REGION OF PEEL

Urban Form Health Assessment Tool

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Region of Peel Public Health
The following personal financial relationship with commercial interests relevant to this presentation existed during the past 12 months:

NO RELATIONSHIPS TO DISCLOSE
1. Overview of Peel
2. Peel Health Statistics
3. Conceptual model: Health and Built Environment
4. Political Background to Project Initiation
5. Urban Form Health Assessment Tool
6. Tool Implementation and Policy Next Steps
Rapid Growth – 1.5 million by 2031

Uneven Growth – Brampton, Mississauga

Unique Challenges
- greenfield (Brampton)
- intensification (Mississauga)
- rural (Caledon)

Population growth from 2001-2006 in these areas was 51% to 2383%

- more vehicle trips
- increasing single occupant vehicle trips
- increasing physical inactivity levels
Proportion of Population 18+ Inactive by BMI Category, Peel and Ontario, 2005

*denominator is BMI category, numerator is inactive.

For example, 60.4% of obese Peel residents are inactive.

Source: CCHS 2005
Figure DM0: Diabetes Mellitus Prevalence Rate† by Year, Region of Peel and Ontario, 1995/1996 to 2004/2005

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Peel</th>
<th>Ontario</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995/96</td>
<td>5.9</td>
<td>5.4</td>
</tr>
<tr>
<td>1996/97</td>
<td>6.3</td>
<td>5.7</td>
</tr>
<tr>
<td>1997/98</td>
<td>6.6</td>
<td>6.0</td>
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<tr>
<td>1998/99</td>
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<tr>
<td>2003/04</td>
<td>8.8</td>
<td>8.0</td>
</tr>
<tr>
<td>2004/05</td>
<td>9.2</td>
<td>8.4</td>
</tr>
</tbody>
</table>

† Age-adjusted prevalence rate
‡ Number of cases of DM include new and existing - identified using the Ontario Diabetes Database in a specified population for a given year.
Fiscal year: extends from April 1st of one calendar year to March 31st of the next calendar year.
Source: Institute for Clinical Evaluative Sciences. inTool. instant interactive information. http://www.ices.on.ca/intool
First Draft of Evidence and Best Practices Based Review - Contextual Model
Lawrence Frank and Company, December 21, 2007
Layer – From Built Environment to Public Health (3,4,5) – DRAFT V1.0

Comprehensive set of factors affect urban form:

- Population Health Impacts
  - Respiratory Illness Incidence
  - Mental Illness Incidence
- Destination Activities
- Built Environment Patterns
- Mode of Transport Options
  - Auto Use
  - Public Transit Use
  - Walking/Cycling
- Land Use Decisions
- Food Outlets
- Proximity
- Transportation Infrastructure Investments
  - Private Vehicle Infrastructure
  - Public Transit Infrastructure
- Forecast Population Growth
- Forecast Economic Growth
- Physical Activity Level
  - Social Capital
  - Time Spent in Cars
  - Congestion
  - Personal Stress
- Air Pollution
- Traffic Volume
- Aesthetics

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29 Januvr. 2008
Obesity prevention messages are ineffective if not within supportive environments

**Individual Messaging**
- To increase physical activity
- To increase nutritious food intake

**Supportive Environments**
- Built environment
- Food environment
Supportive environments ENABLE preferred behaviour

**FOOD ENVIRONMENT**
- Small portions
- Availability
- Food culture
- Dining as an experience
- Buy fresh, buy local as the social norm

**BUILT ENVIRONMENT**
- Proximity
- Connectivity
- Pleasant streetscape
- Active transportation culture
- Transportation hubs and options
PLANNING AND HEALTH: THE LINK

Recent increase in academic and practice-based evidence about the health impacts of land use development patterns

- Ontario Healthy Communities Coalition (OHCC)
- Ontario College of Family Physicians (OCFP)
- Heart and Stroke Foundation of Canada
- Canadian Institute for Health Information (CIHI)

- Ontario Professional Planners Institute (OPPI)
- Canadian Urban Institute (CUI)
1. How do the built environment and transportation systems contribute to obesity and related health issues?

2. How do the built environment and transportation systems affect air quality along heavily travelled corridors and in areas of mixed uses and higher densities?

3. How do the built environment and transportation systems affect air quality in general?

4. How do the built environment and transportation systems, along with poverty and economic decline within and outside our major urban centres, affect human health?

5. How do the built environment and transportation systems affect social cohesion?
POLITICAL BACKGROUND

- Council Report (2005) called:

  *State of the Region’s Health: Focus on Overweight, Obesity and Related Health Consequences in Adults*

  - joint report with ETPS and Health
  - highlighted impact of built environment on health
• Council Resolution (GC-257-2005):
  • Health staff to comment on any development applications that come into the Region for comment
  • Study and make recommendations for planning policies and processes that provide greater opportunity for active living
  • Advocate for policies which strengthen public and active transportation options
1. Literature Review
2. Peel Health Position Statement
3. Conceptual Models
4. Mississauga Urban Form Committee
5. Active Transportation Initiative
   a. Social Marketing
   b. Infrastructure Plan
6. Comments on Municipal Block Plans
7. Urban Form Health Assessment Tool
Urban Form Health Assessment Tool

Lawrence Frank, B.L.Arch, M.Sc., PhD
Bombardier Chair, Sustainable Transportation, UBC
President, Lawrence Frank and Company

James R. Dunn, PhD
Research Scientist, Center for Research on Inner City Health
Associate Professor, Dep’t Geography and Public Health, U of T
Lawrence Frank – Seattle Study:

A 5% increase in walkability is associated with:

- a 32% increase in minutes walking
- a ¼ point reduction in BMI (about ½ kilogram)
- a 6.5% reduction in per capita vehicle kilometers travelled
- a 5.5% reduction in ozone precursors

Lawrence Frank – Atlanta Study:

- additional 30 minutes driving/day → 3% increased risk of obesity
- additional km walked/day → 4.8% reduction in risk of obesity
Other Research:

- Every 10 additional minutes spent in the car → 10% drop in community involvement
- Rates of overweight and obesity are lower in urban cores compared to suburban areas
- Canadians living in major urban centers are twice as likely to walk, bike or use transit to get to work
- Motorist and pedestrian injury rates are associated with environmental factors (e.g. road design, traffic congestion)
Developing an evidence-based prototype Health Assessment Tool that would systematically identify the public health impact of built environments in Peel

Goals:

• Promote the development of healthier built environments in Peel
• Increase the Walkability of Peel neighbourhoods to promote active living by design
## Health Assessment Tool: How

**Data**

### Land Use Variables:
- Parks and Trails
- Transit routes/schedules/stops
- Greenspace
- Sidewalk Attribution
- Census information (demographic, income, HH size)
- Postal code polygons
- Building Square Footage
- Property Assessment Parcels
- Street Networks (signalized intersections)
- Traffic Zone Data

### Human Data:
- Physical Activity
- Sedentary Activity
- Leisure Activity
- Obesity
- Chronic Conditions
- Stress
- Mode of travel to work
- Public Transit Use
HEALTH ASSESSMENT TOOL: HOW

LAND USE VARIABLES

TRAVEL PATTERNS

WALKABILITY SURFACE

REALITY

PEOPLE

BUILDINGS

STREETS

HEALTH OUTCOMES
Previously established statistical relationships between certain urban form elements and walkability.
Software Model Requirements:

1. Ability to evaluate land development alternatives
2. Ability to evaluate at a relatively small scale (neighbourhood)
3. Flexibility to incorporate outcomes and land use measures based on research
4. Ability to incorporate health and air quality outcomes
Example: PLACE3S

1. Web-based
2. GIS-based – Visual Output
3. Flexible
4. Public engagement and collaborative decision making
5. Meets our model requirements for Tool
6. Used in other government settings (California, Seattle)
HEALTH ASSESSMENT TOOL : NEXT STEPS

- Pilot testing and Retrofitting
- Policy Development – Official Plans
  - Regional Official Plan Amendment:
    - Strengthen health rationale within existing policies
    - Effective use of Health Assessment Tool
  - Require health as a background study at the Secondary Plan stage
- Developer Incentives/Marketing strategy
For more info...

http://www.peelregion.ca/health/urban

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