INCUBATING INTERSECTORIAL COLLABORATION FOR ACTIVE TRANSPORTATION, THE MONTREAL PUBLIC HEALTH EXPERIENCE

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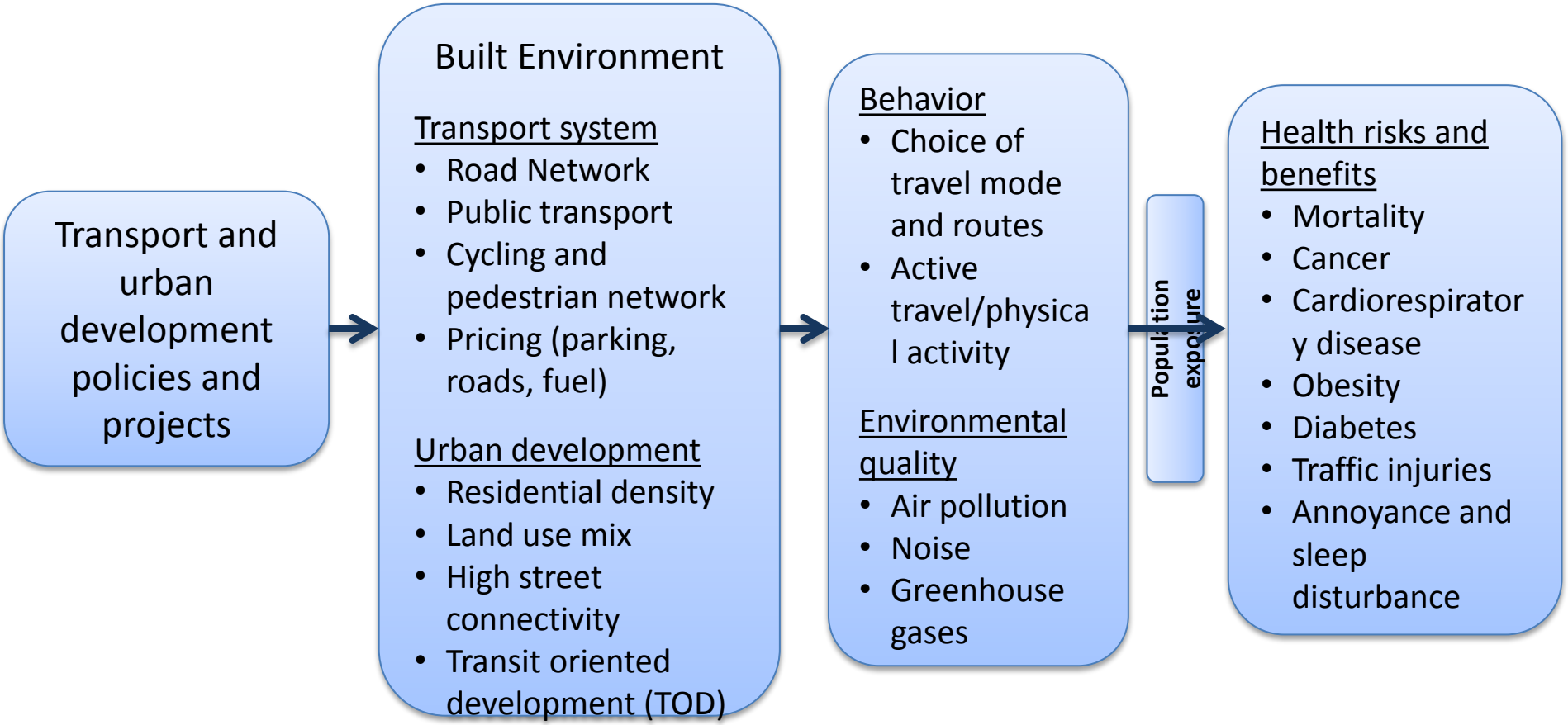
Two major issues linked to transport and urban development policies and projects

1. Urban sprawl and car oriented development contribute to many environmental and public health impacts
2. Population living in central neighborhood (the most active) is much more exposed to high volume of trafic and the risk of road injuries when walking and cycling

Public health impacts of transport and urban development systems



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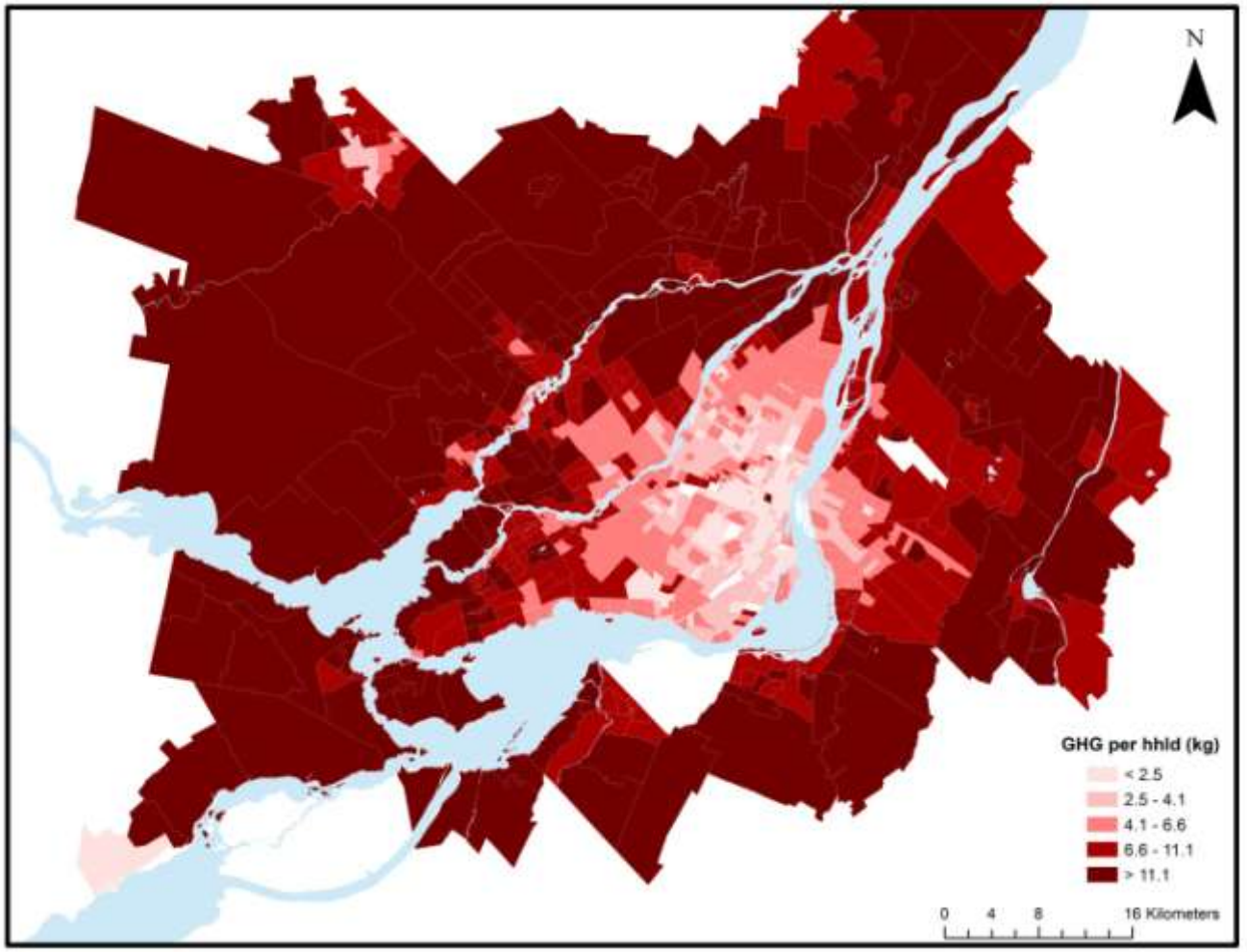
GHG per household



Source: M. Hatzopoulou, McGill university

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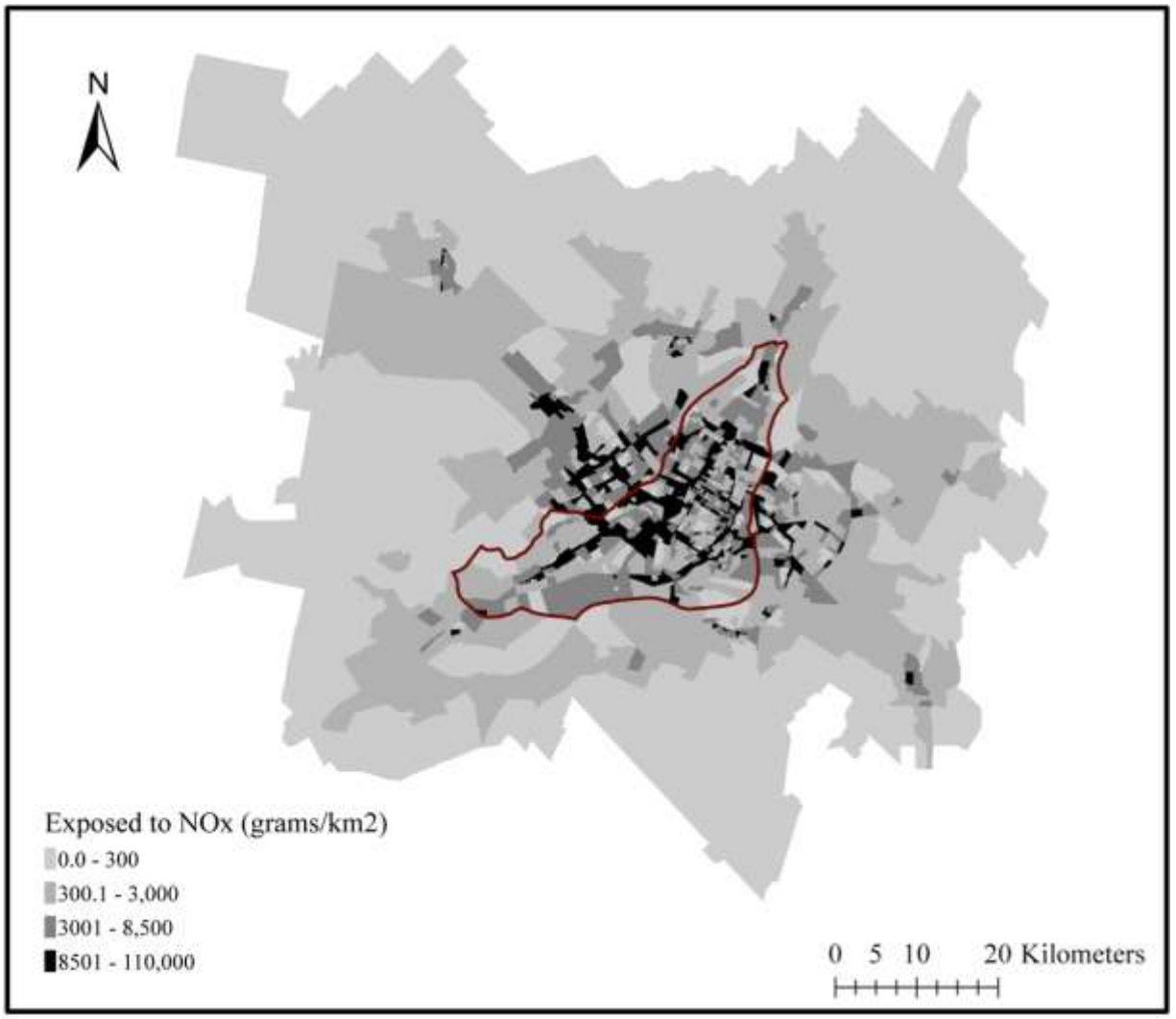
Exposure to no_x emissions per km^2 for the montreal metropolitan region



Source: T. Sider, M. Haztopoulou and N. Eluru,McGill university

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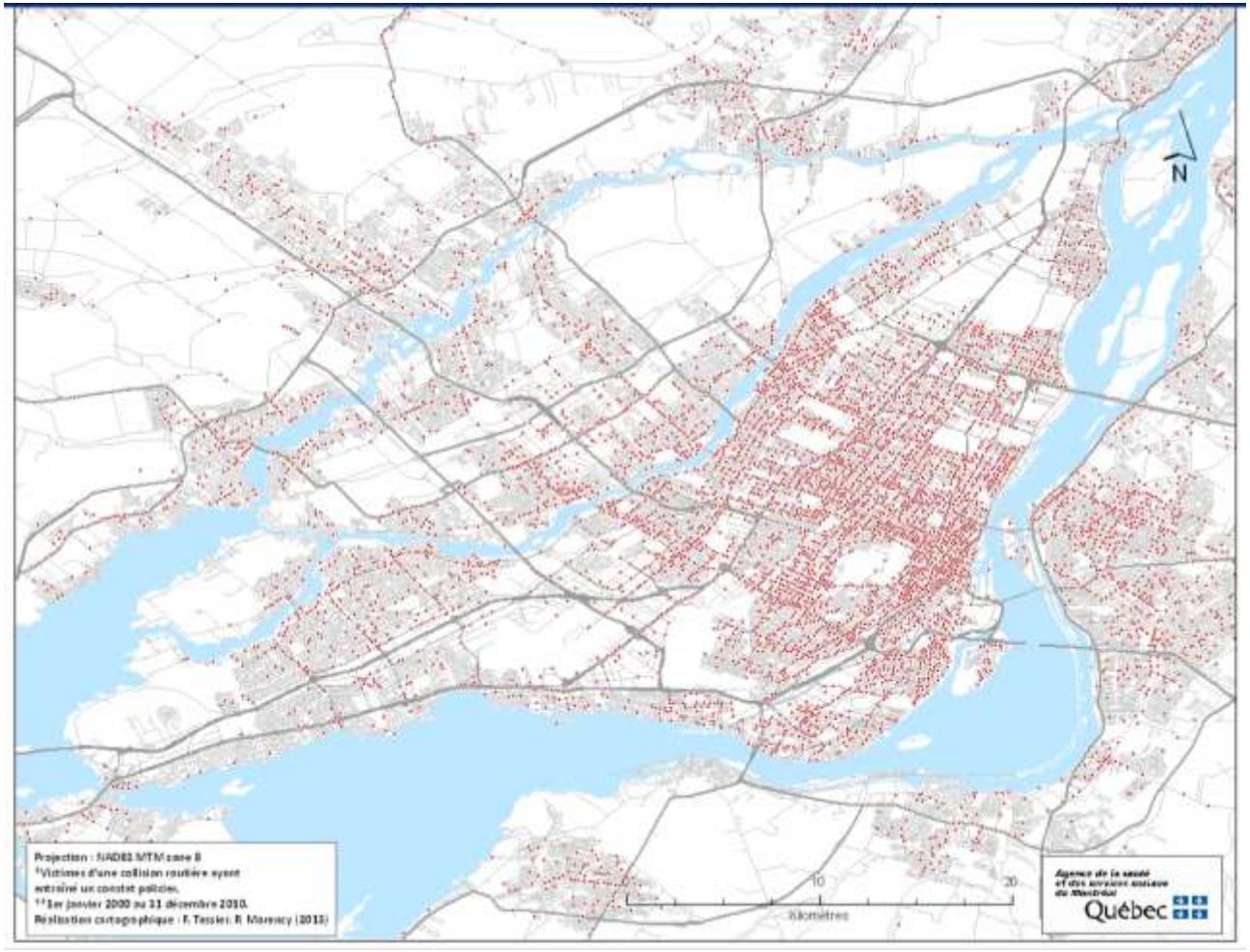
Injured pedestrians



Source: Patrick Morency, MPH

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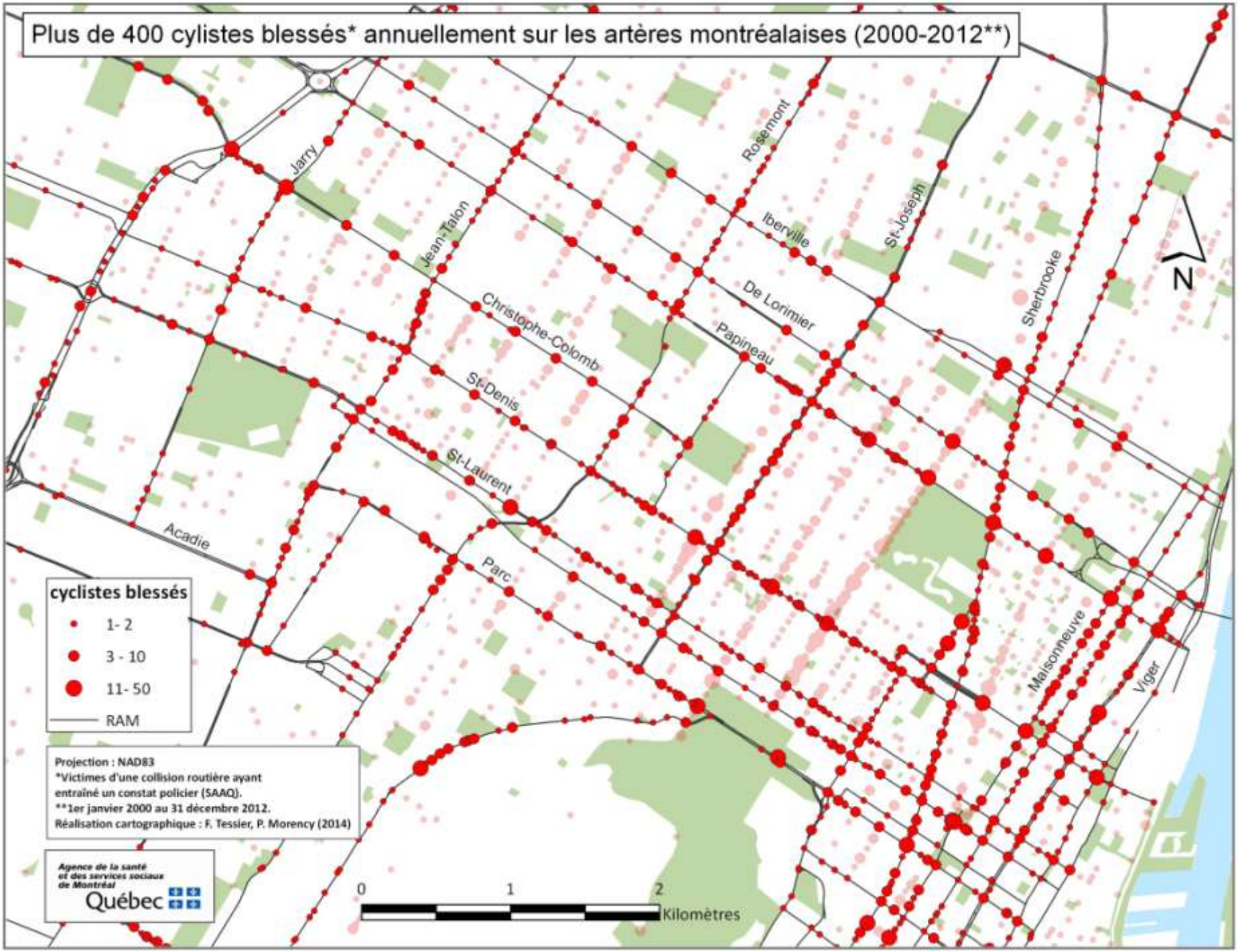
Plus de 400 cylistes blessés* annuellement sur les artères montréalaises (2000-2012**)
Jarry
Jean-Talon
Rosemont
Iberville
St-Joseph
Sherbrooke
De Lorimier
Papineau
Christophe-Colomb
St-Denis
St-Laurent
Acadie
Parc
Maisonneuve
Viger
N
cyclistes blessés
1- 2
3 - 10
11- 50
RAM
Projection : NAD83
*Victimes d'une collision routière ayant entraîné un constat policier (SAAQ).
**1er janvier 2000 au 31 décembre 2012.
Réalisation cartographique : F. Tessier, P. Morency (2014)
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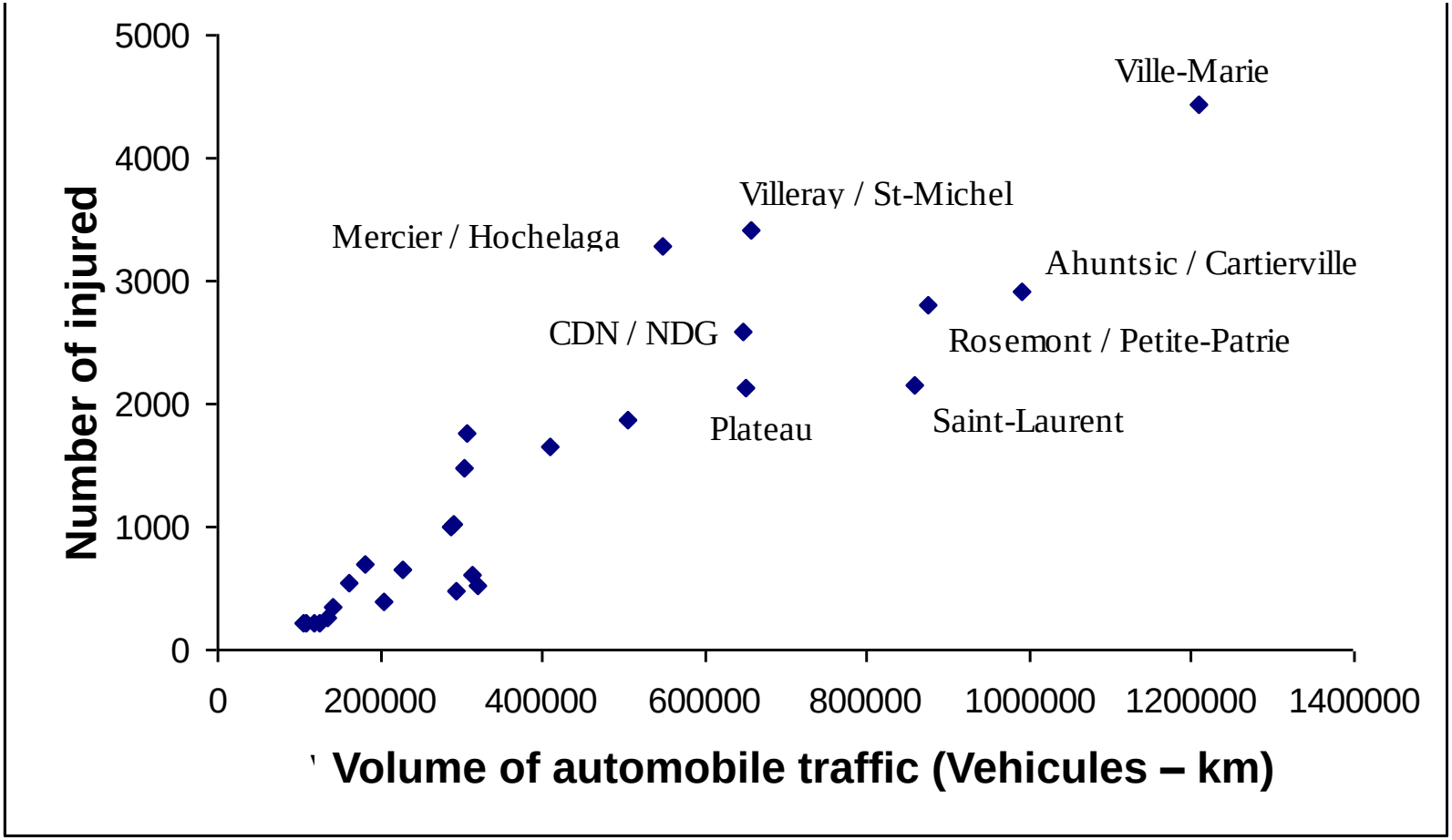
0
1
2
Kilomètres

Context - the number of road injuries increases with the volume of traffic



Source : P Morency, MS Cloutier, Urgences-santé 1999-2003; C. Morency. Enquête O-D 1998.

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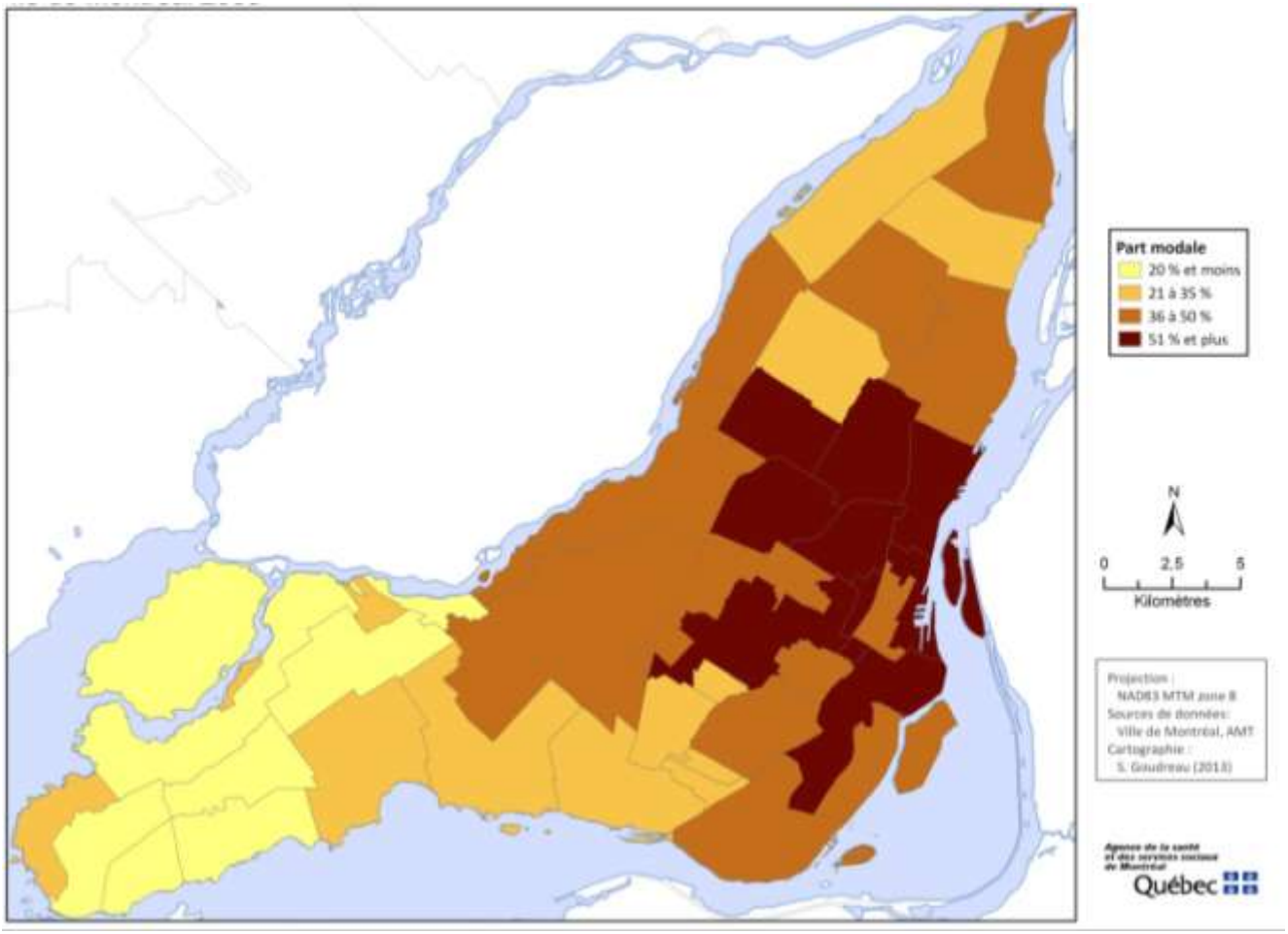
Proportion of active trips (active and public transportation) during morning rush hour in montreal



Source: S. Goudreau, MPH (data OD 2008)

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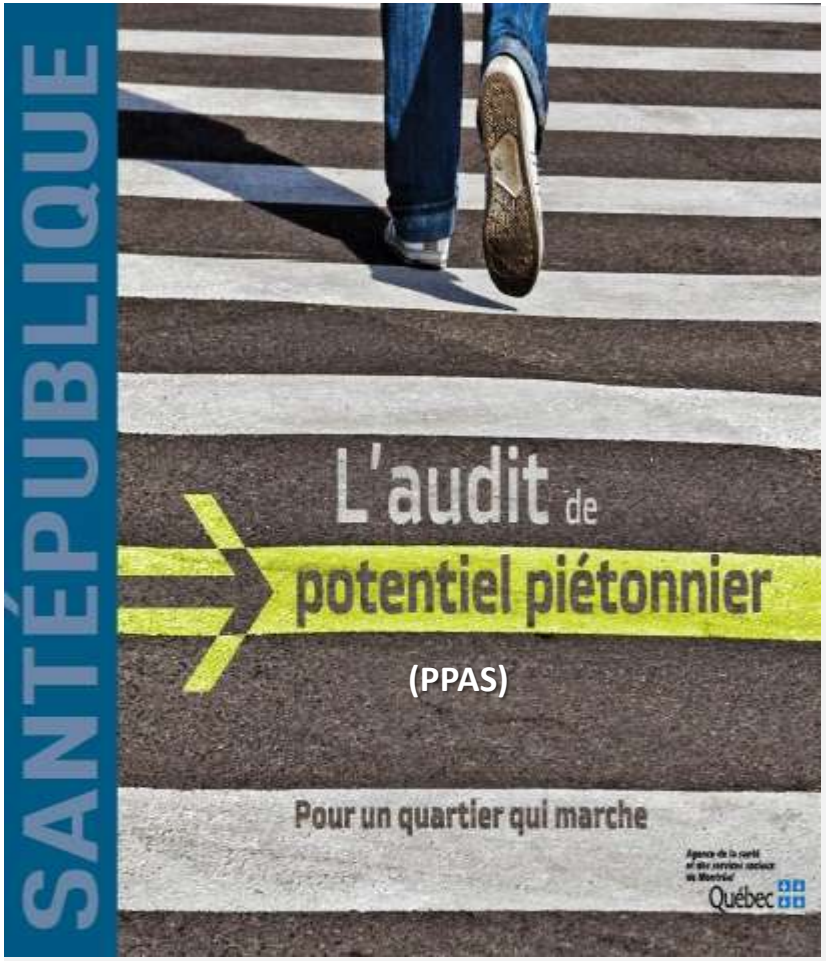
The Public Health Response

- At the local level
  - Our goal: Increase the security of trips (pedestrians, cyclists, public transit users) by implementing trafic calming measures
  - The strategy:
    - The walkability audit tool
    - Quartiers 21 program
    - Joint comitee on active transport (Montreal city)

WALKABILITY AUDIT (PPAS) TOOL



To assess street and intersection walkability (comfort, safety, supportive infrastructure, etc.)

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WALKABILITY AUDIT (PPAS): 80 INDICATORS

Street and intersection characteristics (30 indicators)

Urban functions and buildings (10 indicators)

Walkabilty charactersitics (14 indicatos)

Bicycle lanes and paths and accessibility ti public transportation (10 indicators)

Urban environment, landscaping and design for safety concerns (16 indicators)

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PEDESTRIAN PATHWAYS

How functional are they, how wide are they, are they adequately maintained, are there obstacles?

Urban equipment, accessible for all






Crédit photo: DSP Montréal

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WALKABILITY (PPAS) TOOLBOX

- Observation checklist for streets and intersections
- Preprogrammed data base (no cost to user)
- A complete user's guide
- Complementary documentation (ex. model report, exploratory walk, etc.)
- **Free one day training session with credits**

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Cohorte 2010
Projet Montréal-Nord
Site 1
Année 2011

Quartiers 21

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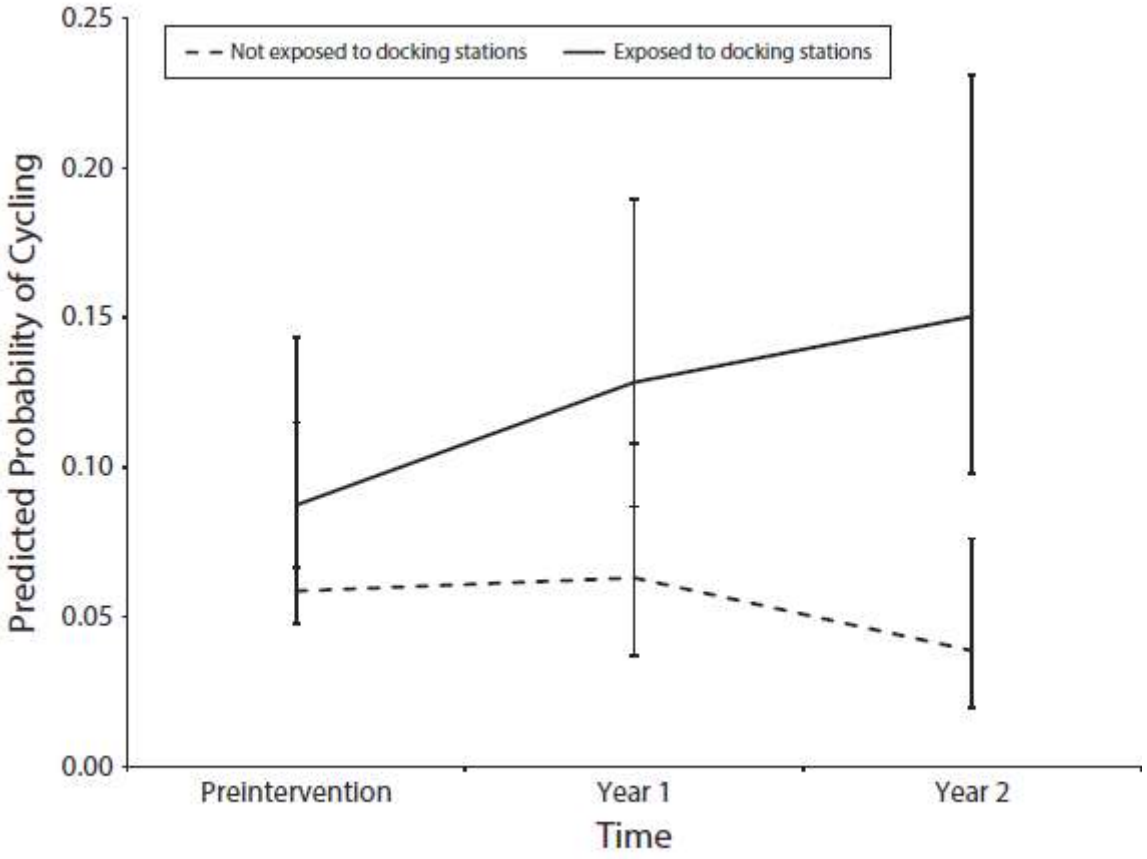
Cohorte 2010
Projet
Montréal-Nord
Site 1
Année 2013

Quartiers 21

Probability of cycling in areas where BIXI docking stations were deployed and not deployed in the preintervention, season 1, and season 2 survey periods in Montreal, Quebec, 2009-2010



Note. Error bars are confidence intervals.

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Recent or planned transport and urban development projects – montreal region

- Turcot
- Champlain bridge
- Highways 25 and 19
- Light train system on Champlain
- Extension of subway to Anjou
- Rapid bus system
- Cycling network
- Road pricing
- Transit oriented development plan at the metropolitan level
- Reduction of greenhouse gases (30 % by 2020)
- Montreal Transport Plan

Question: Do these projects contribute to a sustainable mobility policy and better health?

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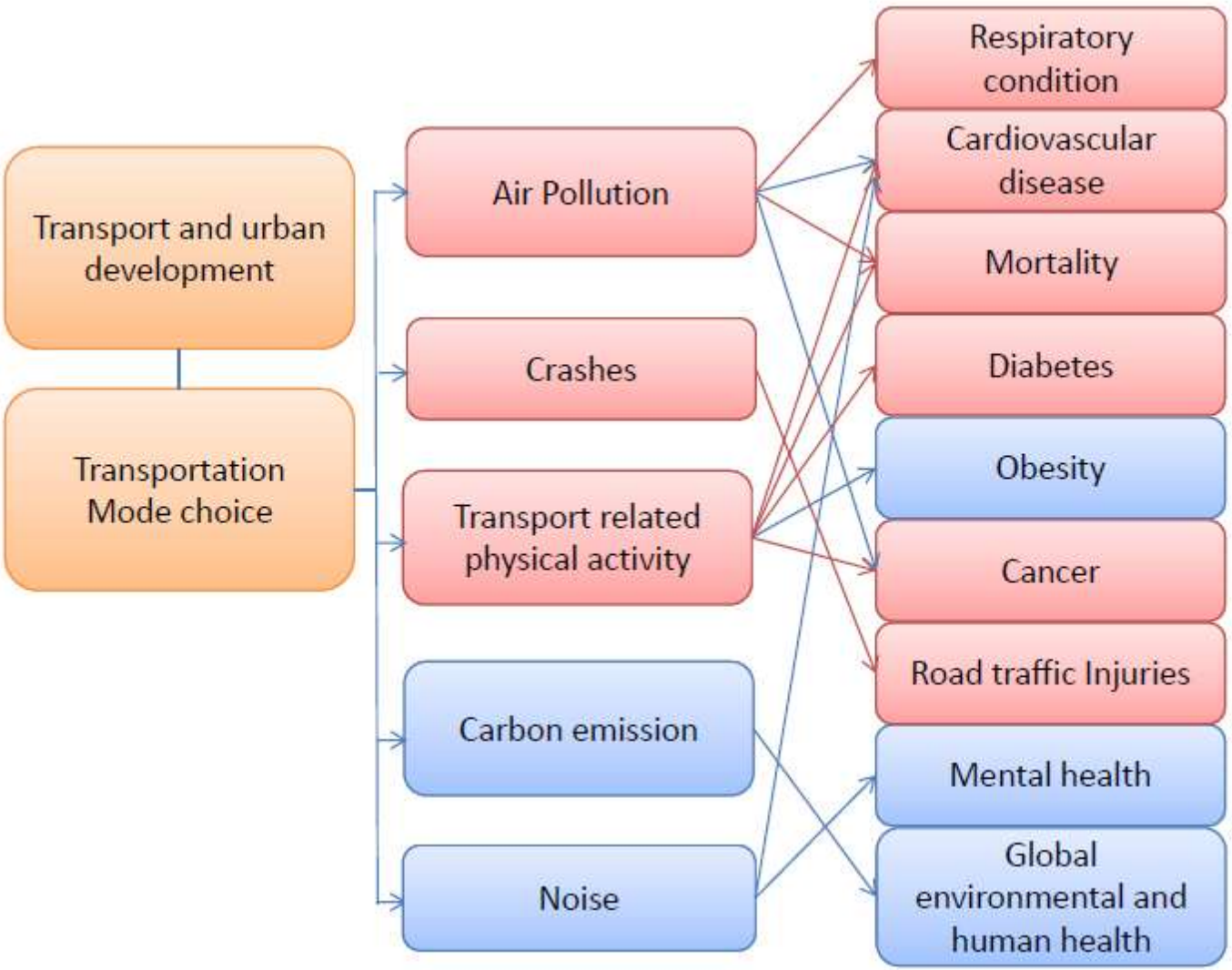
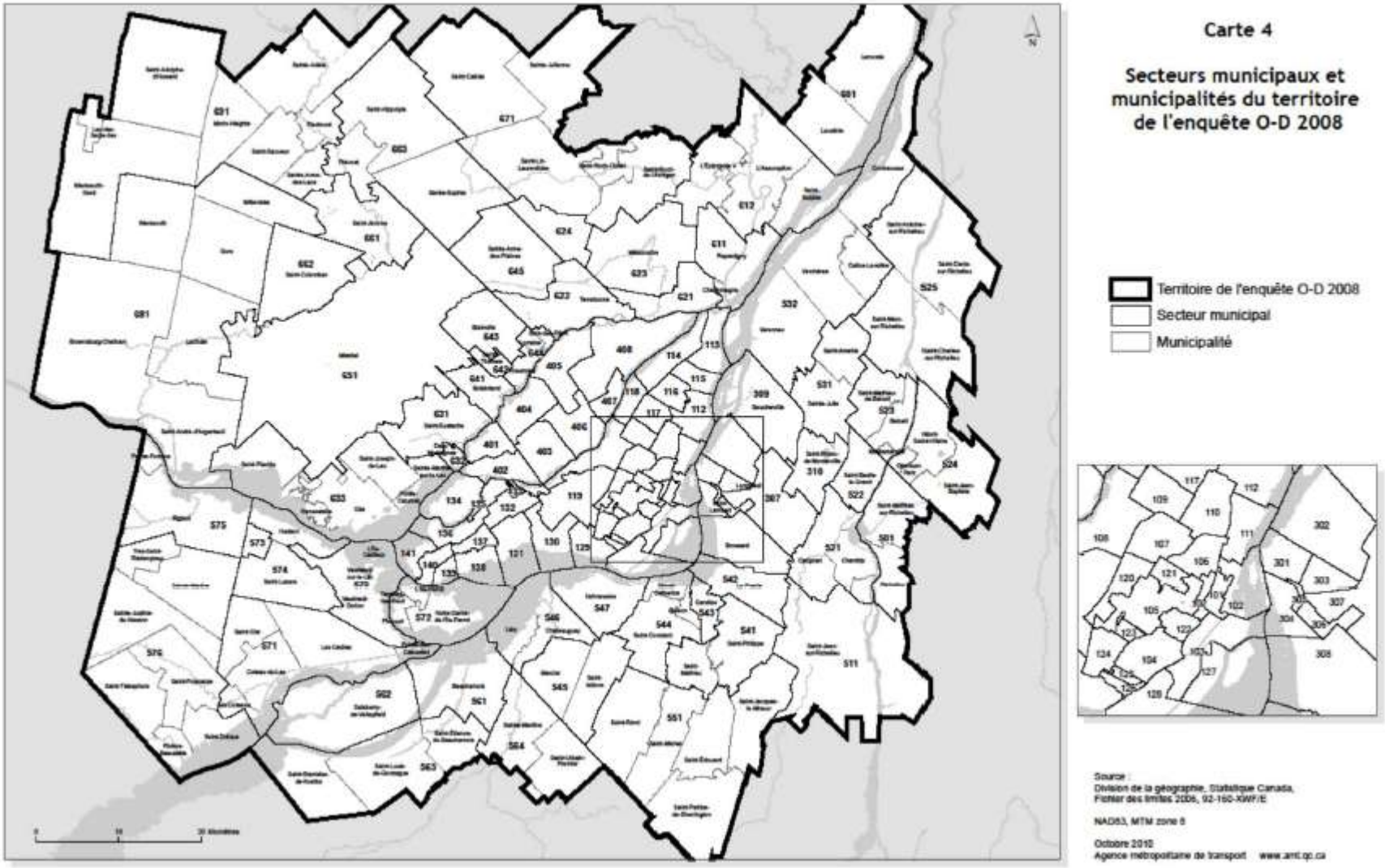
The need for an integrated health impact assessment of various transport and urban development policies and projects

- Goal
  - Influence decision makers for the development of optimal policies and projects that promote public health
- Specific objectives
  - Provide quantitative data on the public health impacts or benefits of transport and urban development policies and projects to decision makers

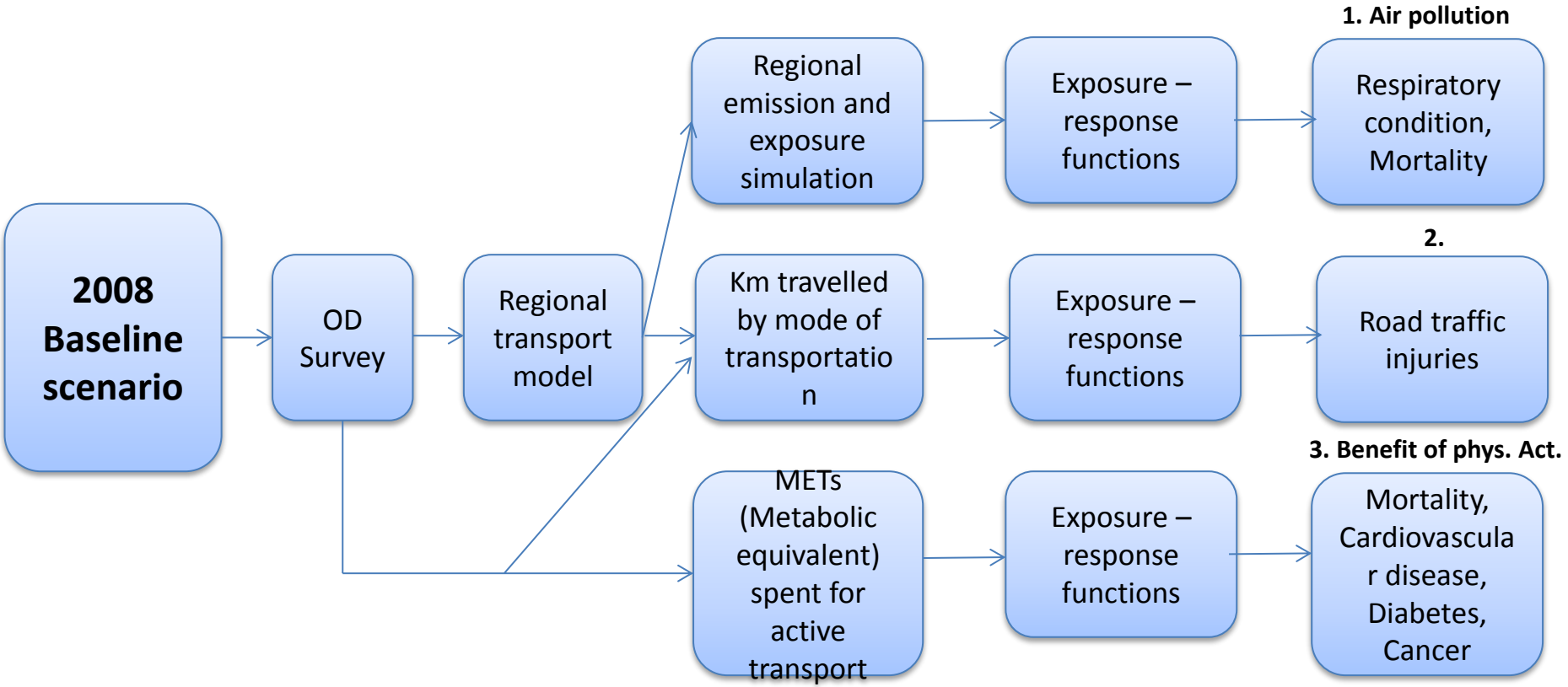
Effects quantified by this project



Stydy area


Carte 4
Secteurs municipaux et municipalités du territoire de l'enquête O-D 2008
Territoire de l'enquête O-D 2008
Secteur municipal
Municipalité
Source :
Division de la géographie, Statistique Canada,
Fichier des limites 2006, 92-160-XWF/E
NAD83, MTM zone 8
Octobre 2010
Agence métropolitaine de transport www.amt.qc.ca

Framework for conducting an integrated health impact assessment



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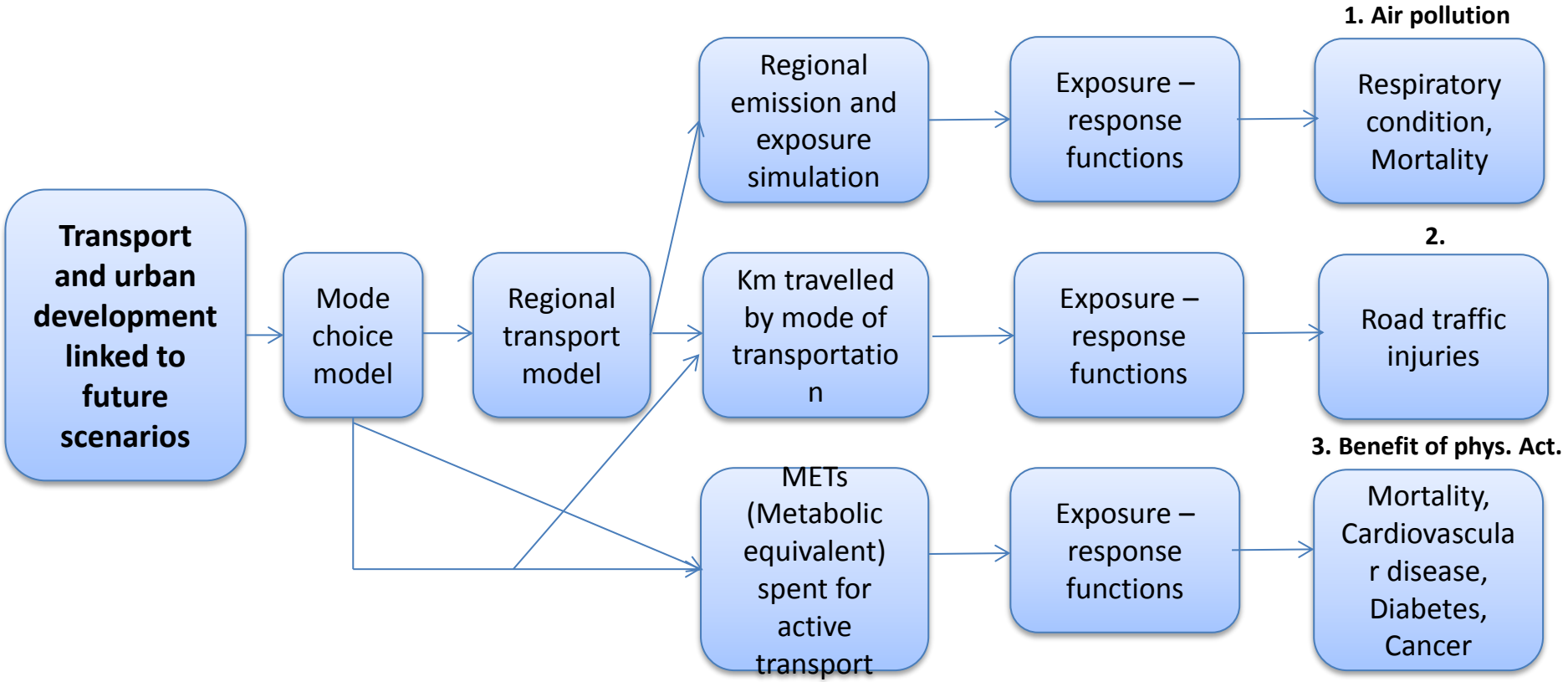

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Question???

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Integrated health impact assessment for the montreal metropolitan region

AIR POLLUTION	MAJOR DATA NEEDS AND METHODS
Number of cases attributable to • All cause mortality • Cardiovascular mortality • Incidence of asthma in children	➢ Modeled Nitrogen oxides (NOx) levels • from a regional transport model and a dispersion model (Hatzopoulou and Eluru, McGill) ➢ Exposure-response functions, mainly from the literature ➢ Calculation of cases attributable to future scenarios compared to baseline

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BENEFITS OF PHYSICAL ACTIVITY

Number of cases avoided due to transport related physical activity

- All cause mortality
- Cardiovascular mortality
- Diabetes type II

DATA NEEDS AND METHODS

- METs (Metabolic Equivalent) spent for active transport based on
  - estimated distances walked from Origin-Destination (OD) survey 2008 and modelled future scenarios
  - Walking speeds (from literature)
  - MET intensities of physical activity (Ainsworth et al.)
- Non-transport related physical activity (in METs) (Montreal's TOPO survey 2012)
- Exposure-response functions from literature
- Calculation of cases attributable to future scenarios compared to baseline

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ROAD TRAFFIC INJURIES

Number of injuries for

- Vehicle occupants
- Pedestrians*

* Cyclists may be included if data are sufficient

DATA NEEDS AND METHODS

- Km travelled by vehicles and by pedestrians*
  - Estimated from Origin-Destination (OD) survey and by regional transport model (Eluru and Hatzopoulou, McGill)
- Numbers and gravity of injuries
  - SAAQ and Med-Echo databases
- Calculation of injury rates of vehicle occupants and pedestrians for the baseline and future scenarios

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