Employing GIS to Better Understand the Gendered Nature of Unpaid Work

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7th Global Forum on Gender Statistics, Session 7
November 2018

SSHRC CRSH
Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada

Chair in Gender, Health and Caregiver Friendly Workplaces

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

8.1 million
CANADIANS ARE CARERS
(1 in 4 Canadians)
[STATISTICS CANADA, 2013]

50% of carers
ARE BETWEEN THE
ages of 45-65
THEIR PEAK EARNING YEARS
[STATISTICS CANADA, 2013]

70-80%
of community care
for older adults
IS PROVIDED BY CARERS
[HEALTH COUNCIL OF CANADA. 2012]

6.1 million
CARERS ARE JUGGLING THEIR
work and caregiving
RESPONSIBILITIES
[STATISTICS CANADA, 2013]

54%
WOMEN
46%
MEN
Carers
(STATISTICS CANADA, 2013)

Carers
spent
$12.6 million
in 1 year on expenses
RELATED TO THEIR CARING ROLE
[FAST ET AL. 2013]

Infographic Credit: Carers Canada

Unpaid Care Work

- Universal
- Social, Cultural, Policial contexts vary geographically
- Impacted by the social determinants of health
- Gendered
- Time-space tensions = negative outcomes for carers
- Carer-employees
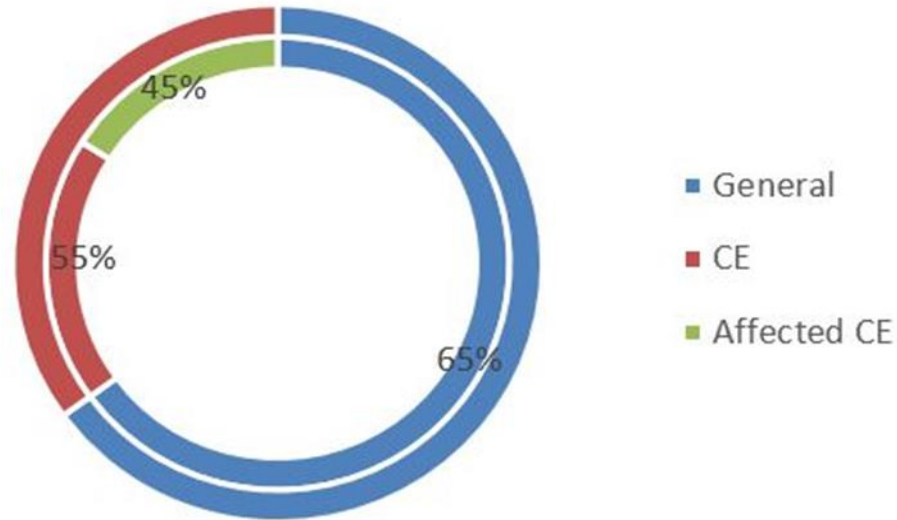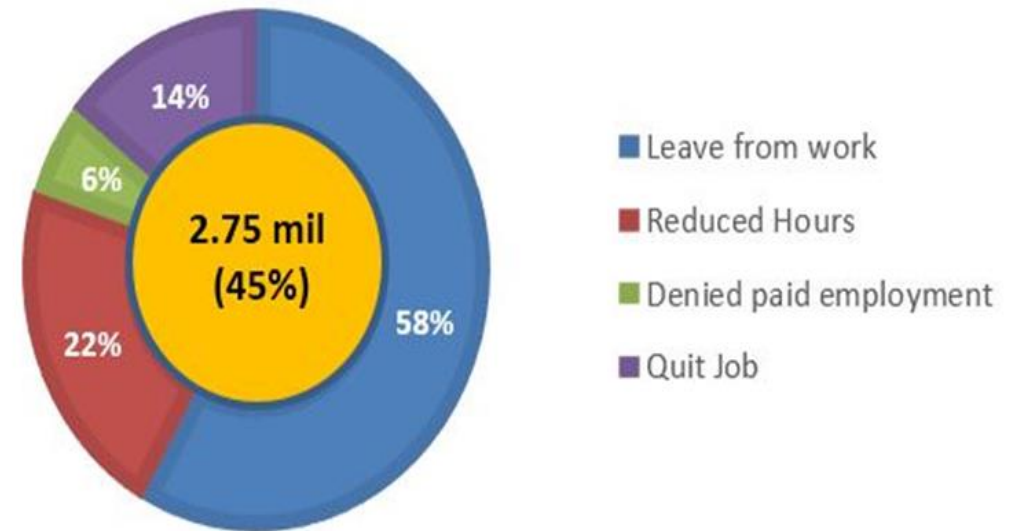- Carer-Friendly Workplaces

Spatial & Temporal Tensions
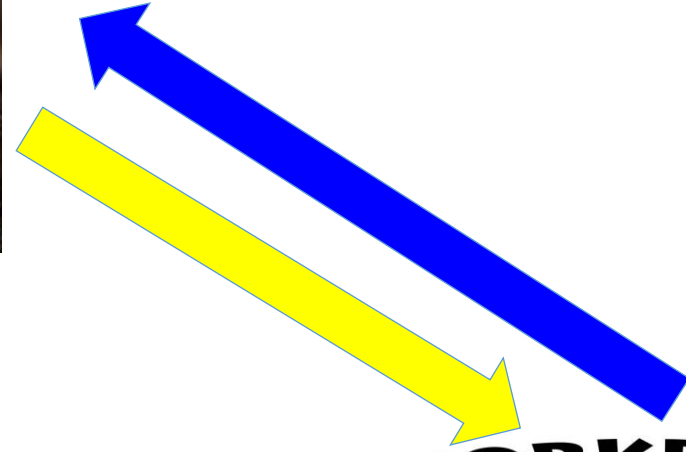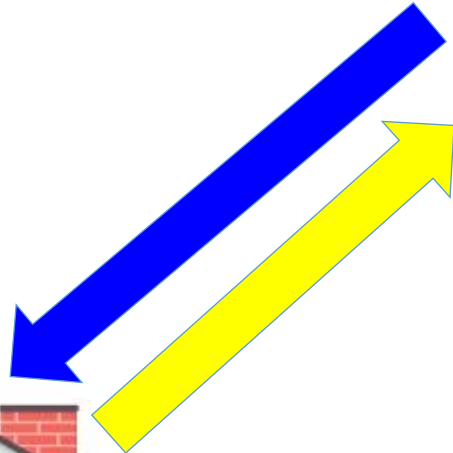
What is the Economic Impact?

(Research on Aging Policies & Practices, University of Alberta)

Canada's Workforce

- General
- CE
- Affected CE

45%
55%
65%

CE WORK IMPACT

2.75 mil (45%)

14%
6%
22%
58%

- Leave from work
- Reduced Hours
- Denied paid employment
- Quit Job

> $1.3 billion lost per year

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McMaster University

A New World of Research Opportunity

➢GIS – Geographical Information Science

1. Measuring Spatial Access to Health/Social Care Services
2. Critical/Feminist geographies - Measuring Time-Space Vulnerability
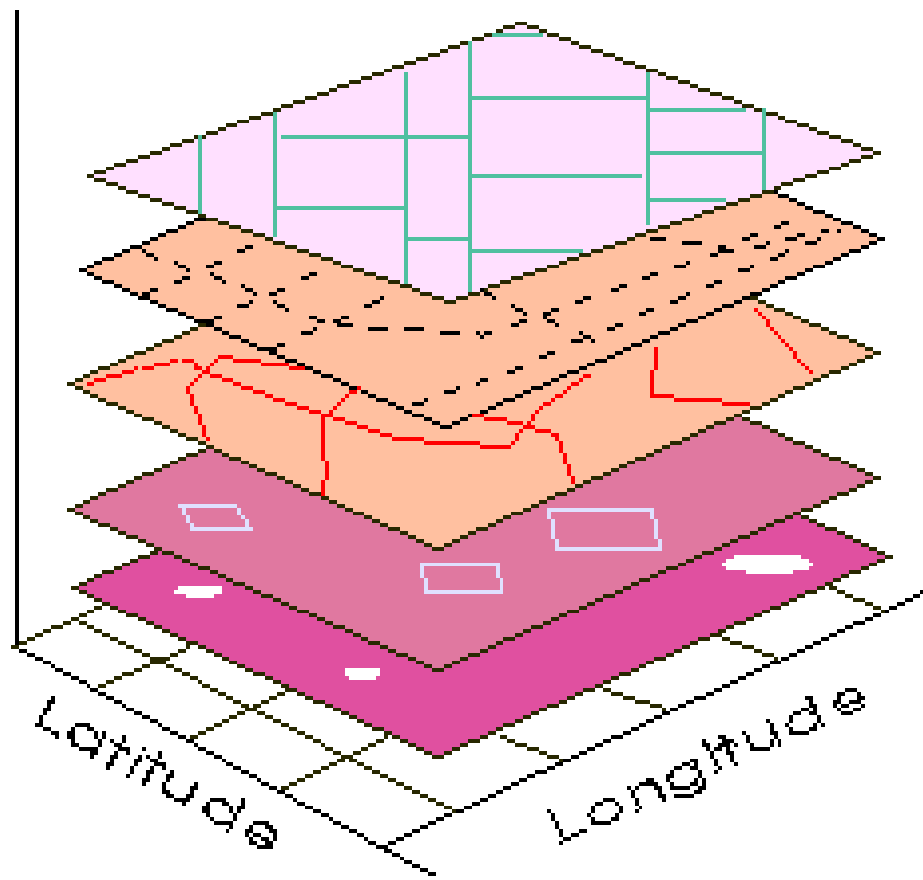
Census Tracts

GPS Tracking

Time-Use Data

Gender

Occupational Status

Latitude

Longitude

GIS: An Integrating Technology

Limited Spatial Data Availability for Time-Use Data

Domestic Work	Home Care/Maintenance	Caregiving
• Meal prep/cleaning • Clothing care • Cleaning • Shopping • Obtaining services	• Financial management • Plant/garden care • Home management	• Physical & medical care • Education • Other care • Travel related to caregiving

Axis of Time vs. Axis of Space

Time

- Unpaid work has traditionally been examined temporally
- Axis of time prioritized via weekly/daily time-use surveys, etc.

Space

- Unpaid work has not yet been fully explored across space & provides an exciting opportunity for enhanced understanding through visualization
- Spatial data required!

Current/Established Applications (1)
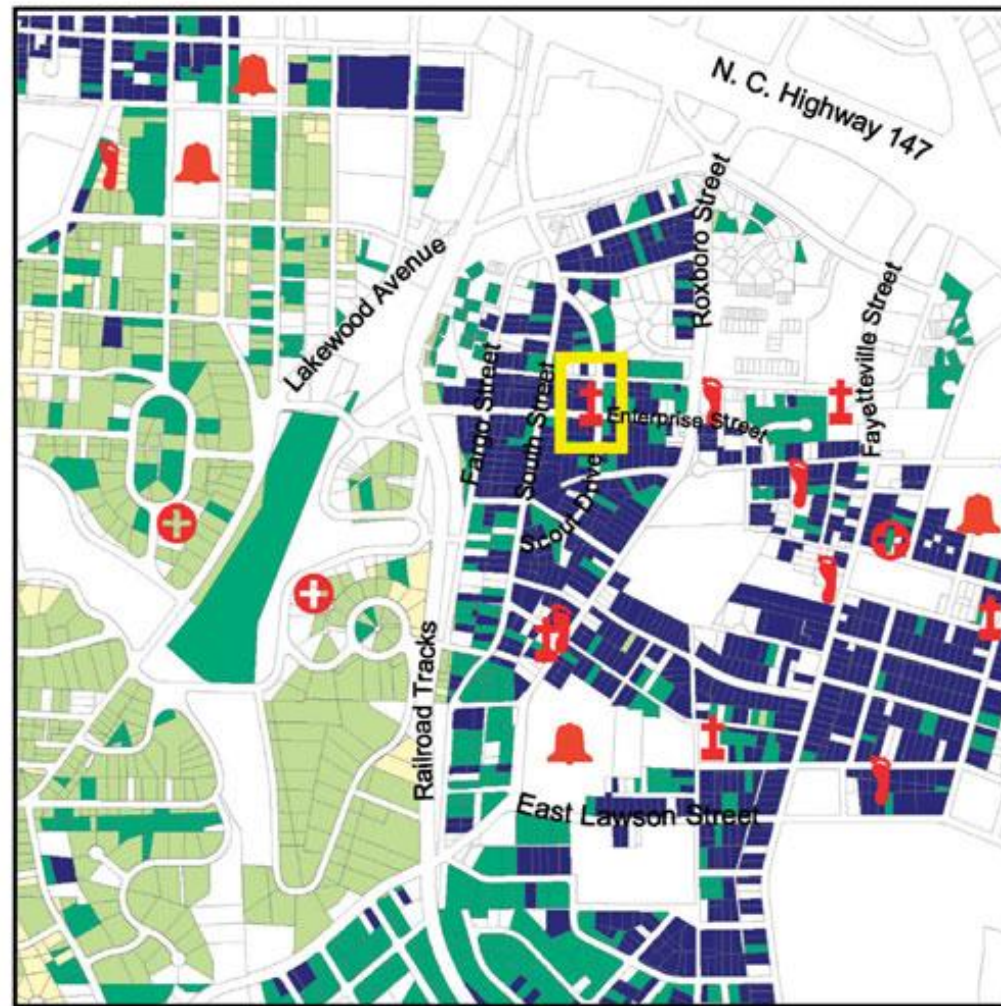
1. Measuring Spatial Access to Health/Social Care Services
   - People – locations, numbers, demographic, health needs
   - Providers – locations, numbers, characteristics, quality, acceptability
   - Proximity – distance, travel time, transportation access

Used for Planning
   - Primary care
   - Social care
   - Adjunct services
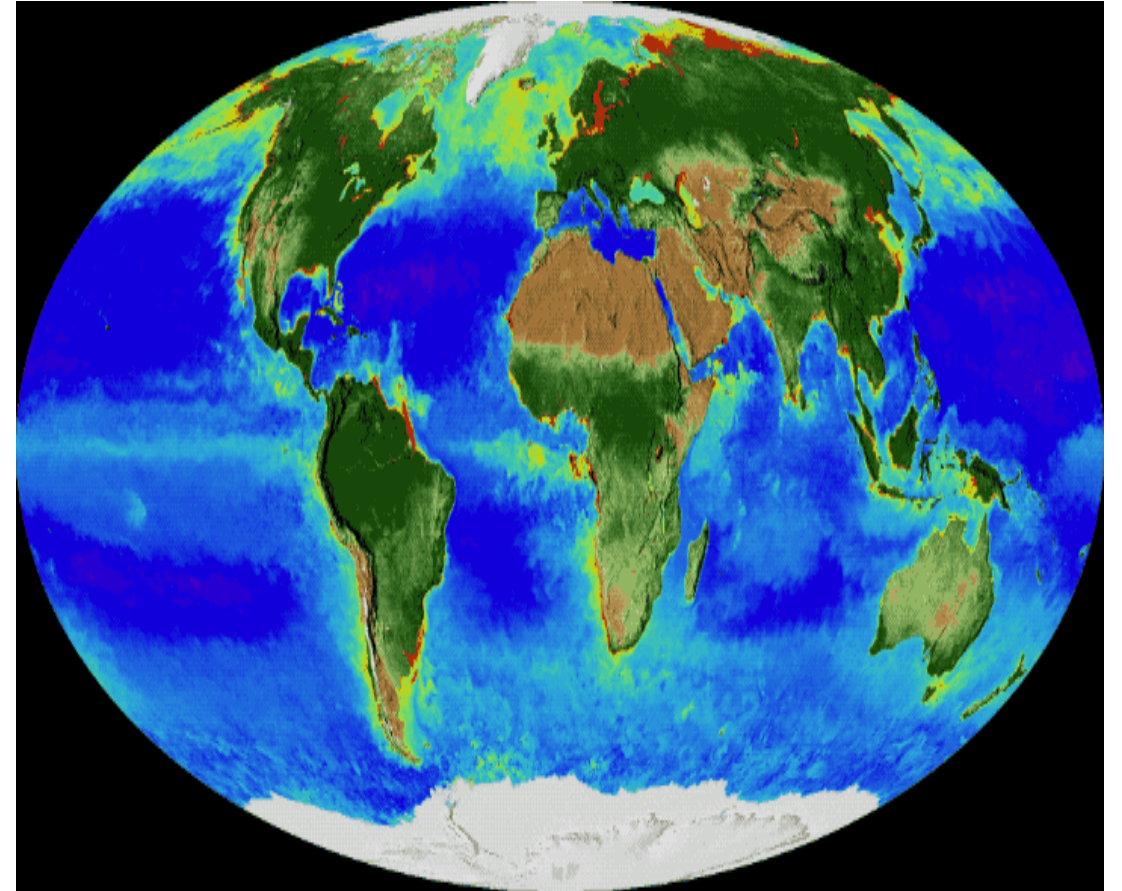
Using GIS to characterize neighborhood environments

Miranda et al (2002) Mapping for prevention: GIS models for directing childhood lead poisoning programs. Envir Health Persp, 110:947-953
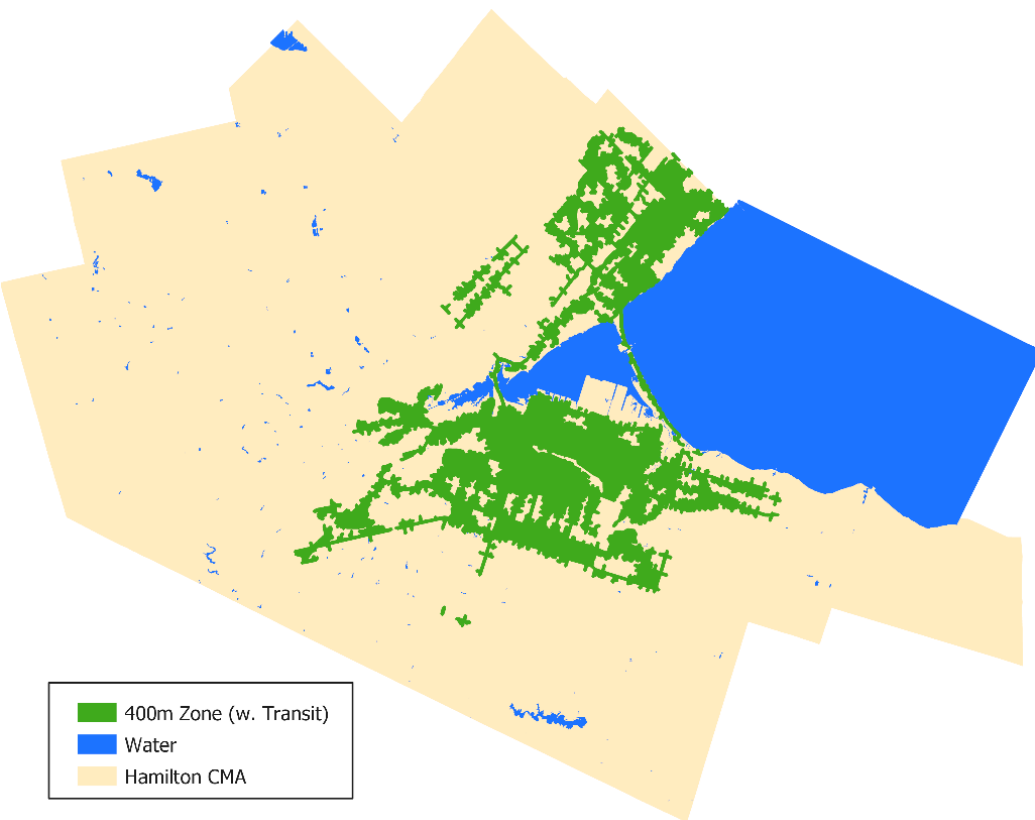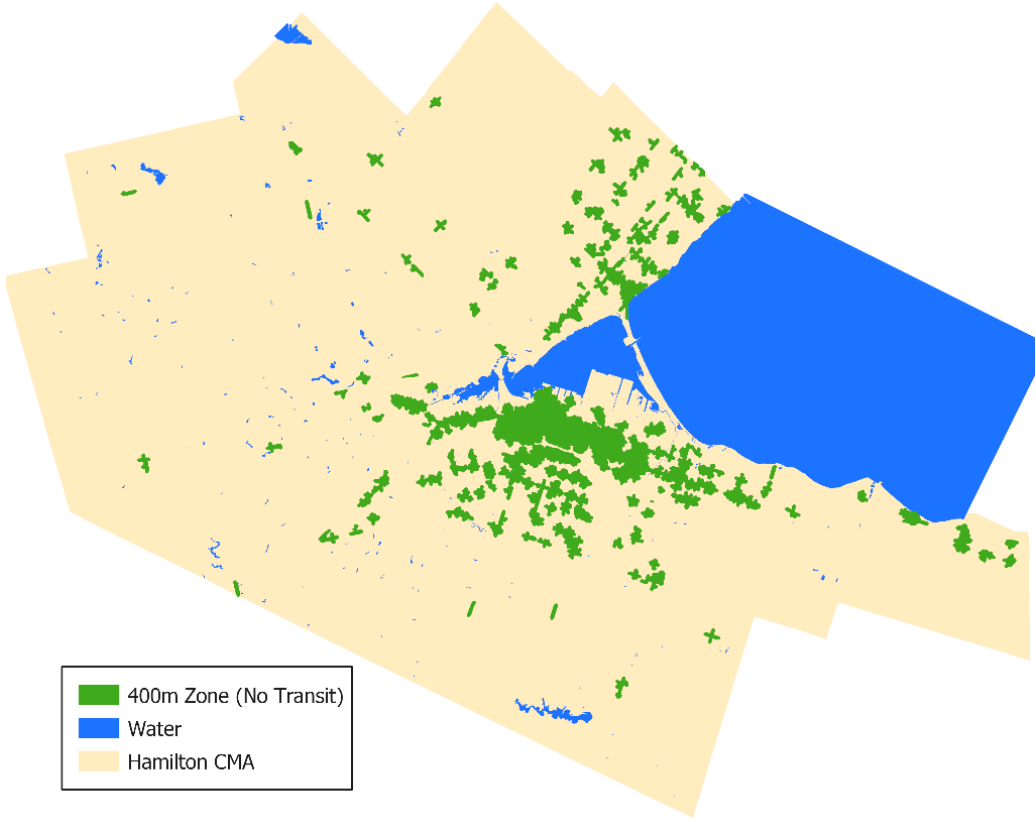
Study Area (Dardas et al., 2018)
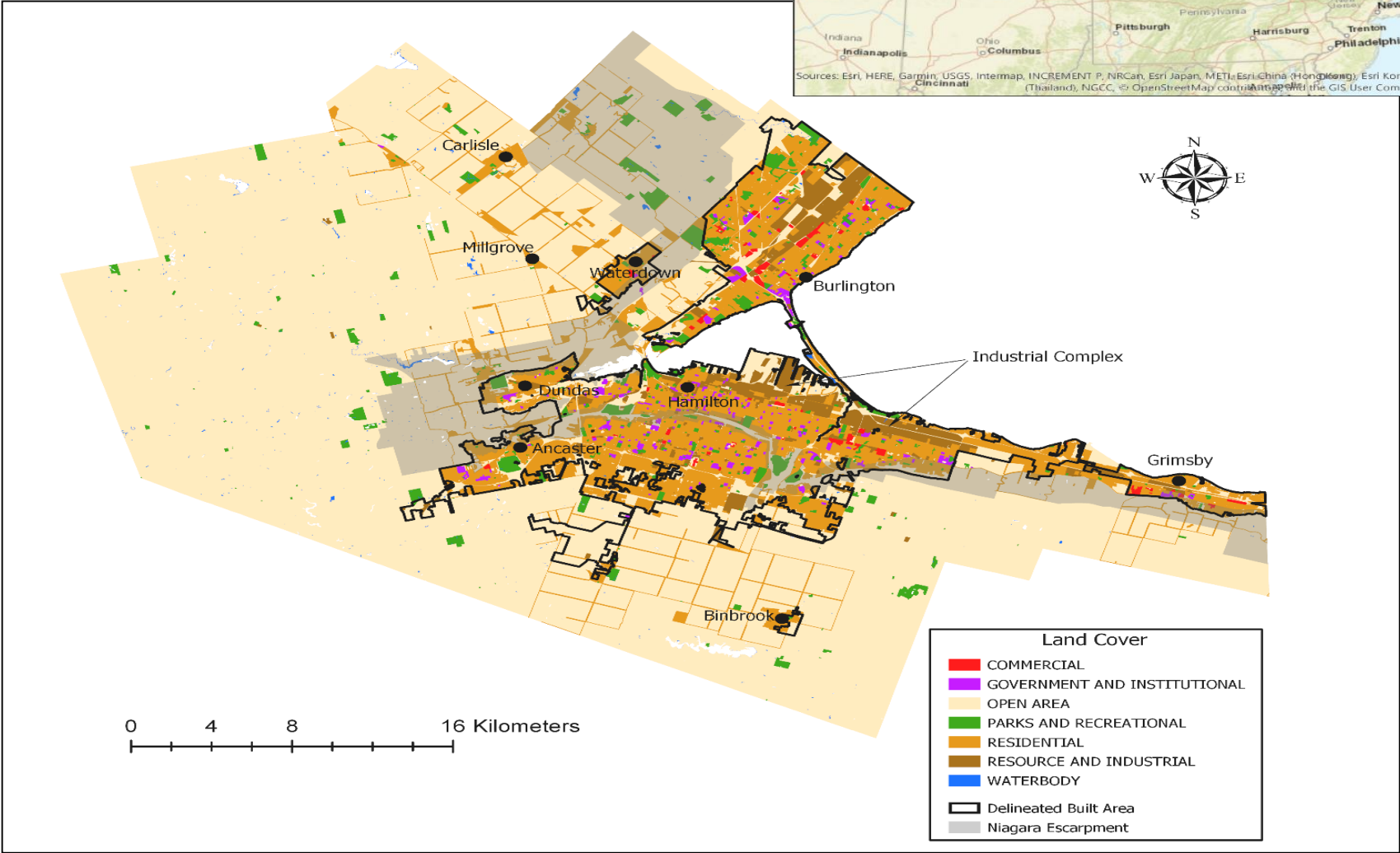
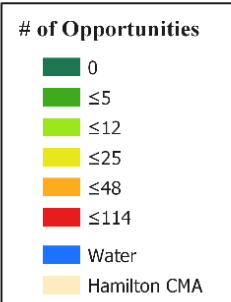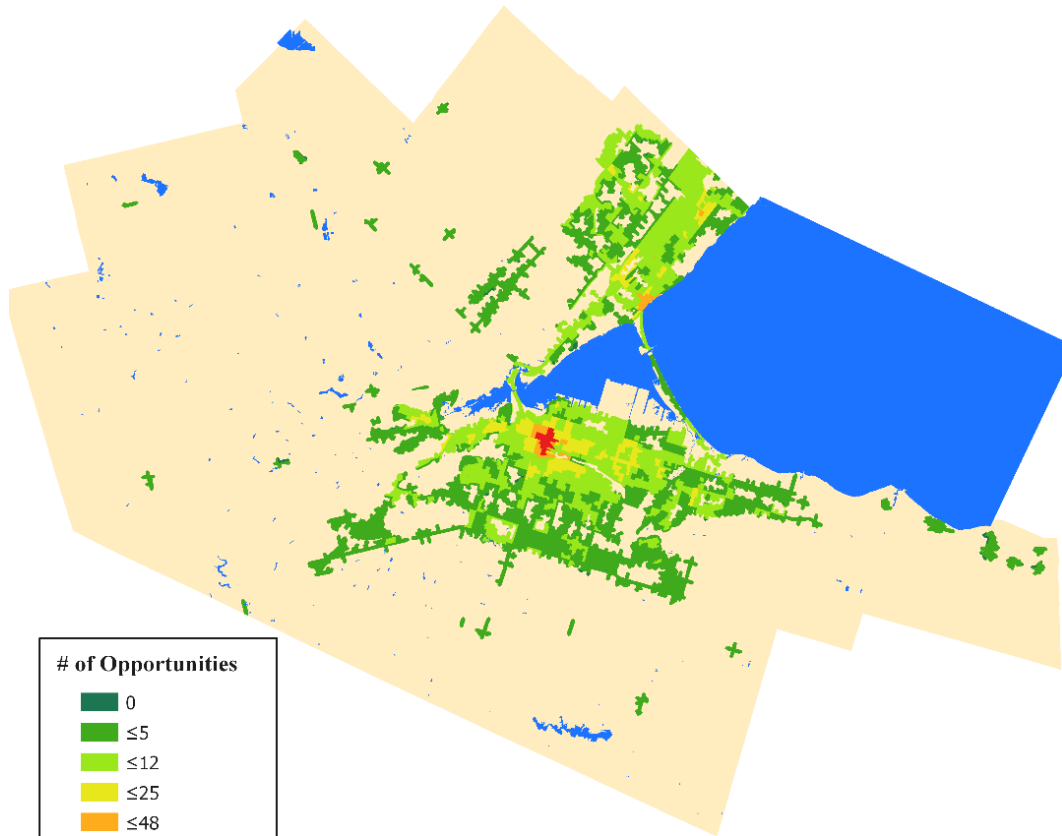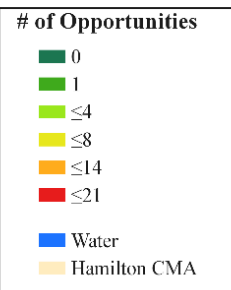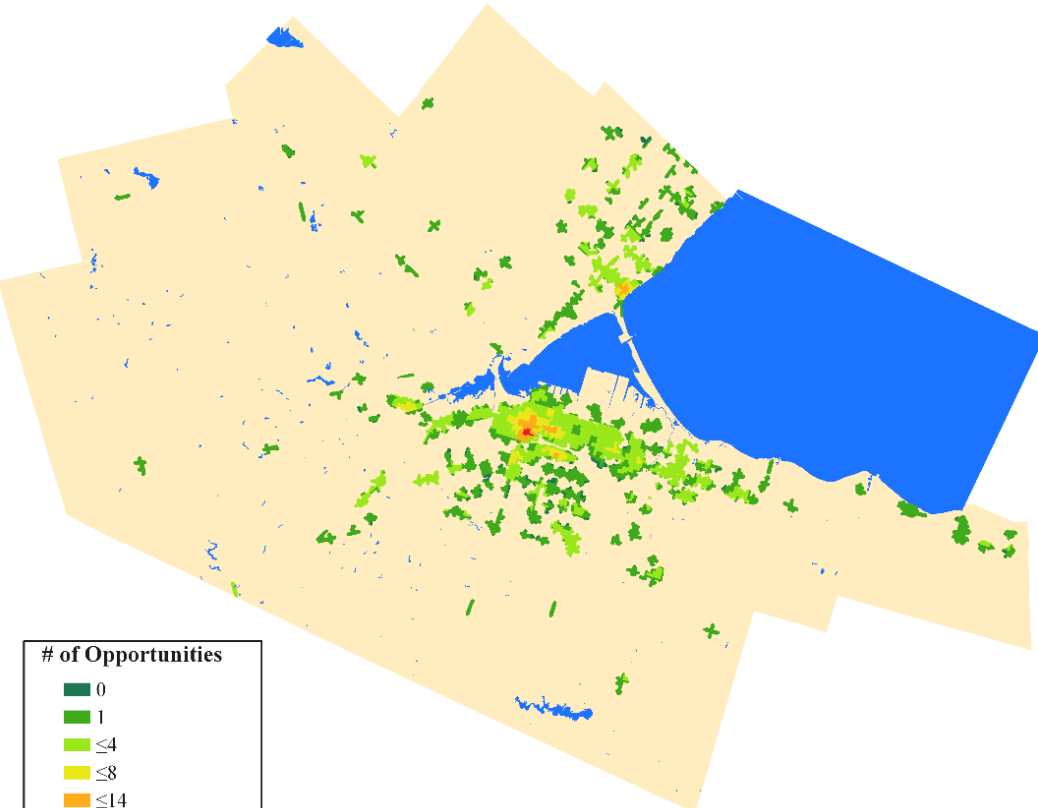# Service Zones with/out Public Transit
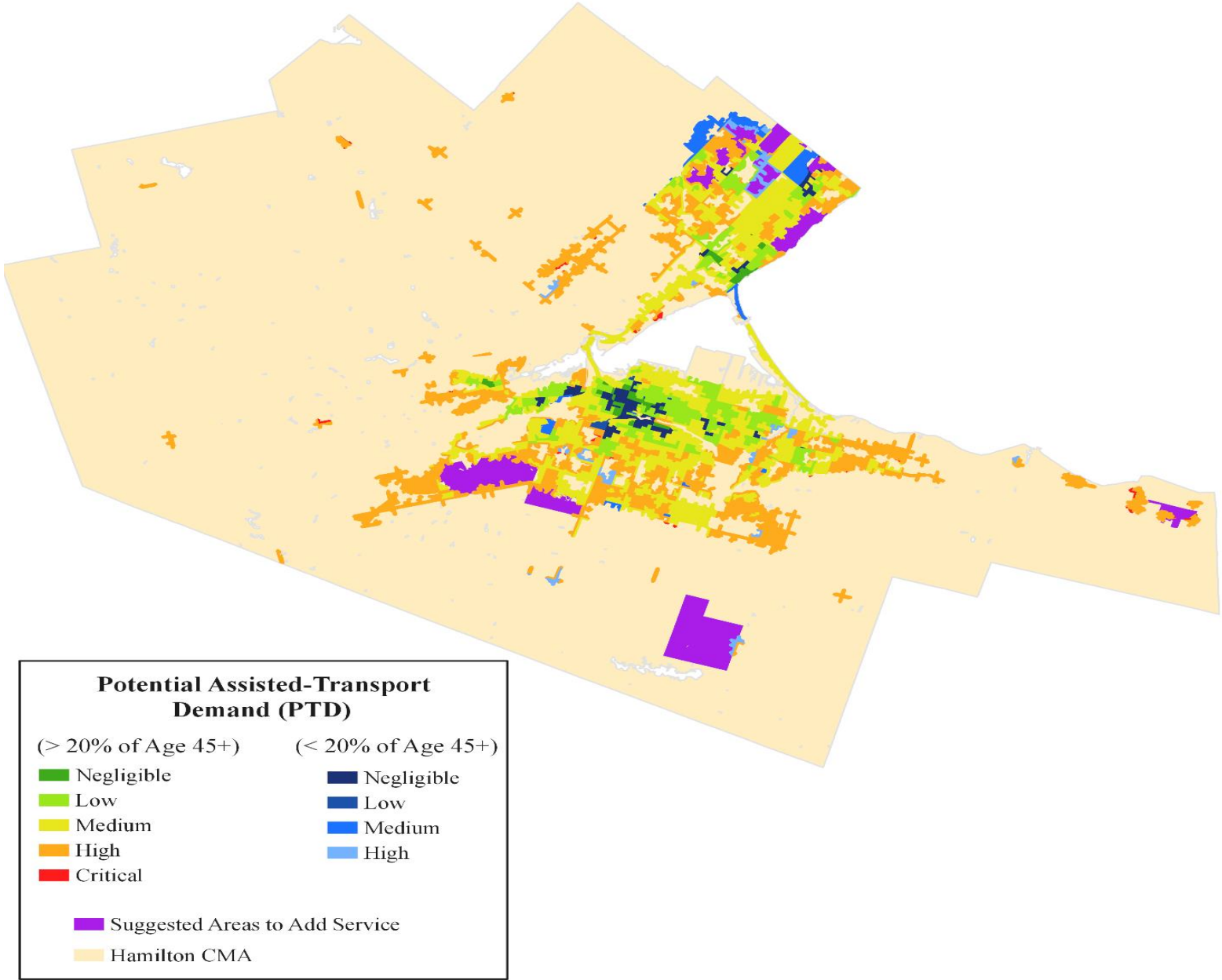## (Dardas et al., 2018)

Accessibility Scores with/out Public Transit
(Dardas et al., 2018)

Potential Demand Zones (Dardas et al., 2018)

Potential Assisted-Transport Demand (PTD)

(> 20% of Age 45+)	(< 20% of Age 45+)
Negligible	Negligible
Low	Low
Medium	Medium
High	High
Critical	

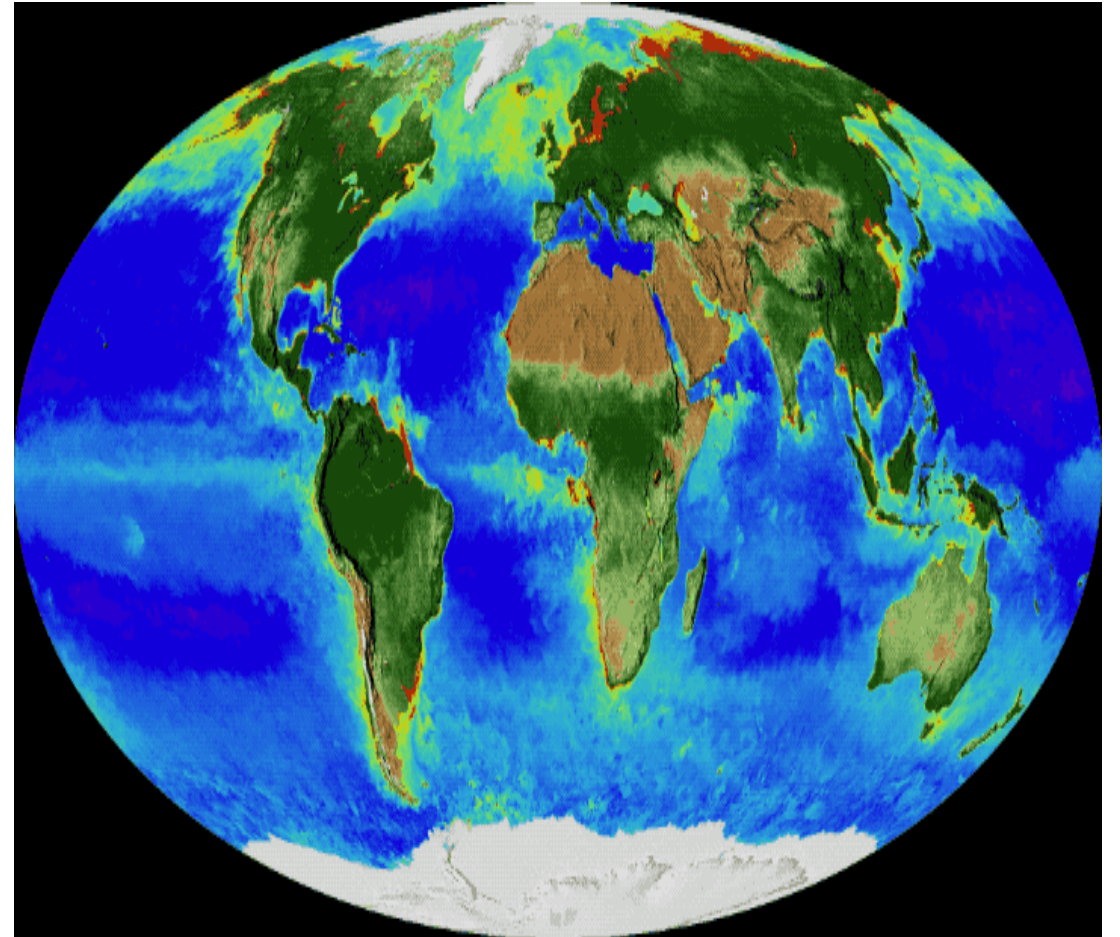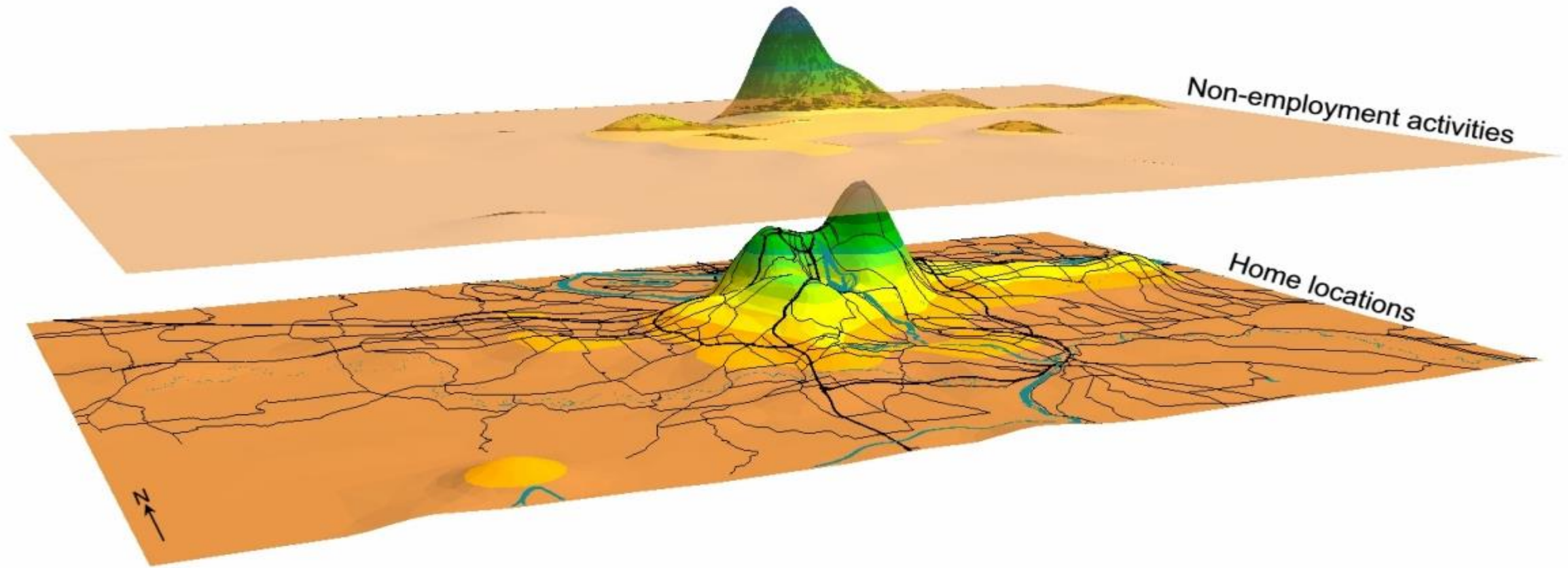Suggested Areas to Add Service

Hamilton CMA

Space-Time Series
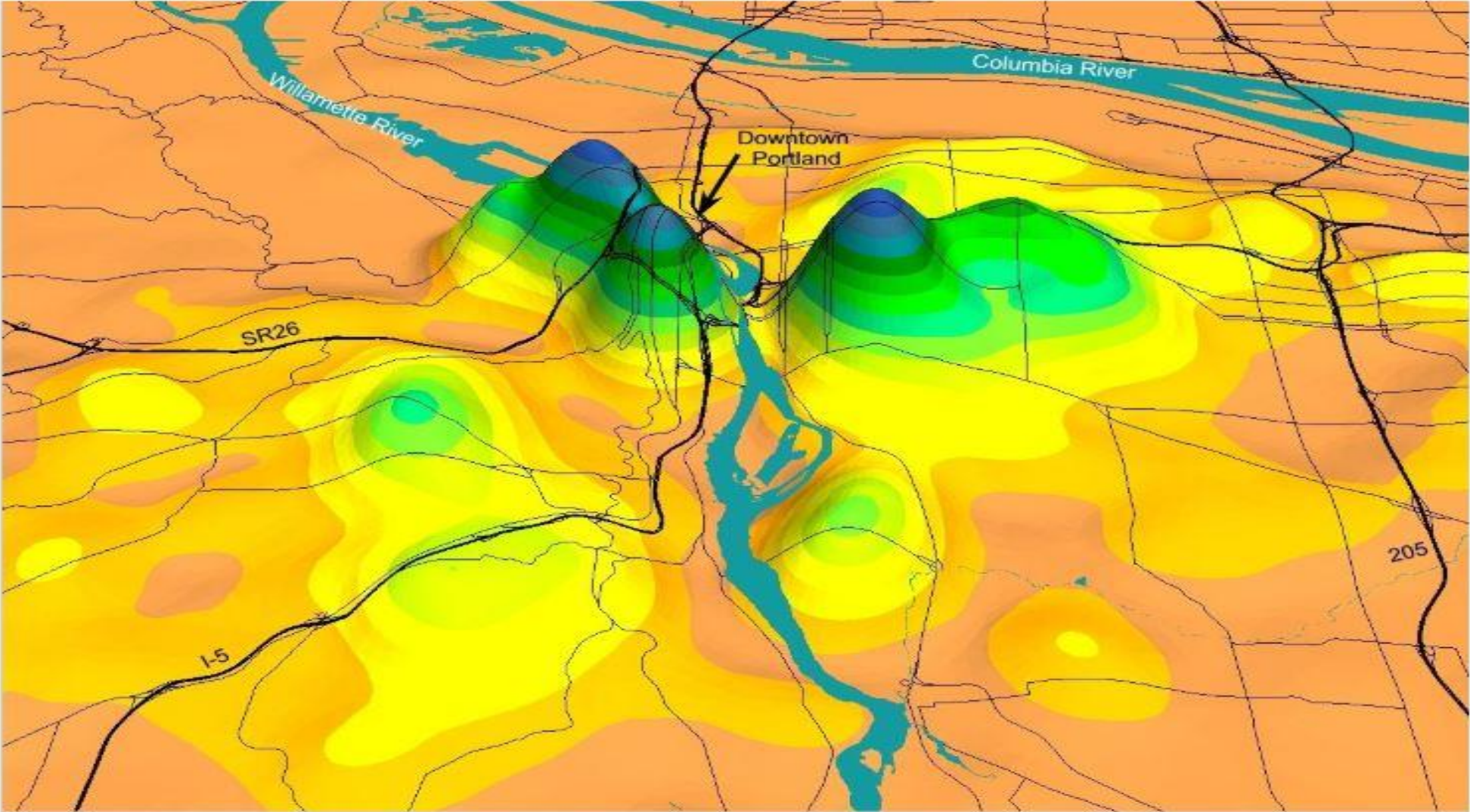
Credits: Mei-Po Kwan

Novel & Developing Applications (2)

2. Critical/Feminist Approaches to Measuring Time-Space Vulnerability

- Non-employment activities (inclusive of unpaid work)
- Volunteered Geographic Information (VGI)

A close-up view of activity patterns in geographic space (Kwan, 2000)

Gendered Experience (Kwan, 2000)

Space-time activity density of non-employment activities for women employed part-time
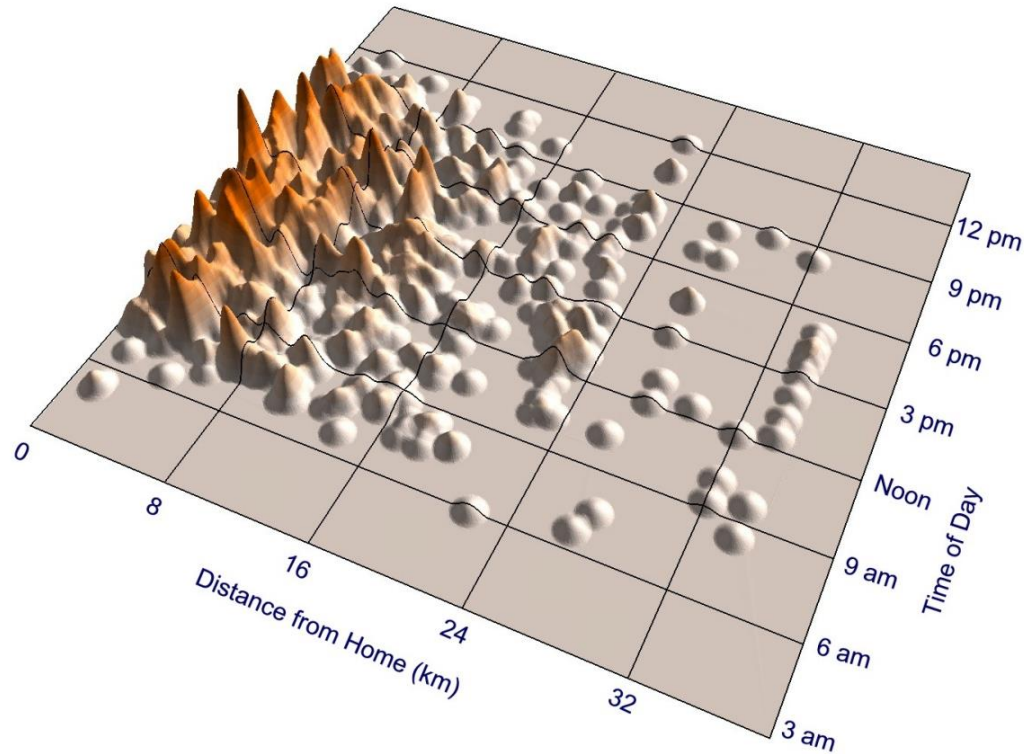
Space-time activity density of non-employment activities for men employed part-time
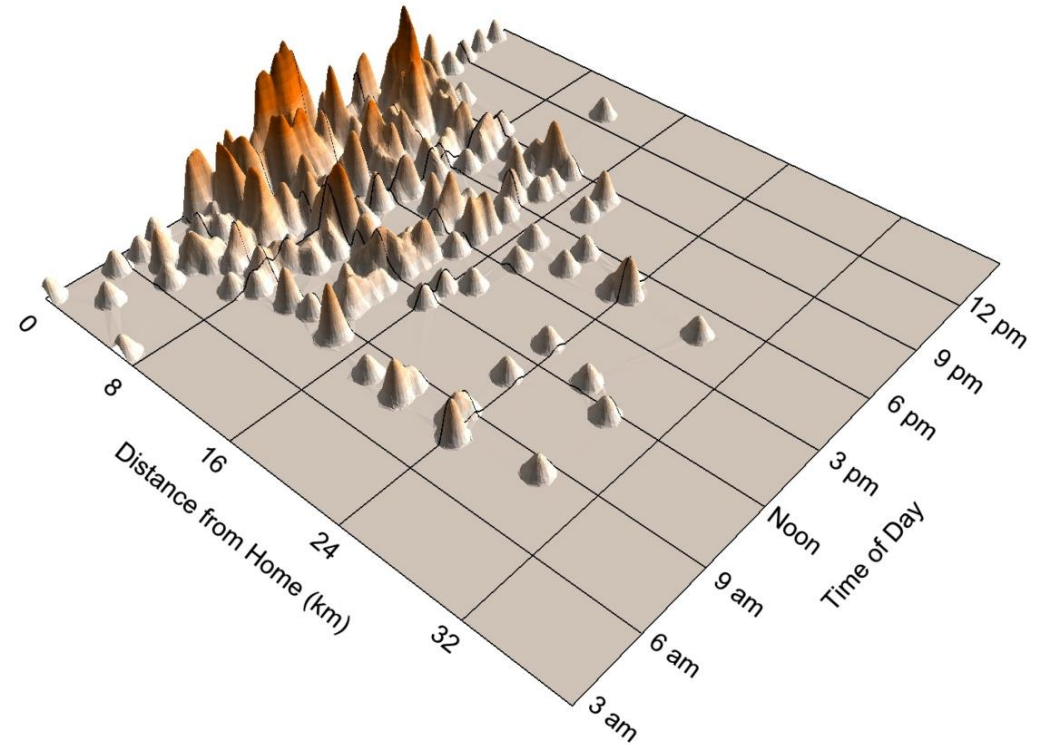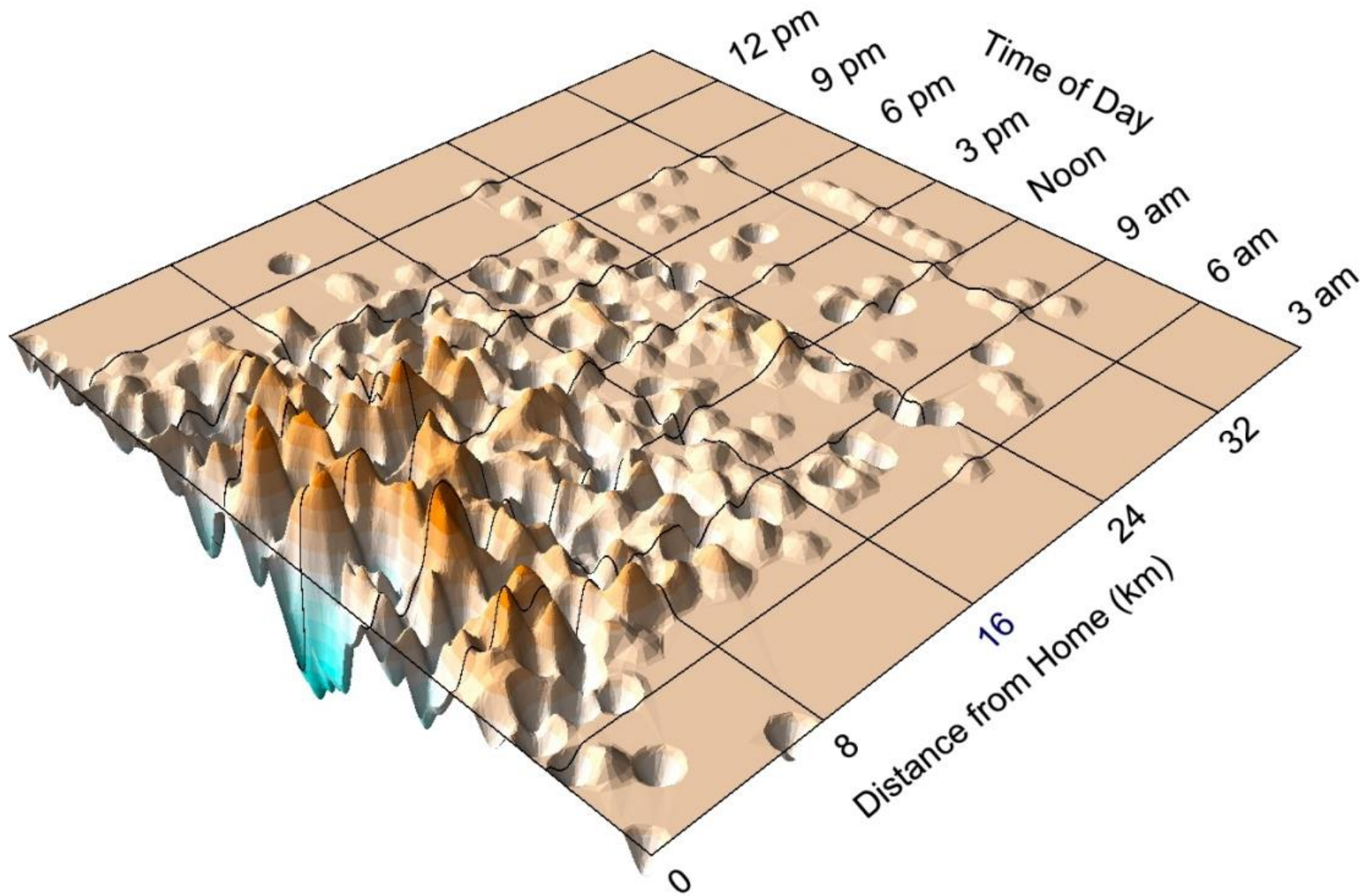
Gender difference in the density of non-employment activities between women and men employed part-time (Kwan, 2000)

Females Underreporting
(Ferster et al, 2017)
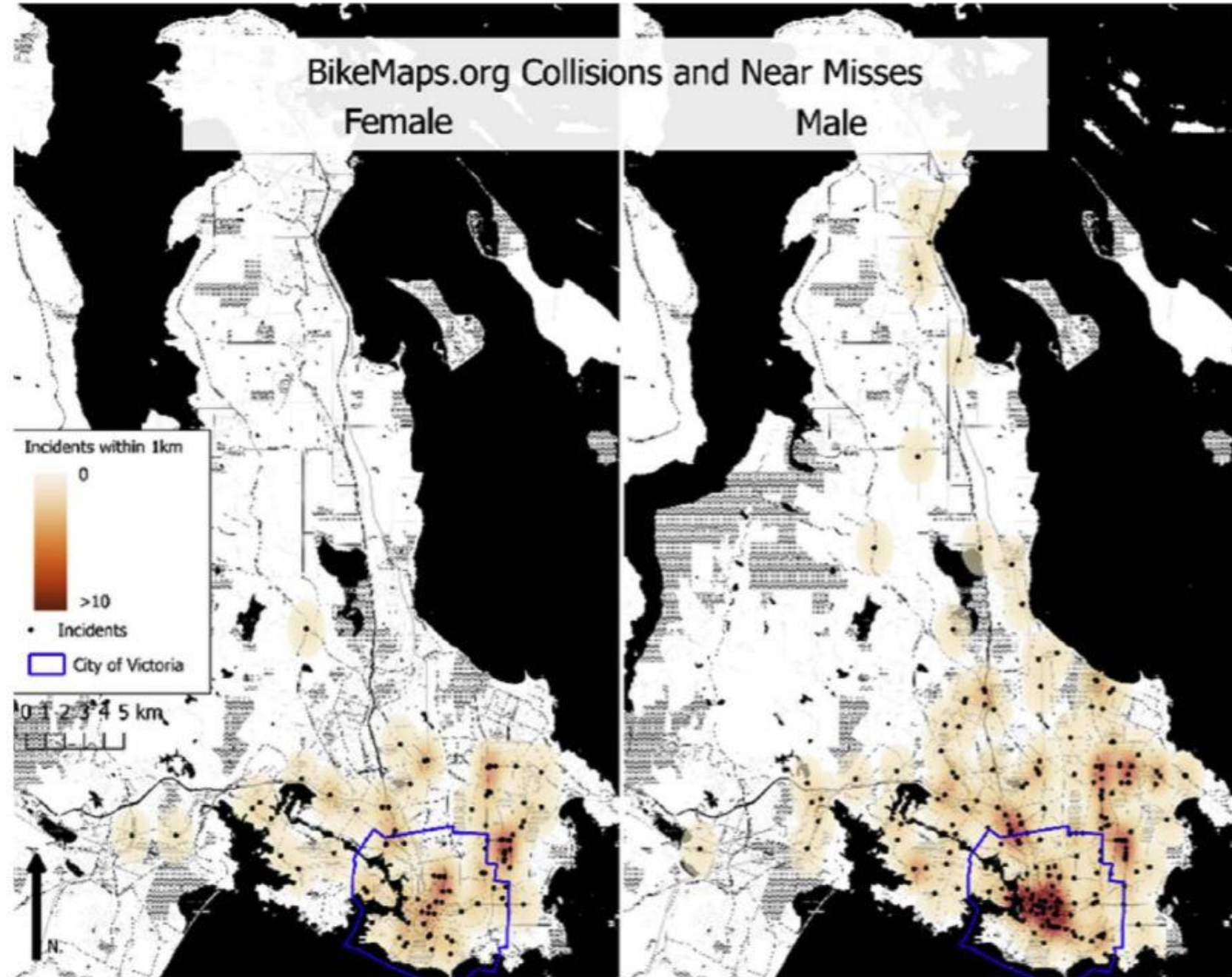
Activity spaces do not correspond to geopolitical units

★ HOME

★ Mother's home

■ Shopping

✚ Work

⬟ Day Care

Concept mapping (Burke et al. 2005)

Opportunities

- Unpaid work in time & space in its inception

- volunteered geographic information (VGI) = low hanging fruit

- Data availability geographically variable across the globe

- Policy/practice implications

Thank you!
Questions/Comments?

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https://ghw.mcmaster.ca/

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References

Burke, J., O'Campo, P., Peak, G., Gielen, A., McDonnell, K., and Trochim, W. (2005). An Introduction to Concept Mapping as a Participatory Public Health Research Method. *Qualitative Health Research,* 15 (10): 1392 – 1410.

Carers Canada. Retrieved from, http://www.carerscanada.ca/carer-facts/

Dardas, A., Williams, A., and DeLuca, P. (2018). Potential Accessibility to Vital Services for Hamiltonian Caregiver-Employees & Decision-Makers: A GIS Analyses. *Manuscript Under Review.*

Ferster, C., Nelson, T., Winters, M., and Laberee, K. (2017). Geographic age and gender representation in volunteered cycling safety data: A case study of BikeMaps.org. *Applied Geography,* 88: 144 – 150.

Kwan, M. (2000). Interactive geovisualization of activity-travel patterns using three-dimensional geographical information systems: a methodological exploration with a large data set. *Transportation Research Part C, (2000):* 185 – 203.

Miranda, M., Dolinoy, D., and Overstreet, A. (2002). Mapping for Prevention: GIS Models for Directing Childhood Lead Poisoning Prevention Programs. *Environmental Health Perspectives,* 110 (9): 947 – 953.

Research on Aging Policies and Practices. (2014, Sept.). Combining care work and paid work: Is it sustainable? *University of Alberta.*