Sewer Backflow Insurance Coverage:
A Shared Concern
Hamilton City Council
May 2, 2012
Presentation Plan

1. The issue
2. MRAT concept
3. Project status
4. Benefits for municipalities
5. Public policy implications
## Size of Recent Events

**Shown in 2010 dollars**

<table>
<thead>
<tr>
<th>Event</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saguenay floods (1996)</td>
<td>$1.5 billion*</td>
</tr>
<tr>
<td><strong>Ice storm (1998)</strong></td>
<td><strong>$1.8 billion</strong></td>
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<tr>
<td>B.C. wildfires (2003)</td>
<td>$225 million</td>
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<tr>
<td>Peterborough floods (2004)</td>
<td>$97 million</td>
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<tr>
<td>Toronto rains (2005)</td>
<td>$642 million</td>
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<tr>
<td>Hamilton-Ottawa rain (2009)</td>
<td>$200 million</td>
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<tr>
<td>Alberta wind (2009)</td>
<td>$355 million</td>
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<tr>
<td>Vaughan tornado (2009)</td>
<td>$87 million</td>
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<tr>
<td>Calgary hail/rain (2010)</td>
<td>$500 million</td>
</tr>
<tr>
<td><strong>Slave Lake fire (2011)</strong></td>
<td><strong>$700 million</strong></td>
</tr>
<tr>
<td><strong>Goderich tornado (2011)</strong></td>
<td><strong>$300 million</strong></td>
</tr>
</tbody>
</table>

*$271 million in insured losses
Homeowner insurance

Source: IBC, Homeowners exhibit
Why is this a problem?

- Availability and affordability of insurance
- Cannot simply remove coverage and increase premiums... not sustainable
- Insurers want to be part of the solution
Infrastructure

- Storm and sanitary sewers
  - Nationally at 76% of life expectancy
  - Convergence of factors; deferred maintenance, precipitation patterns changes
  - Climate no longer stable
  - Systems under designed for current climatic realities, huge challenge for municipalities to predict future needs
- FCM - $12 billion deficit in storm and sanitary infrastructure
Shared Concern....

- National issue; not just Hamilton
- We are in the business of selling insurance
- Difficult to price, historical losses no longer a solid indicator of future losses
- Hamilton has done lots of work to improve system; how do we translate work to coverage?
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How can we predict infrastructure risk?

- Prospective tool

- Need for a tool which will combine infrastructure, watershed, insurance claims and climatic data to predict risk of failure

- Also need to create a win/win/win between industry/consumers/municipalities
Municipal Risk Assessment Tool (MRAT)

**Risk** = probability x vulnerability x exposure

- Climatic
- Operational
- Infrastructure variables
- Hydrology
What is MRAT?

- Municipal Risk Assessment Tool
  - Top-Down approach
  - Tool to quantify failure risk of municipal storm/sanitary water infrastructure systems resulting in insurable losses for both current and future risk (2020-2050 time horizons)
  - Limitation—identify risk areas, not tell you how to fix it

- Based on a risk formula
  - Looks at 20 variables linked to a GIS visualization application, including vulnerability, exposure indicators and climatic return periods both updated and future climate scenario projections
Municipality “A” Current risk
Municipality “A” Low rain scenario, 2020

LEGEND - CATEGORY (PROBABILITY)
1 (0 - 20%)
2 (20-40%)
3 (40-60%)
4 (60-80%)
5 (80-100%)
Municipality “A” low rain scenario, 2050

LEGEND - CATEGORY (PROBABILITY)
1 (0 - 20%)
2 (20-40%)
3 (40-60%)
4 (60-80%)
5 (80-100%)
Current Risk
Presentation Plan

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Initiated Project in 2009

- Proof of concept with Hamilton data
  - Hamilton shown its leadership, data quality outstanding, extremely knowledgeable and professional
  - Appreciated strong support, now need to meet with to highlight results, work in progress
- Ten participating municipalities for detailed proof of concept
  - Hamilton, London, Moncton, Bathurst, Winnipeg, Coquitlam, Fredericton, Halifax, St John’s
Project was delayed…

- Due to lack of access of insurance industry data for calibration…
- Issue resolved as of three weeks ago
- Meanwhile continued work on climate scenarios, future IDF methodologies and recruiting municipalities
- Now engaged with five municipalities to continue proof of concept
- Deadline for first five municipalities is July, and next five municipalities is October
- Next steps—governance and conditions of use
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4. **Benefits for municipalities**
5. Public policy implications
Benefits

- Municipalities, Insurers, Consumers
  - Availability of insurance
  - Additional decision-making tool
  - Updated rainfall climatic information
  - Information on impact of future climate
  - Help prioritize infrastructure investments
  - Build a case for infrastructure programs
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Public Policy Issues

- Need for additional funding
- IBC part of FCM Infrastructure Forum
  - MRAT’s role to support infrastructure requests
- IBC ready to support municipal requests
Questions?

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