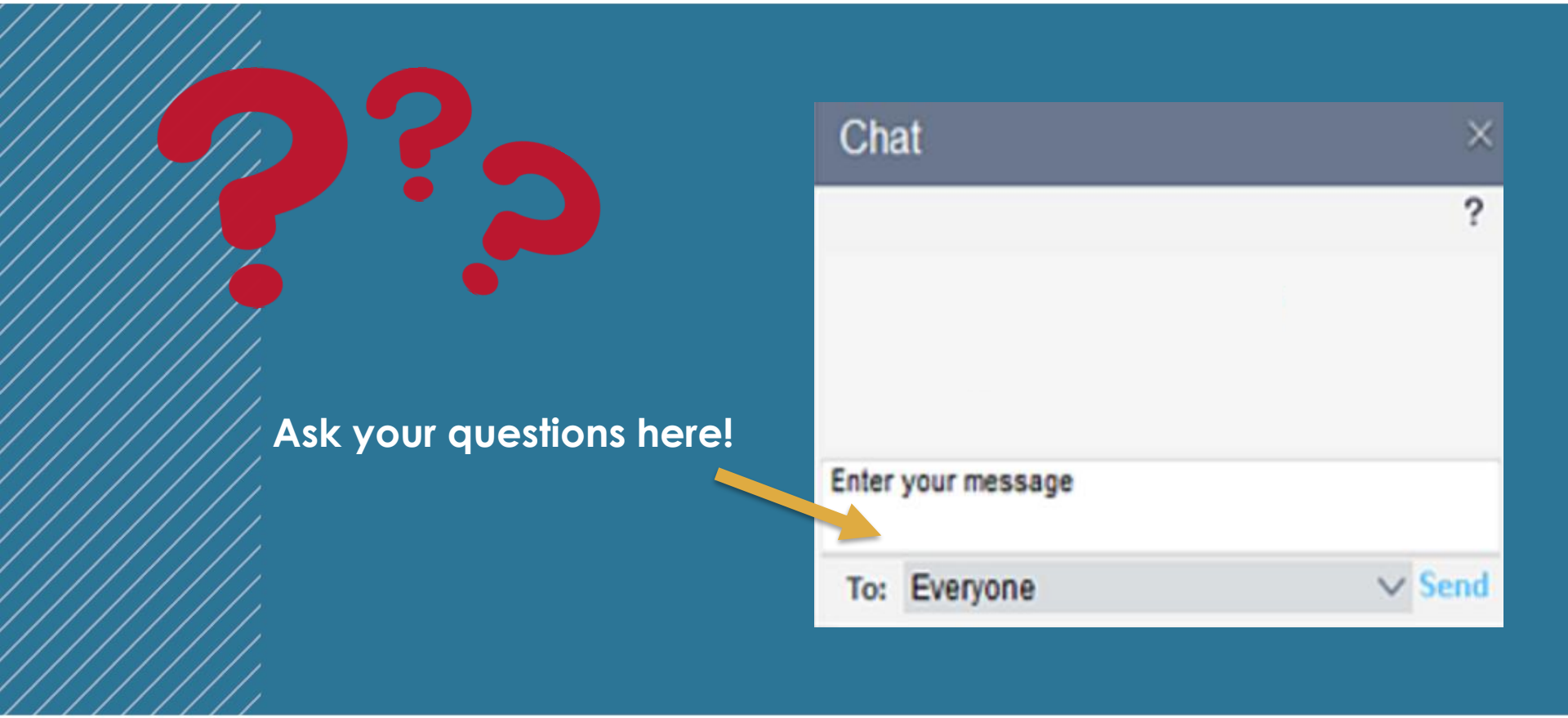
Pedestrian traffic island


Speed bumps

Benches

Greenery

# Q&A




To watch the webinar or look up at all the questions and answers, visit:

**ParticipatoryPlanning.ca**

# Upcoming Webinars


**Webinar #2**
Key tools
**English: Wednesday, August 28 2019, 1 pm (ET)**

**Webinar #3**
Inspiring projects
**English: Wednesday, November 6 2019, 1 pm (ET)**

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## Evaluation form

https://fr.surveymonkey.com/r/BWLVDXM

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