Health-Enhanced Land Use Planning Tool

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Healthy Canada by Design CLASP

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Uses relationships between built environment features and health to estimate the impacts of varying land-use and transportation planning options on:

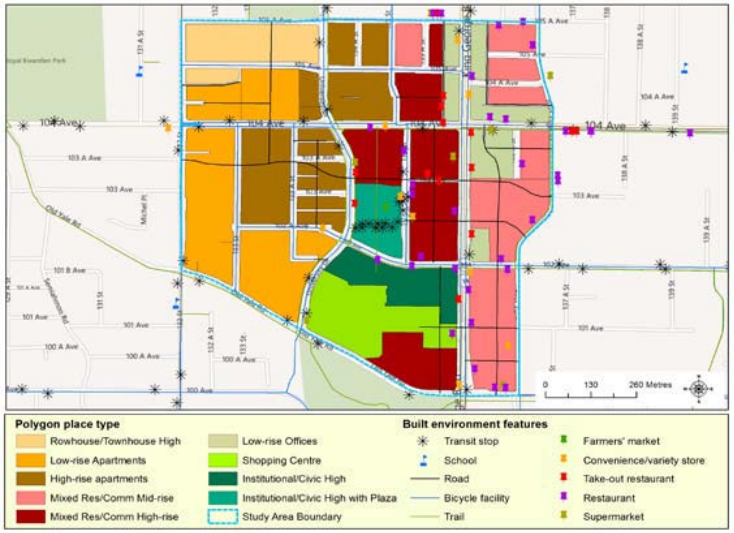
- levels of physical activity
- use of active modes of transportation
- use of vehicles
- emissions of transportation-related greenhouse gases
- body mass index (BMI) for residents

Health – related parameter	Built environment feature
Body mass index (BMI) ……	*Walkability*
Energy expenditure ……..	*Density*
Walking for exercise/leisure	*Access to parks and trails*
Walking/cycling to work/school ……...	*Walkability and cycling facilities*
Biking trips to work/school or for exercise/leisure ……..	*Residential density and walkability*
High blood pressure ……	*Monthly frequency of walking and cycling trips*

- Toronto data used to derive statistical relationships between built environment variables, travel choices and physical activity

- These relationships corrected for demographic factors such as gender and income which also affect physical activity and travel choices

- Results of this analysis were programmed into *CommunityViz*



CommunityViz analysis template was pilot tested on:

- redevelopment proposal for West Don Lands area in Toronto, ON
- development plan for Surrey Central Station in the City of Surrey, B.C.

- **Road network**

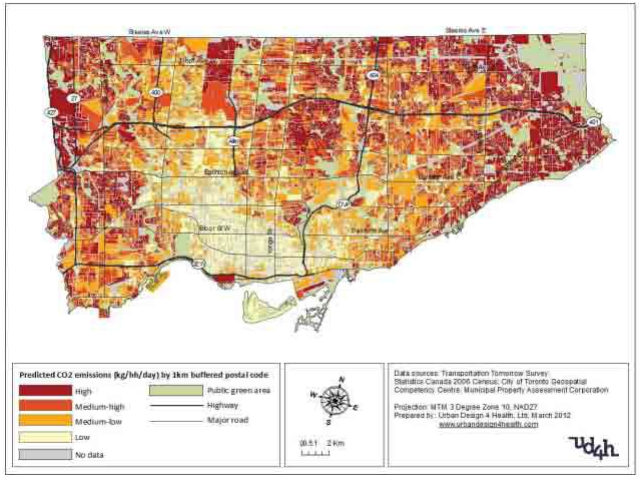
  Length of roads; bicycle facilities; trails; sidewalk coverage; intersection density
- **Schools**
- **Transit**
- **Distance to parks; park area**
- **Food Environment**

  Farmers markets; restaurants; supermarkets; take-out restaurants; convenience stores
- **Residential density**
- **Retail/office floor to land area ratio**

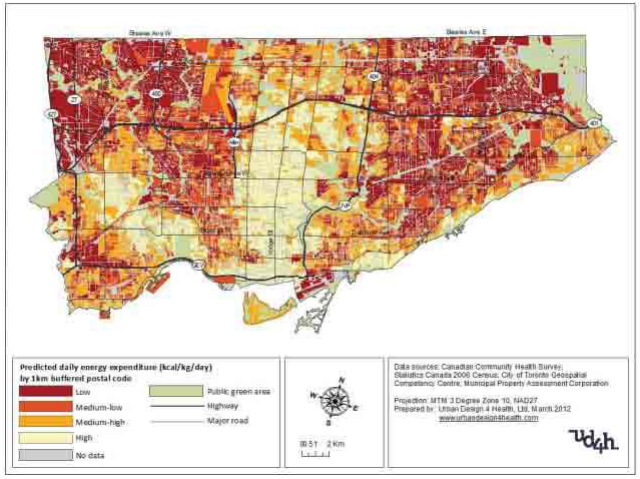
Site of 2015 Pan Am Village

- Using information on proposed plan and some assumptions, it was possible to compare existing situation to proposed changes
- Significant benefits to health and environment-related factors were demonstrated in Toronto & Surrey pilots
- Demonstrated that tool could be used in Canadian urban settings

- Mapping layers were created
- Geo-spatial analyses



CO_2 Emissions(Kg/Household/Day)



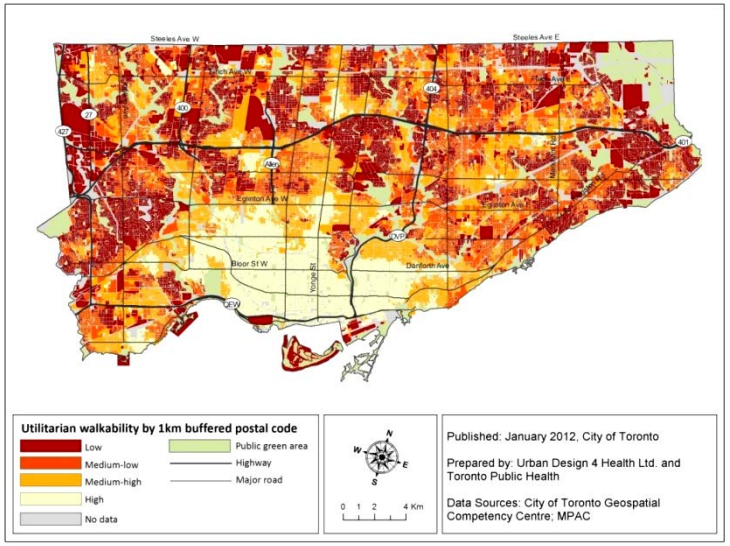
Daily Energy Expenditure (Kcal/Kg/Day/Person)

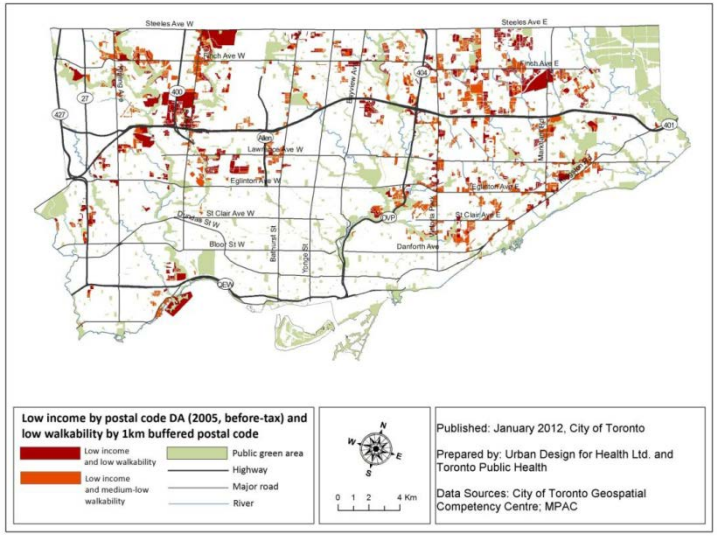
Sample Maps

- Bike trips to work or school
- Household CO_2 emissions
- Daily energy expenditures
- Likelihood of high blood pressure

Also serve as useful communication and analytical tools

Exploring use in Ward Profiles





An index comprised of various measures:

- Residential density
- Retail ratio
- Land use mix
- Intersection density

A good communication tool

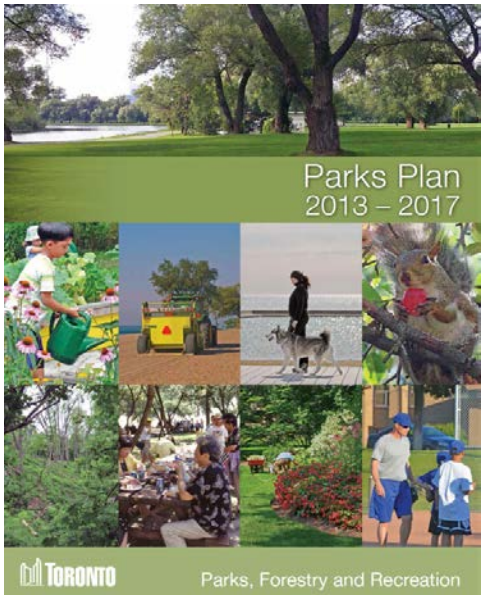
Can identify areas of priority need for intervention (for example, low walkability / low income)

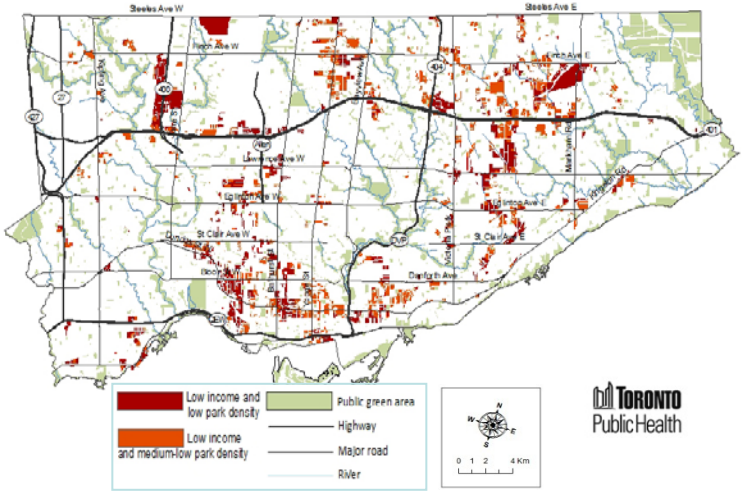
The *Walkability Index* was used to analyse the responses in the Residential Preferences Survey.

Showed that people living in walkable neighbourhoods:

- do more walking
- take transit more often
- drive less often and less far, and
- weigh less on average

than those who live in auto-oriented neighbourhoods.





Prepared by Urban Design 4 Health Ltd and Toronto Public Health, 2011

- Analysis of park density and income identified areas with high concentrations of low income residents that also had low park density
- The new Parks Plan includes the principle of equity and recognises the special needs of people on low income

- The Walkability Index is being used as one of the criteria to identify areas for the new zoning category Residential Apartment Commercial (RAC)

- Evaluating the health benefits of the new transit line along Eglinton Avenue

- Exploring if it can be used to support planning proposals where an increase in density is envisaged

- Use requires a GIS specialist
- Use was delayed due to the need to acquire a dedicated high-capacity computer
- Tool applicable to large areas (e.g. secondary plans)
  - Requires making assumptions on many land-use characteristics since these are not available at that stage
- Buy-in is required from city planning staff

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CLASP
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