



# Health Data and Maps for Planning Workshop Sept 22/05

[www.TorontoHealthProfiles.ca](http://www.TorontoHealthProfiles.ca)



# **Workshop participants will learn:**

- the purpose of the website
- what's on the website
- where to find information and maps for different geographic areas
- how to use the profile tables and maps to learn about an area, to identify differences, and to describe the information
- data sources, uses and limitations

**SETo**

[South East Toronto Project](#)

A partnership designed to facilitate access to information for health planning with the overall goal of producing action to reduce health inequalities.



[St Michael's Hospital](#)



[Toronto District Health Council](#)



[Toronto Public Health](#)



[Wellesley Central](#)

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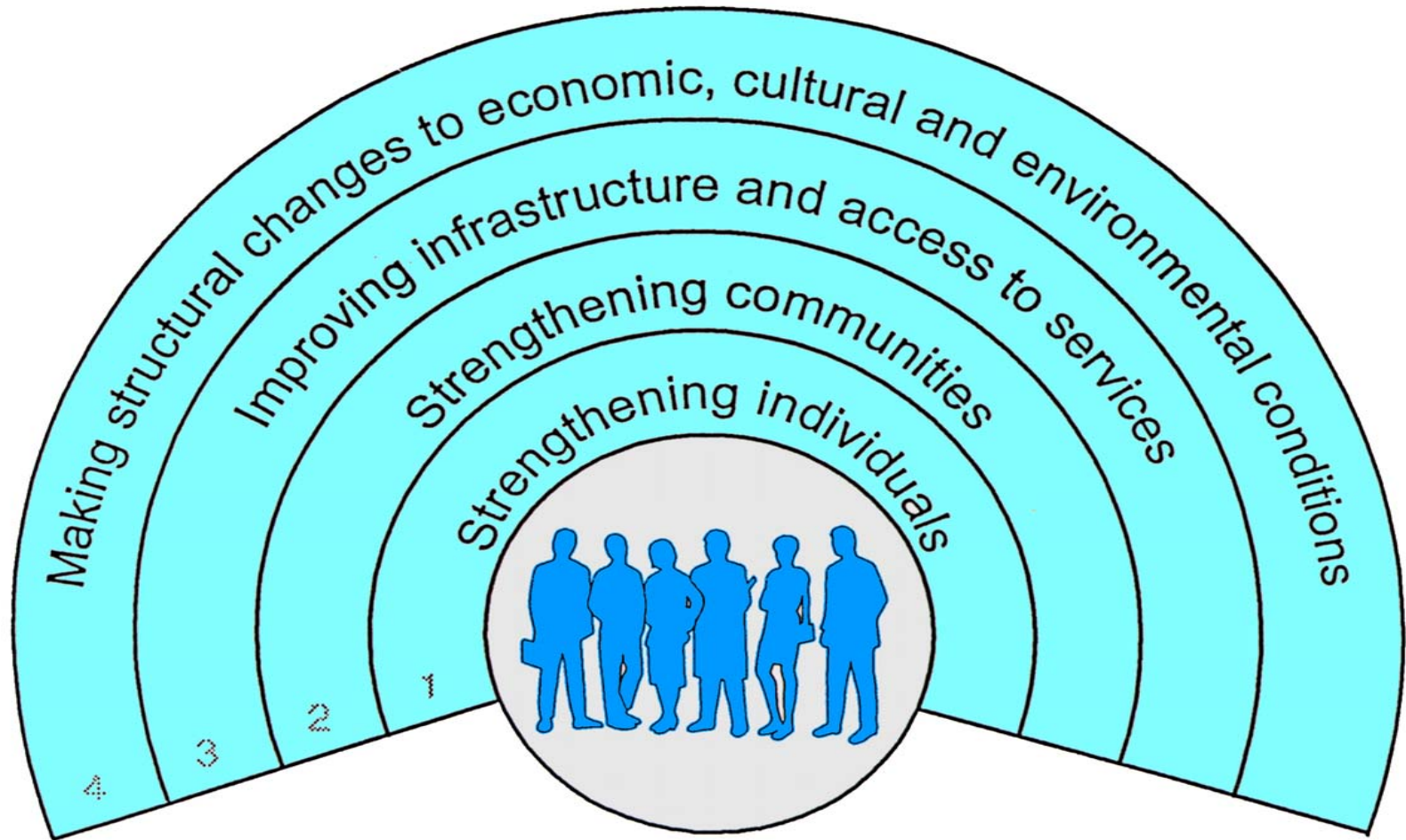
## **Our Goals:**

- To build community capacity to use health information;
- To build deeper understanding of Toronto neighbourhoods in order to appreciate the health needs of communities;
- To foster academic-hospital-community collaborations to improve population health;
- To demonstrate health inequities in order to address them.

## **Strategy for achieving our goals:**

- Provide health profiles *of* Toronto communities *for* Toronto communities with relevant and timely information in a user-friendly format;
- Provide technical support and mechanisms for communities to access data;
- Conduct a series of workshops to foster access to and use of health data for decision-making, advocacy and policy, and to stimulate collaboration.

# Policy Levels for Tackling Health Inequities



# Maps & Tables

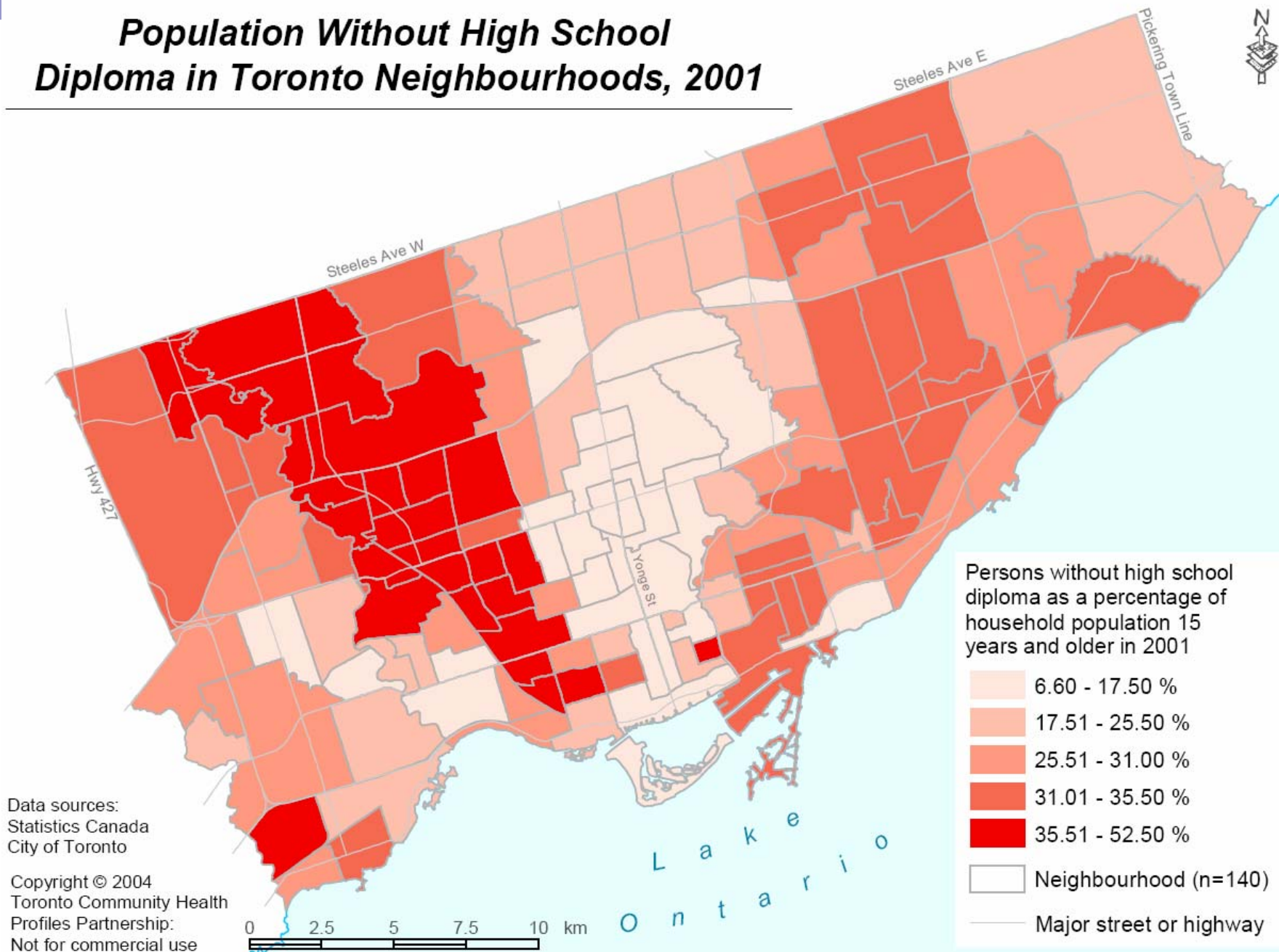
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|-----|-----|-----|-----|-----|
| 140 | 41  | 15  | 5   | 1   |

|                                   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|
| Land use                          |   |   |   |   | X |
| Socio-demographics                | X | X | X | X | X |
| Environment and resources         |   |   |   |   | X |
| Healthy living                    |   |   | X | X | X |
| Mothers and babies                | X | X | X | X | X |
| Older Adults (coming)             | X | X | X | X | X |
| Adult Health and Disease (coming) | X | X | X | X | X |
| Prevention (coming)               | X | X | X | X | X |
| Children (coming)                 | X | X | X | X | X |
| Mortality (coming)                |   |   | X | X | X |



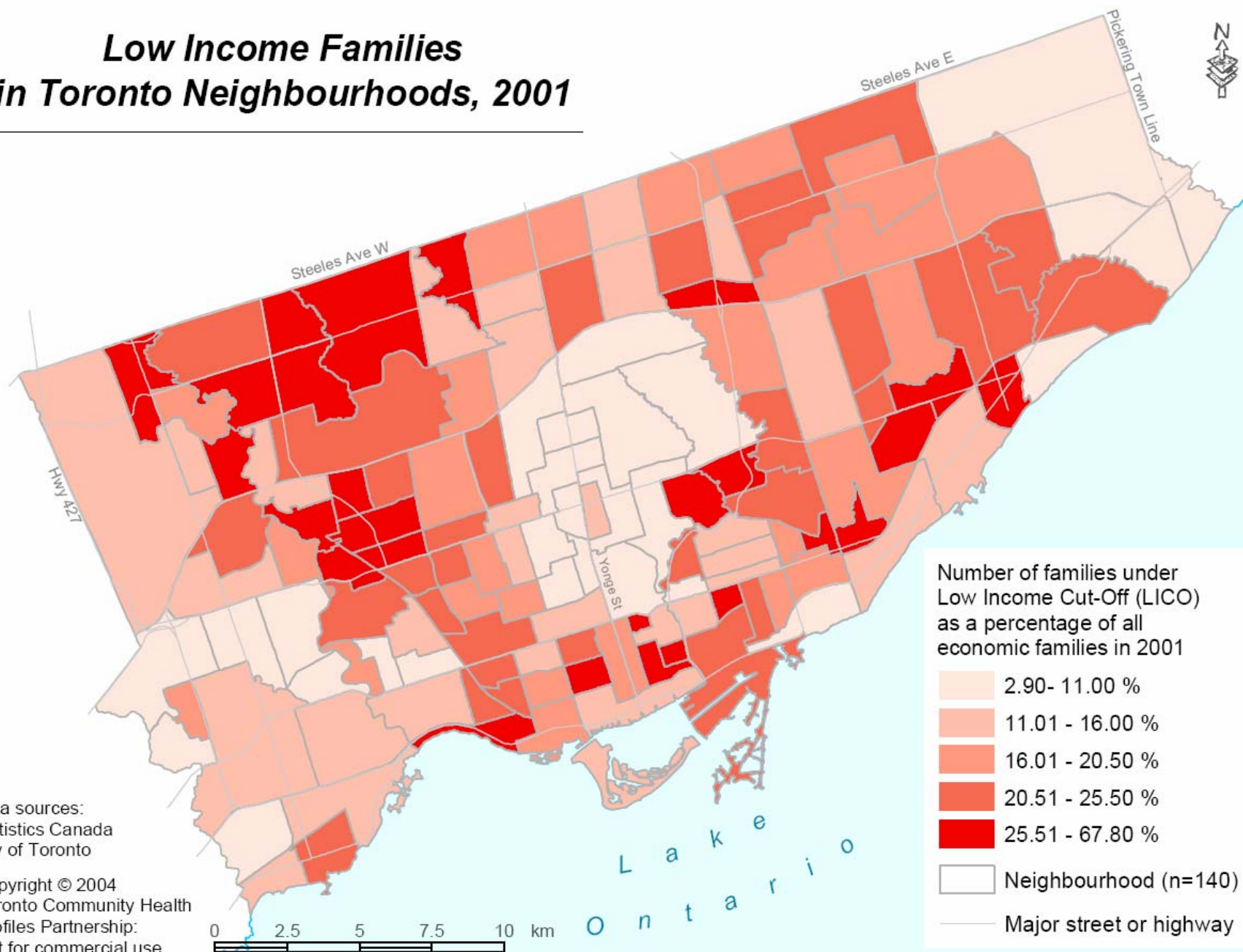


# Population Without High School Diploma in Toronto Neighbourhoods, 2001

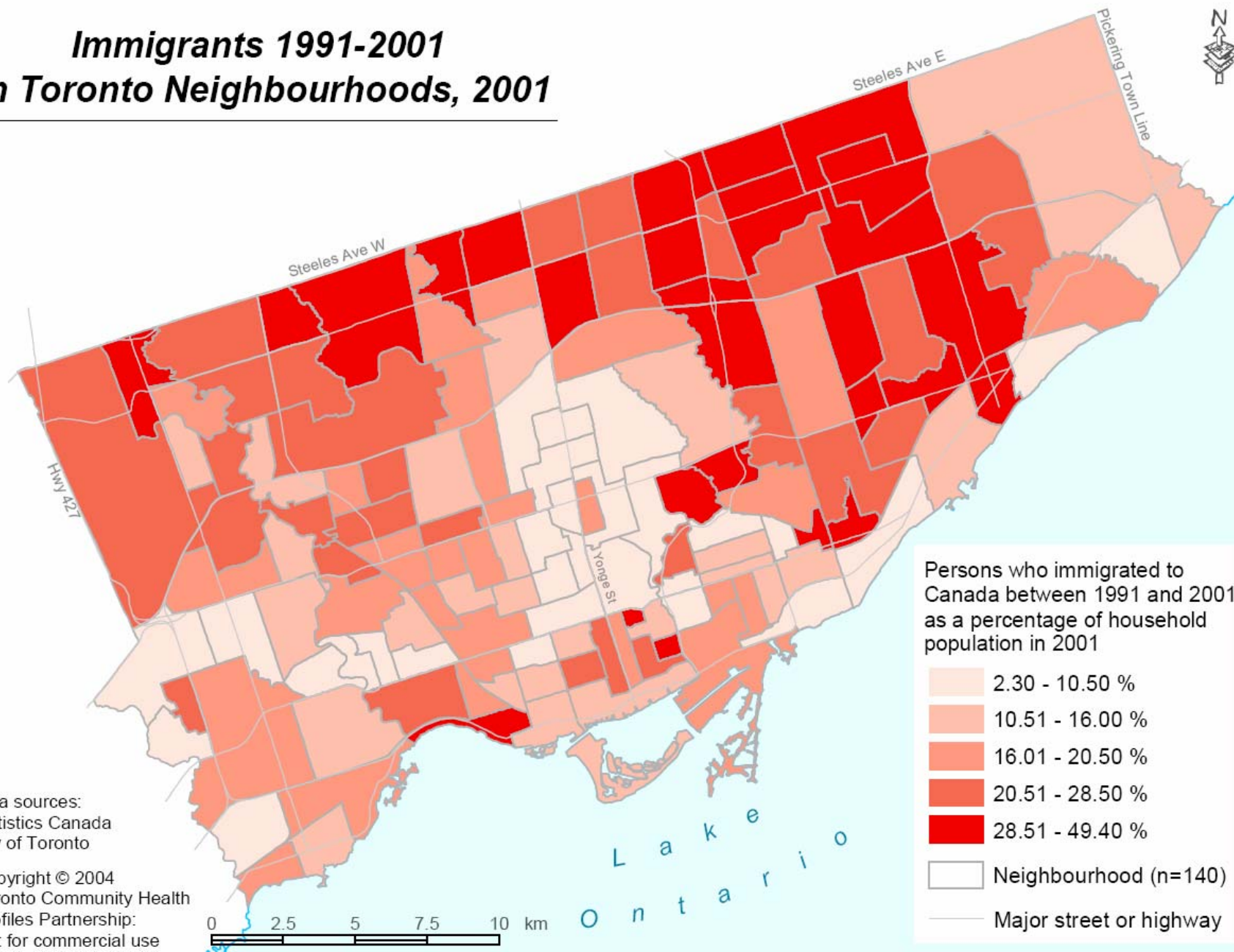




# Low Income Families in Toronto Neighbourhoods, 2001



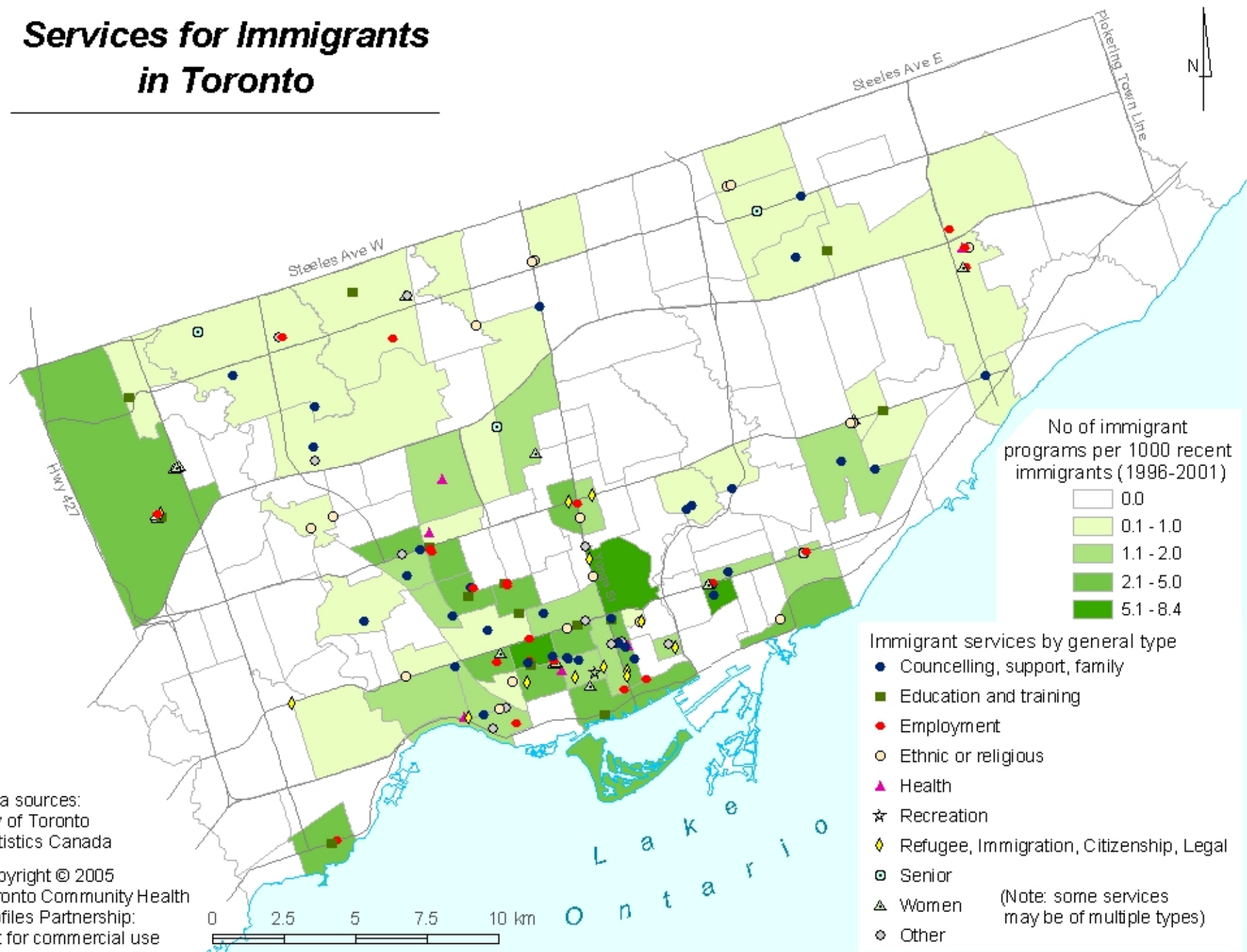
# Immigrants 1991-2001 in Toronto Neighbourhoods, 2001



Data sources:  
Statistics Canada  
City of Toronto

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# Services for Immigrants in Toronto





# What does the information on the above maps show?

- The 5 Major and 15 Minor Health Planning Areas vary by income, education, immigration, etc. (Some health indicators are only available at this level.)
- There is a pattern and a clustering of risk conditions.
- The majority of services for immigrants are not located in the neighbourhoods where the majority of the population are recent immigrants.



# Example

- Recently the United Way and the City of Toronto (following the work of the Strong Neighbourhoods Task Force) identified 9 neighbourhoods for investment because they were facing multiple challenges and poorer service access. The TCHPP website was one of the sources used by the SNTF. In the exercise which follows, you will use a TCHPP neighbourhood profile for one of these 9 neighbourhoods.

# Exercise # 1

- Using the Black Creek Socio-demographic Profile fill in the blank column on Worksheet # 1. Identify the census variables where the Black Creek rate is much higher than the city rate (more than 20% higher than the city rate). Mark this with an “H”. For which census variables is the Black Creek rate more than 20% below the city rate? Mark this with an “L”. “S” can be used to identify other variables which are more similar to the city rate.



# Review Results

- For how many census variables was the rate for Black Creek more than 20% higher than the city rate?
- For how many variables was the Black Creek rate more than 20% lower than the city rate?
- For how many variables did the rate change more than 20% between 1991 and 2001?

# Health Indicators

- Age specific or age standardized rates
- Indicator definitions
- Health indicators across the life span will be included: e.g. behaviours, perceived health, use of prevention and treatment, health outcomes, mortality, disease prevalence, medications, etc.
- Confidence Intervals (C.I.) rates higher (H), lower (L) or not significantly different (NS) from city rate 19 times out of 20.
- Rate Ratios: area rate divided by city rate to identify policy significance – size of health gap (e.g. 1.2 times > city rate)



# Which area has a higher Teen Birth Rate? Which has a higher rate of Low Birthweight babies?

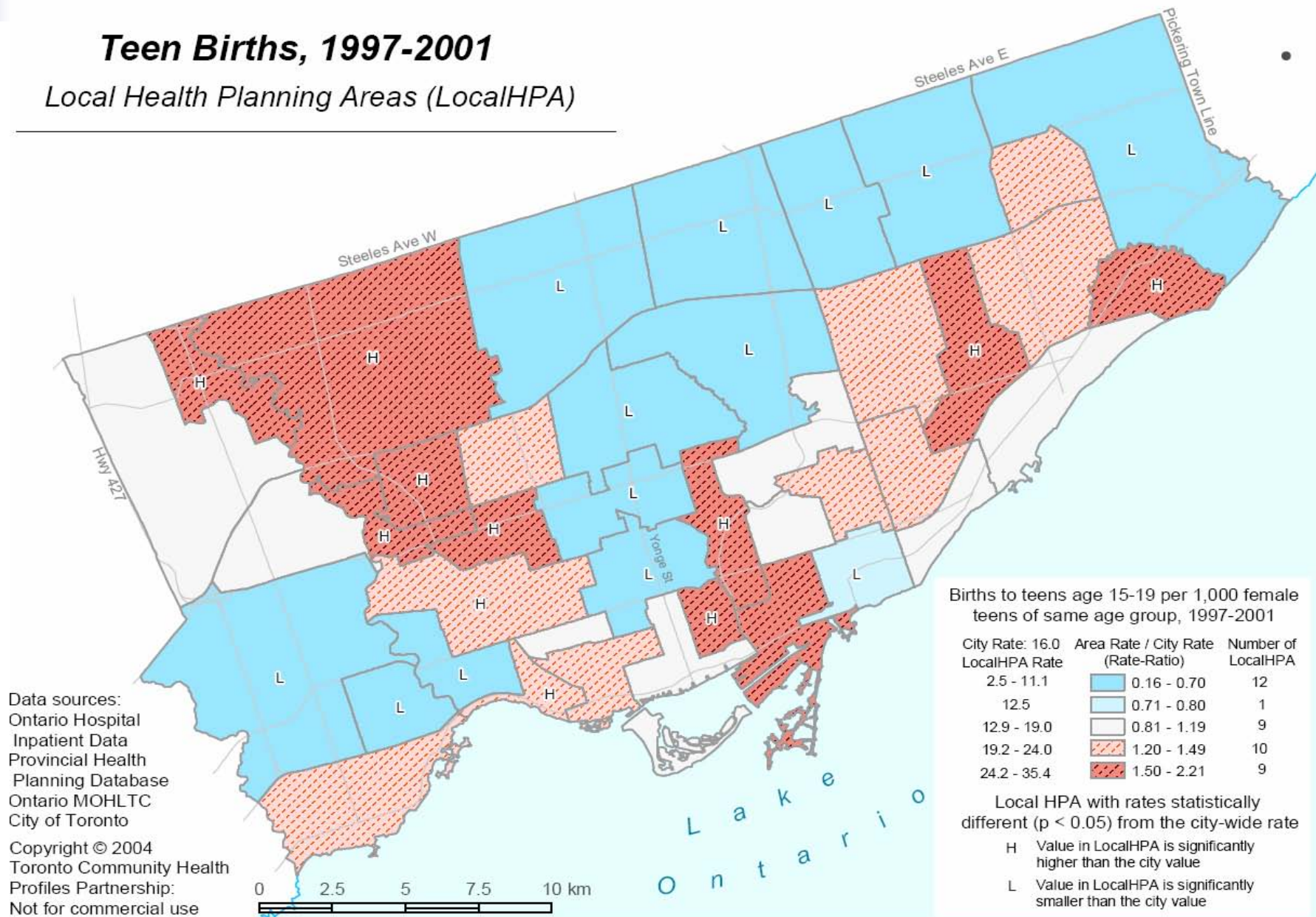
## Mothers and Babies

|   | Toronto | Agincourt                          | Humber-Downsview                     |
|---|---------|------------------------------------|--------------------------------------|
| 5-year Ave. # of Births/1,000 women 15-19 years | 16.04   | 8.17<br>(5.85, 10.50)<br>RR 0.51 L | 24.59<br>(21.12, 28.07)<br>RR 1.53 H |
| % Singleton LBW Rate (birthweight <2,500 grams) | 5.2     | 5.1<br>(4.6, 5.5)<br>RR 0.99 NS    | 6.5<br>(6.1, 6.8)<br>RR 1.25 H       |

Agincourt has a lower teen birth rate (L), Humber-Downsview has higher teen birth (H) and low birthweight rates (H).

# Teen Births, 1997-2001

## Local Health Planning Areas (LocalHPA)



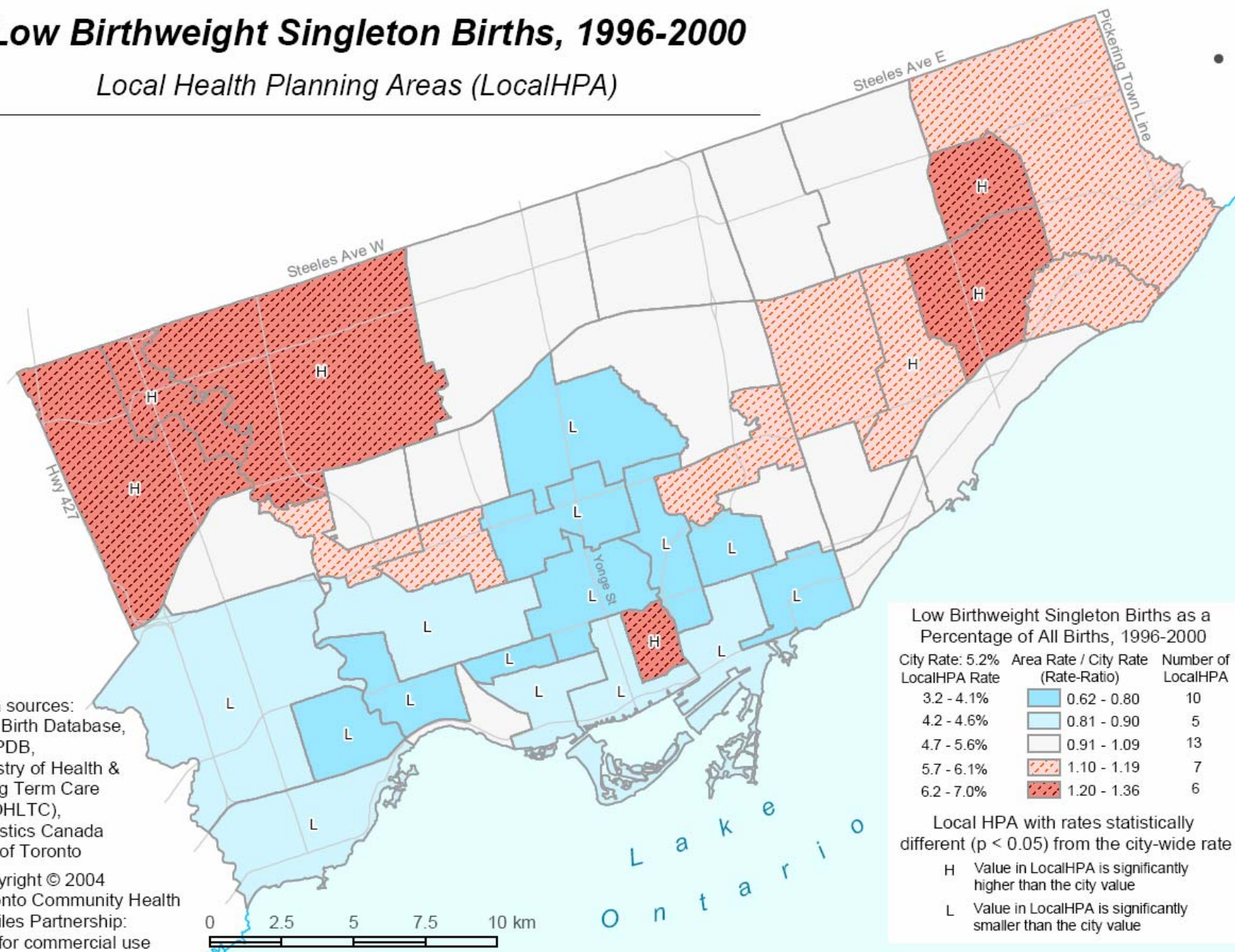
Residences for pregnant teens during this time period at Rosalee Hall (Bendale), Benthany Home (North Riverdale), Massey Centre (Broadview North) and Jessies (Regent Park) contribute to the significantly higher teen birth rates in three of the LHPAs with the highest rates on this map.

# Low Birthweight Singleton Births, 1996-2000

Local Health Planning Areas (LocalHPA)

Data sources:  
Live Birth Database,  
PHPDB,  
Ministry of Health &  
Long Term Care  
(MOHLTC),  
Statistics Canada  
City of Toronto

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# Using Maps

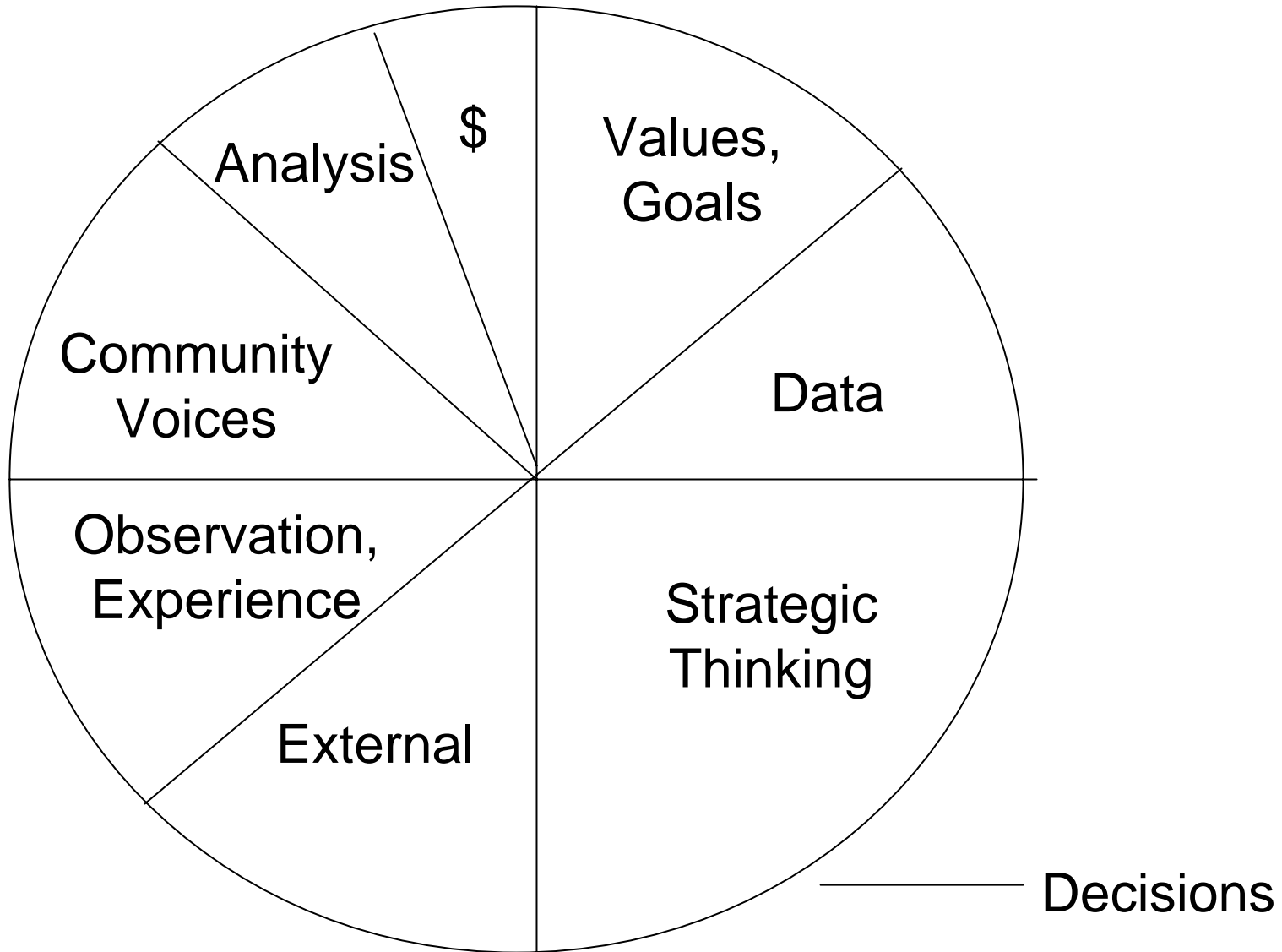
- Health Indicators are shown on shaded thematic maps as rate ratios grouped in predefined classes. Maps also include indicator definition, city rate, areas significantly different than the city rate (H or L), rate ranges and number of areas in each rate range.
- Socio-demographic maps are population quintiles – (e.g. darkest shade is 20% of population with the highest rate for the mapped indicator)



Check Socio-demographic indicators and service site maps which provide important context (eg. Potential access barriers: residences for pregnant teens affect teen birth rate, long term care facilities affect mortality rates, etc.).



# Information for Community Health Planning



# Exercise # 2

- Black Creek is one of the neighbourhoods included in the Humber Downsview Major Health Planning Area. The neighbourhoods in Humber Downsview area are more similar than different. The socio-demographic characteristics of the CCHS respondents (survey sample) from Humber Downsview were similar to characteristics of the population living in the area overall. Your table is a work group to advise a partnership in the area on community health priorities. You go the [www.torontohealthprofiles.ca](http://www.torontohealthprofiles.ca) for information. Your table will fill in Worksheet # 2. The socio-demographic indicators have already been filled in on Worksheet # 2 using the same method as in Exercise #1. Fill in the other two sections.



## Exercise # 2 (cont'd)

Use the Humber Downsview Mothers and Babies Table and the Healthy Living Maps to fill in Worksheet # 2. Which of the Healthy Living Indicators (from the Maps) are significantly higher than the city rate? Which are lower? Which of the Mothers and Babies indicators (from the Table) are significantly higher? Which are lower? Write a sentence about which (if any) of the variables you think would be a potential priority issue and why. When you complete this, identify what other information you would like to have to identify local community health priorities.



# Review Table Recommendations

- Review Additional Information Needs
- Revisit Planning Circle
- Ideas for action and assessment of community strengths has recently emerged from focus groups and community meetings in Black Creek area – many are similar to what the community said it needed years ago.



# Data Sources & Limitations

## ***Canada Census 1991, 1996, 2001***

(Statistics Canada)

### Strengths:

- Best (and only) source of social and demographic info for the entire population (some exceptions)
- Large # of variables : over 1,500

### Limitations:

- Census undercount/underrepresented groups (3.4% for Toronto)
- Data suppression, particularly at DA level
- Census tracts only in urban areas
- Only every 5 years



# Data Sources & Limitations (cont'd)

## *Canadian Community Health Survey (CCHS) 1.1 2000/01*

### **Strengths:**

- Detailed info on individuals such as income, education, ethnicity
- 1<sup>st</sup> person accounts of health system experiences and health status (administrative databases only give you utilization)

### **Limitations:**

- Small sample size (2382) – no respondents in some neighbourhoods & need to aggregate to large geography – wide confidence intervals
- May not be representative of entire population in areas
- People under-report certain conditions (eg. Chronic conditions) and socially undesirable behaviour (eg. Smoking during pregnancy) leading to underestimates of prevalence
- People over-estimate socially desirable behaviours (eg. Exercise, fruit & veggie consumption)



# Data Sources & Limitations (cont'd)

## *Physician Claims* (OHIP)

### Strengths:

- Can answer: “Who is using services and what kind?”
- Only comprehensive source of population health coverage & provision of publicly-paid health services

### Limitations:

- Excludes CHCs
- Health insurance addresses out-of-date
- May introduce bias if you attribute SES characteristics to an individual based on registry postal code
- No individual level socioeconomic or cultural info available

# Data Sources & Limitations (cont'd)

## ***Hospital Inpatient Data*** - Canadian Institute for Health Information (CIHI)

### **Strengths:**

- Up-to-date postal codes
- Current – 1 year time lag

### **Limitations**

- No mental health data available
- Excludes out of hospital births (less than 1%)
- Missing approximately 2% of births
- No SES or ethnicity info available

# Data Sources & Limitations (cont'd)

***Vital Statistics*** - (births and deaths) Live Birth Database (PHPDB), Health Planning System (HELPS), MOHLTC

## **Strengths:**

- Includes country of birth
- Links baby to mother for analysis of singleton LBW by age, parity, pregnancy type

## **Limitations:**

- missing unregistered births
- missing postal codes (potentially over 3%)
- 2 yr time lag in data availability



# Ethics & Reporting Guidelines

- Full reporting if numerator at least 20 and denominator at least 100
- Reporting with caution if numerator contains 5-19 events OR denominator contains 30-99 individuals
- No reporting if numerator less than 5 individuals or denominator fewer than 30
- Aggregate data for areas or years (2-5 years) for larger sample or population
- No individual level data



# Area versus Individual Measures

- Neighbourhood and planning area rates represent an “average” of all the individuals living in the area – does not always capture heterogeneity.
- Area rates cannot be assumed to apply to all the individuals living in the area. For example if 40% of a neighbourhood’s residents are low income, and 40% of residents report using a health care service, it cannot be assumed that all those using the service were the low income residents.



# Minimizing Random Effects

## Random noise:

- variations based on size of numerator and denominator that can lead to instability in rates because of the event is infrequent (rare events) or the number of people in the area that the rate applies to is small
- Example: A small increase in the number of births among a small population of female teens could double the rate but it reflects too small a number of events to be important for planning. It could be a one-time thing.

## Strategy: Reporting and Combining Guidelines

- Report if
- Combine up to 5 years to obtain reportable information
- Combine geographic areas – report only for larger areas
- Coefficient of Variation used in CCHS survey data
- Confidence intervals

# Accounting for Demographic Effects

## Demographic Composition

- Variations based on the age and gender make up of an area can explain the observed differences in health events that are known to vary by age and gender.
- Example: a neighbourhood with a high proportion of older adults 75+ will have higher rates of chronic diseases and disabilities that may be explained by these age differences

## Strategy for accounting for age/gender effects

- Age standardized rates by gender
- Age specific rates where the events or indicators are concentrated (e.g. mammograms among females age 50-69)
- Identify sites located in an area that include a concentration of specific populations (e.g. residences for pregnant teens, long term care facilities. etc.)



# People, Place or Policies?

Alternate explanations for health differences:

- Random variation, data quality
- Heterogeneity, demographic composition
- SES/Differences in access to the socio-economic, determinants of health and diversity of the population
- Differences in exposure to local physical, service, social, cultural, crime, transit, housing conditions, etc. that influence health (context, infrastructure)
- Mobility, fluidity, period and length of exposures
- Capacities and assets, activism, social organization, champions, pride, shared values, participation

# SES/SEP and Health

## Income, SES/SEP

- Explains approximately 20% of the variations in many health indicators even after controlling for behavioural risk factors, many of which are themselves associated with income (varies by indicator and life course).
- Both individual income and area income have explanatory power for many conditions.
- Many factors are associated with income (housing tenure, recent immigration, employment, education, physical environment, etc) but some may counteract an income effect.

## Emphasize SES/SEP

- Income heterogeneity was one of the factors used in creating the geographic areas.
- This enables visual identification of spatial patterns in area income and health indicators using maps.
- When neighbourhoods of similar SES have different rates for health conditions, this is a good starting point for learning about the characteristics beyond income that explain why some areas are doing comparatively better on health outcomes.

# What's Coming

## *Imminent:*

- Prevention (Pap smears, mammograms, infant immunizations, senior's flu shots)
- Adult health and disease (self-rated health, diabetes, high blood pressure, asthma, arthritis, disability, activity limitation, injuries, mental health, dental visits)
- Older adults (demographic, socioeconomic and activity limitation data)
- Housing Data (dwellings by type & tenure, shelter costs, rent-geared-to-income units)



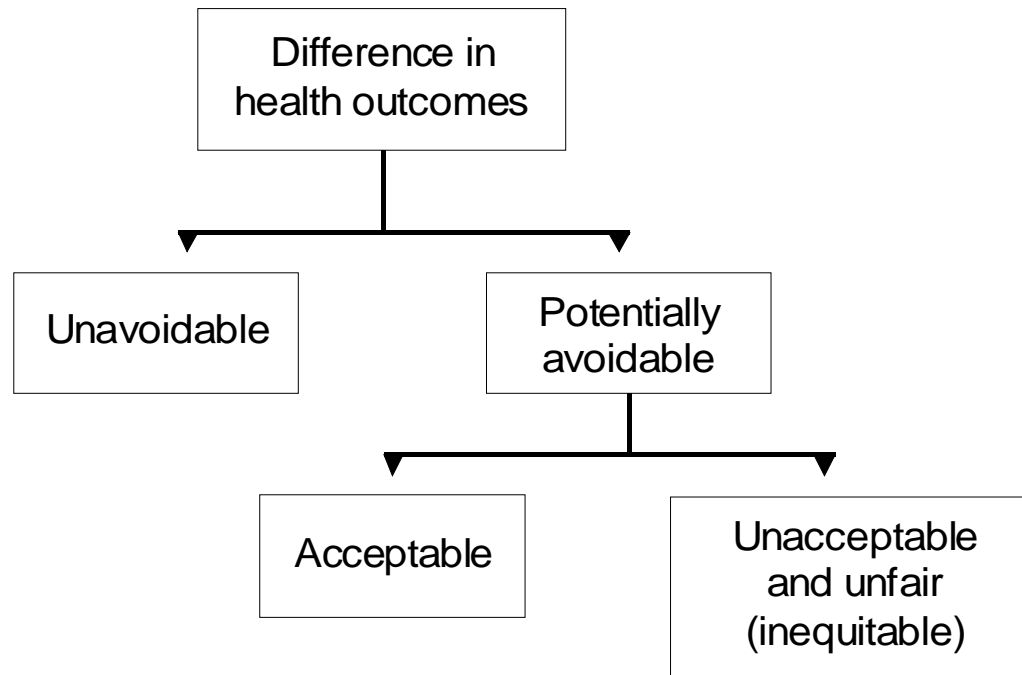


# What's Coming (cont'd)

## *A little Down the road:*

- Safety (suicide calls to police, updated violent crimes)
- Children & Young Families (low income, school variables, emergency visits, pediatric ACS hospitalizations)
- Sexual Health (Chlamydia, Gonorrhea)
- Mortality
- Equity Variables

# Judging the Equity of Health Outcomes



Source: Peter and Evans, Chapter 3. In Challenging Inequities in Health: From ethics to action, Summary, 2001, The Rockefeller Foundation & The Swedish International Development Cooperation Agency

# How to Identify Health Inequities?

- Use disaggregated data to look at intersections (ie income X gender X ethnic group)
- Identify groups and pockets of greater need\*
- Look for mis-matches between need and use
- Compare service users with catchment population
- Reflection/analysis of observed differences and implications of action alternatives (draw on evidence including community knowledge)

\* Need is “capacity to benefit”, based on relatively greater exposure to health risks (social, economic, physical) and measures of health status



# In summary the website provides:

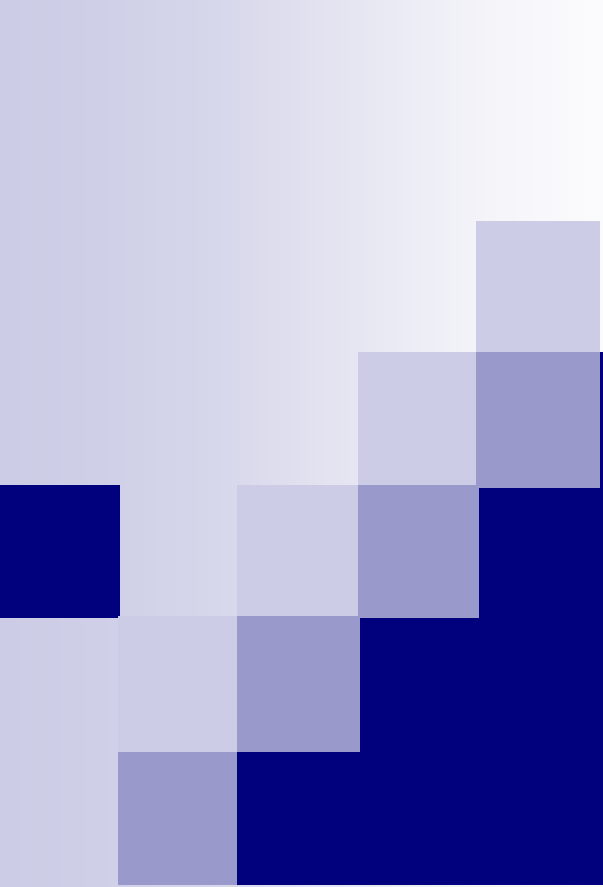
1. Nested” geographic levels
2. Indicators (many never before available at the small area level)
3. Statistical significance and policy significance for each health indicator using guidelines/ethics/standards
4. Data sources, uses and limitations
5. Maps and tables
6. Resources and links to other key sites:

[www.toronto.on.ca/demographics/neighbourhood\\_profiles.htm](http://www.toronto.on.ca/demographics/neighbourhood_profiles.htm)



THANK YOU FOR YOUR  
ATTENTION!

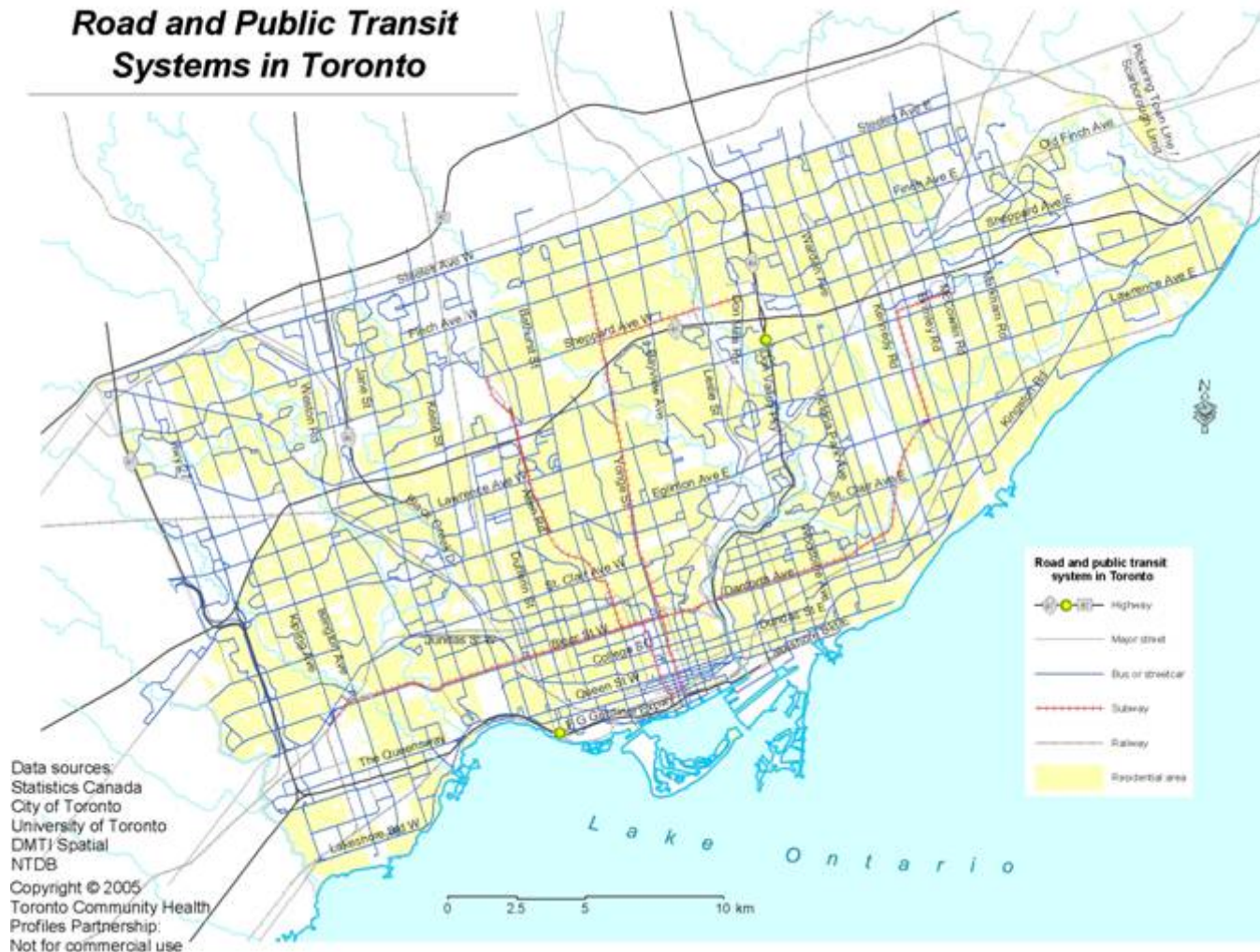




# **Preview of Upcoming Spatial Methods & Interpretation Workshop – Date TBA**

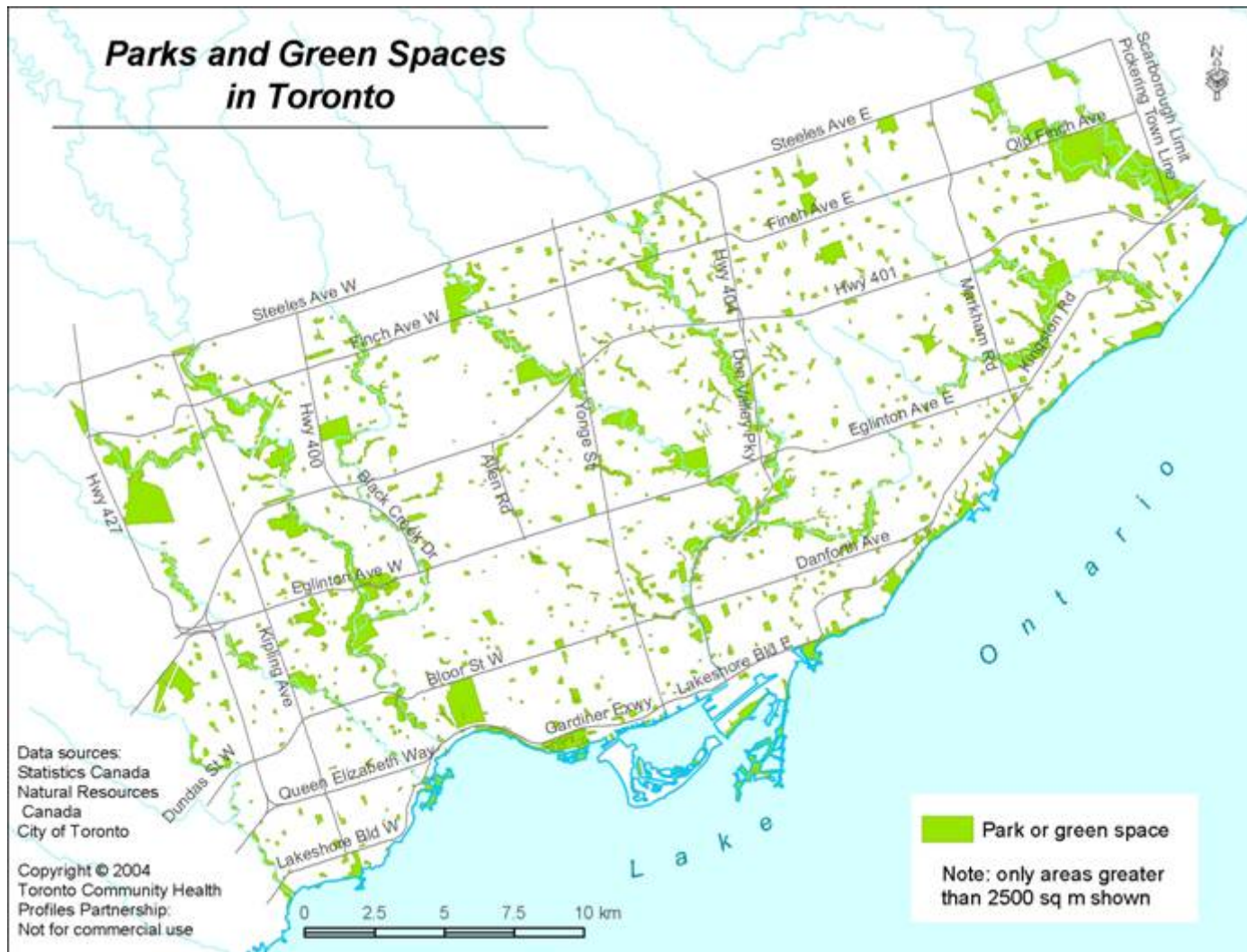
# Topographic Maps

Show location of the elements of the environment



# Topographic Maps

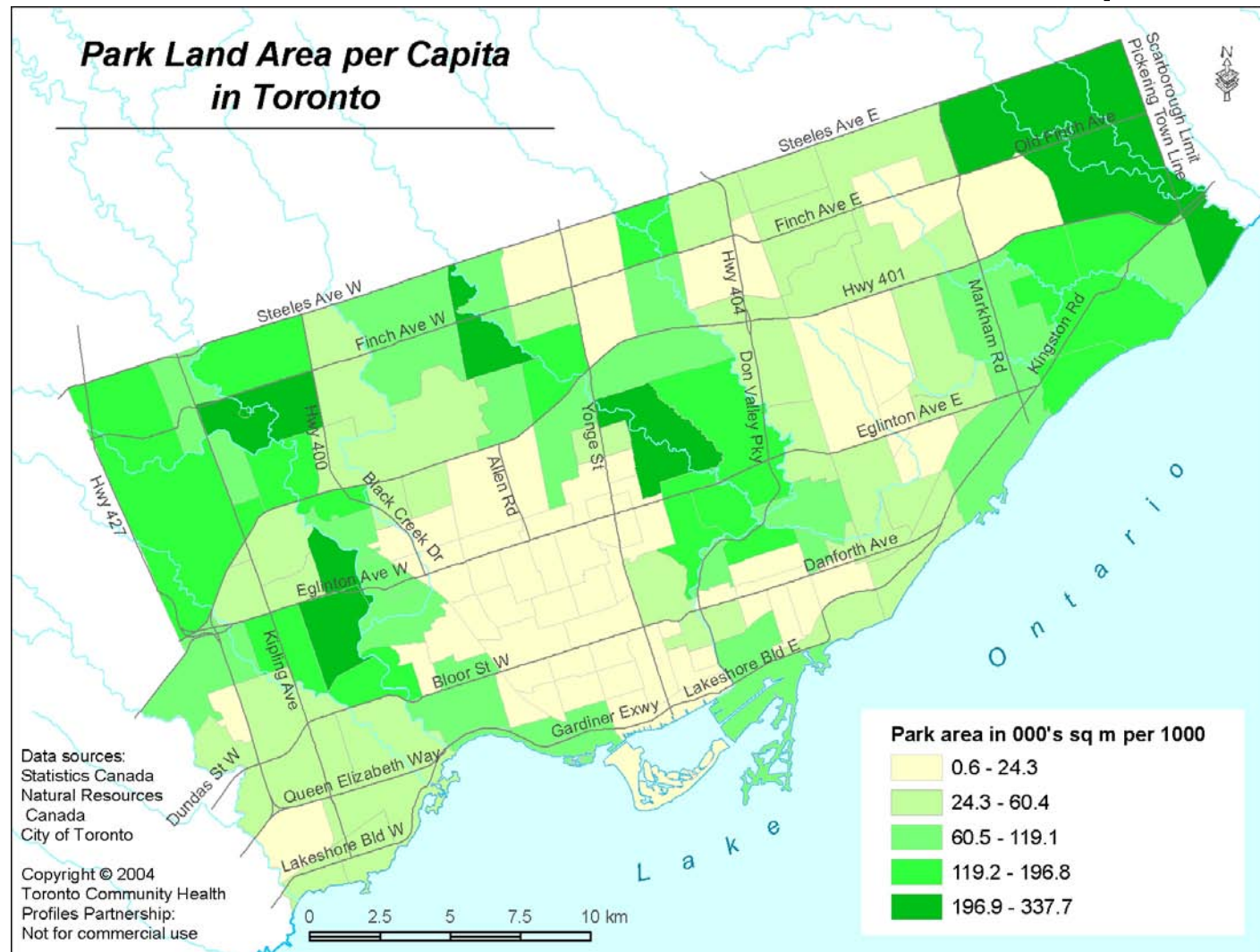
Show location of the elements of the environment





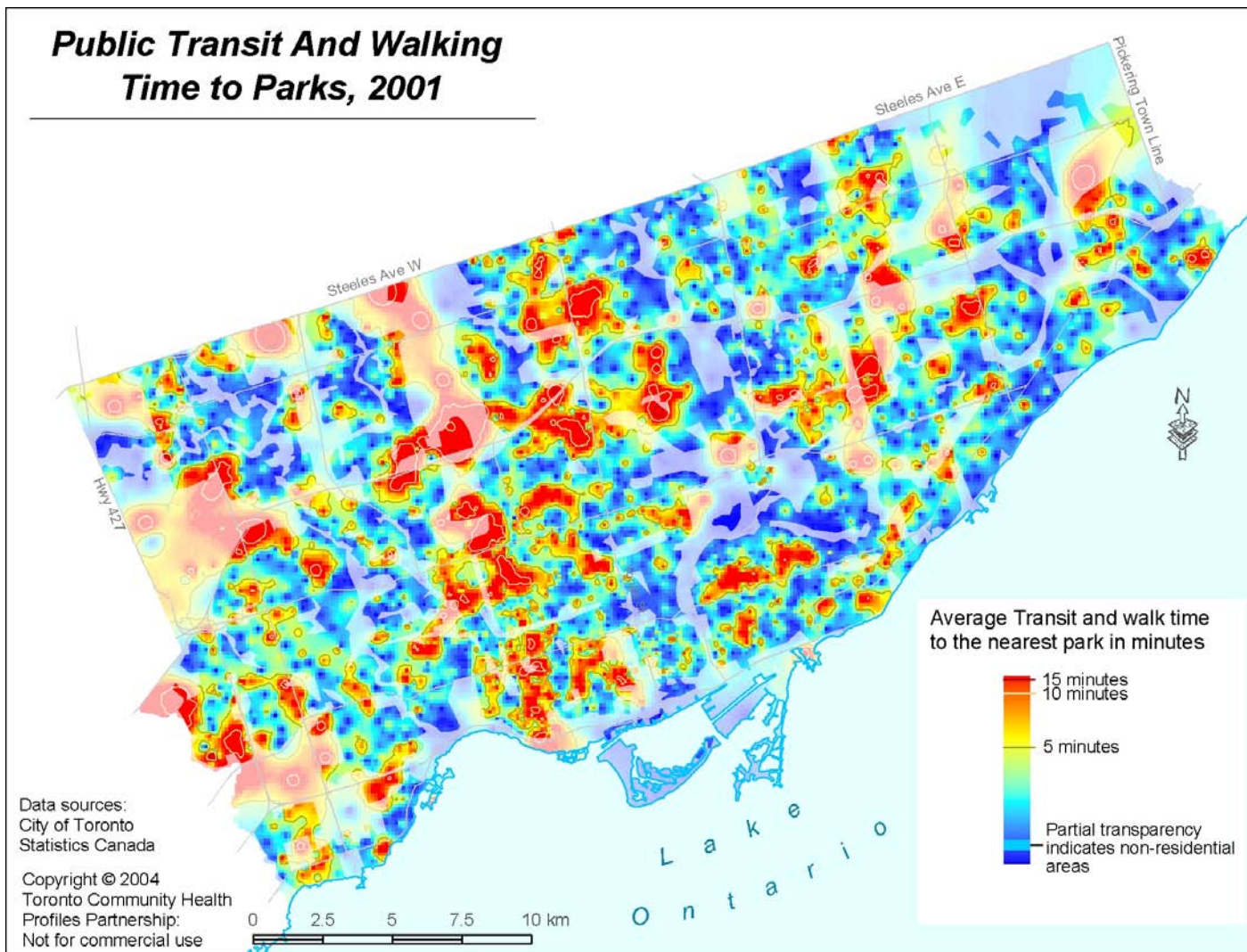
# Thematic Maps

Show the statistical characteristics of variable(s) in different location on the map



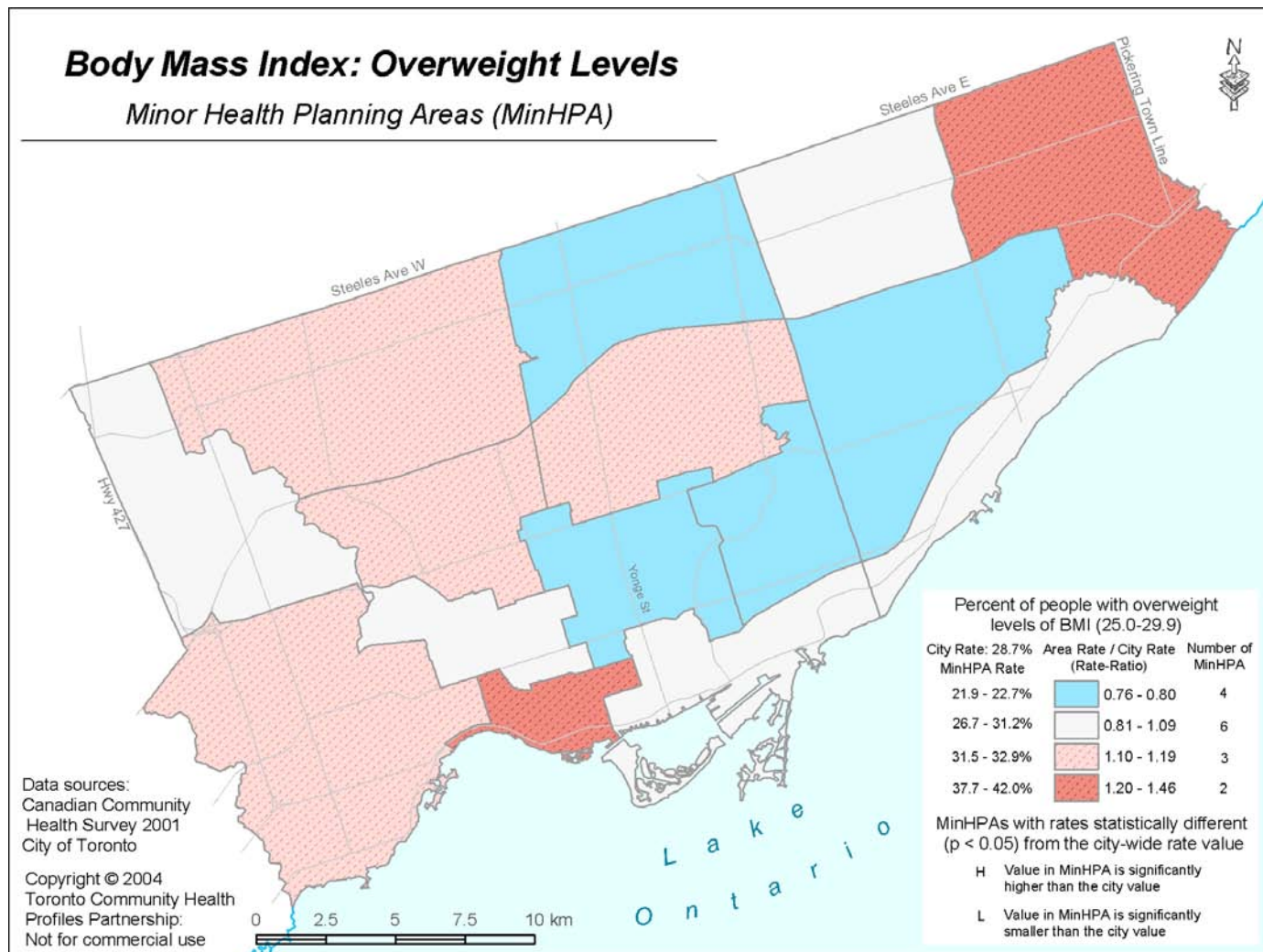
# Gathering Information from Maps

Several maps can be examined together in order to build a fuller understanding of processes in an area



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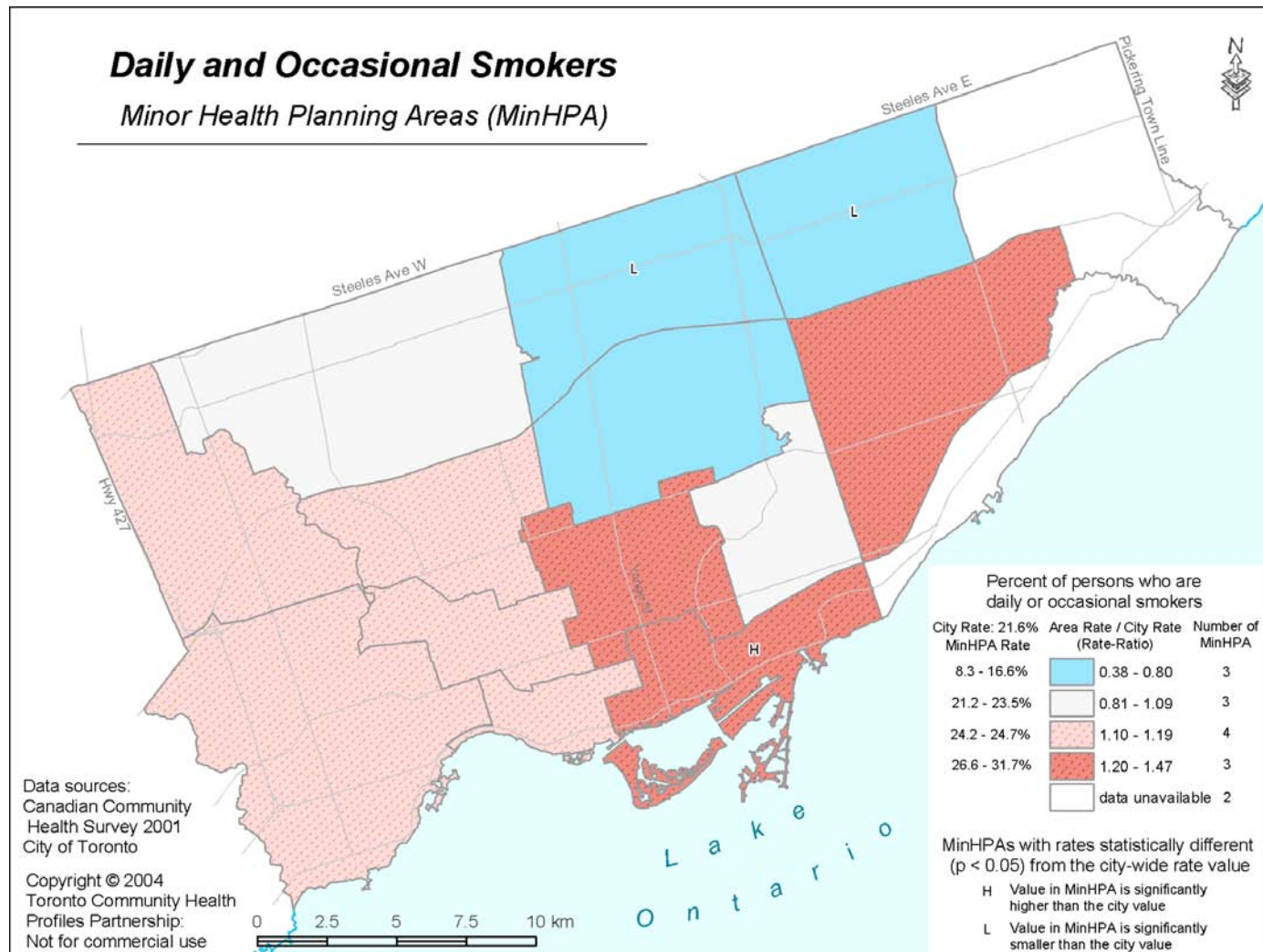
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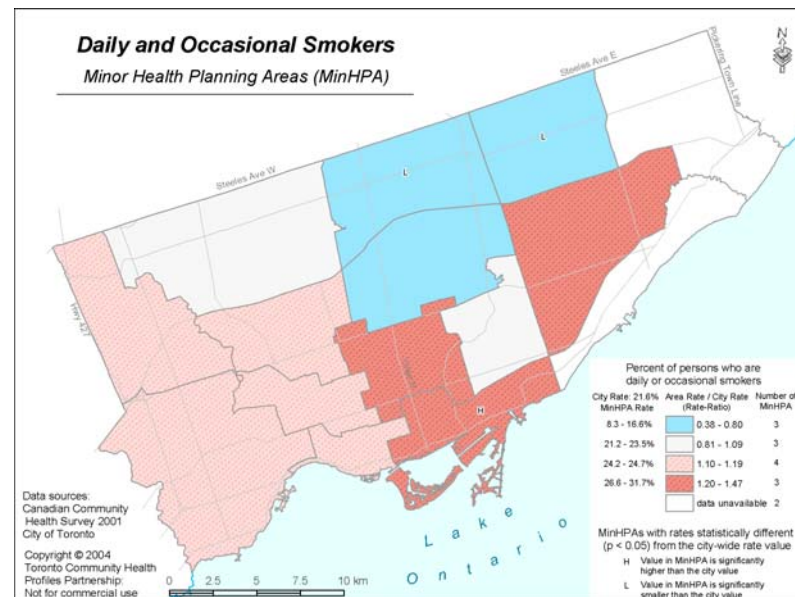
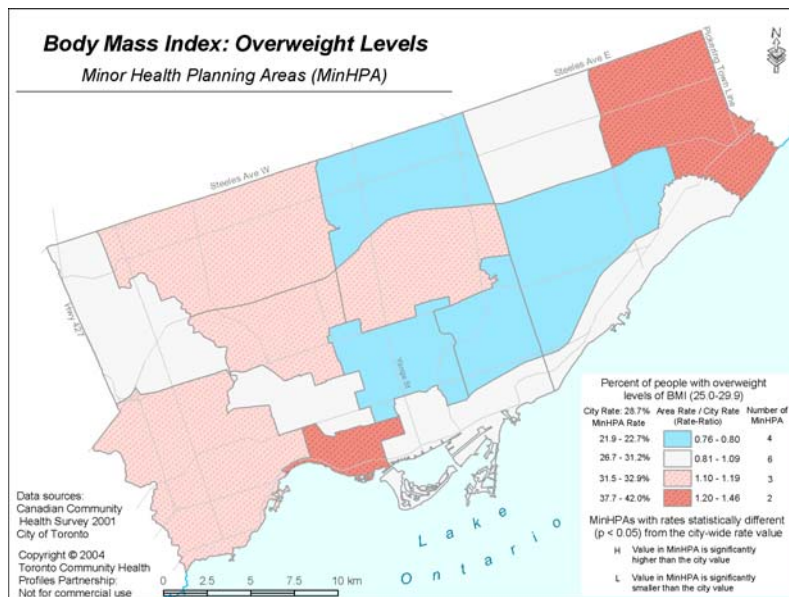
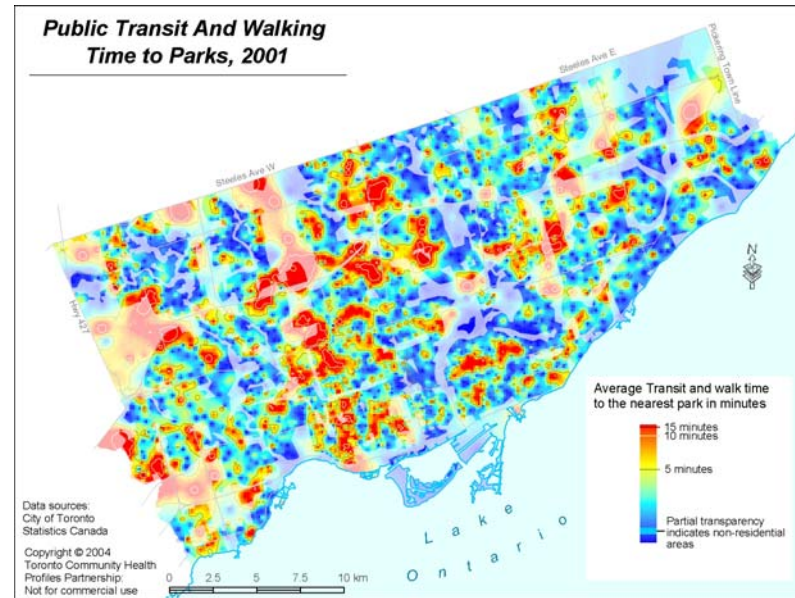
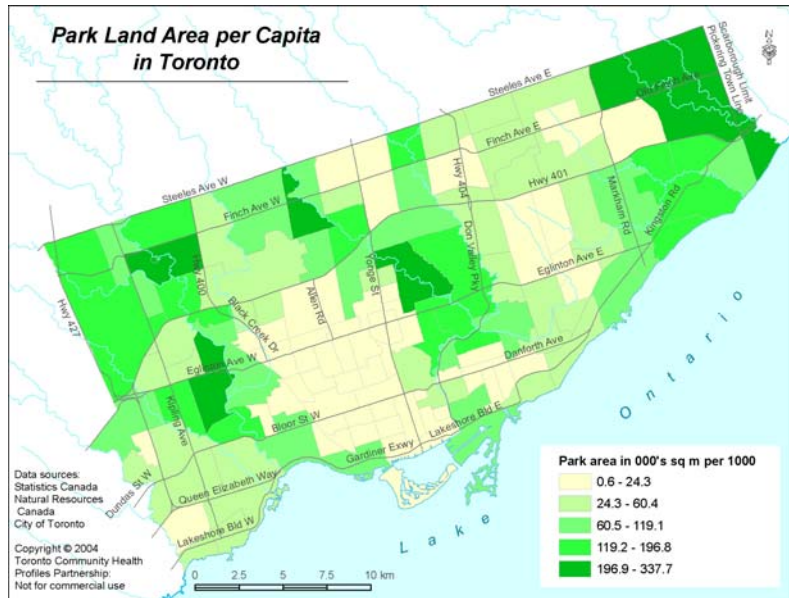


# Gathering Information from Maps

Several maps can be examined together in order to build a fuller understanding of processes in an area



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# Areas of Concern (All Variables Present Relatively Poor Scores)

