



Stormwater Management in the Great Lakes and St. Lawrence Basin: Cities Charting the Water Forward

Great Lakes and St. Lawrence Cities Initiative Webinar
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'Perfect Storm' facing cities

- Cities facing convergence of pressures:
 - Urban intensification
 - Climate change
 - Nearshore water quality



Urban Intensification

- The Greater Golden Horseshoe around western end of Lake Ontario
 - 3rd fastest growing urban region in North America
 - 3.7 million more people by 2031
 - Places to Grow Act, 2005 promote intensification and directs growth to built-up areas over 25 years



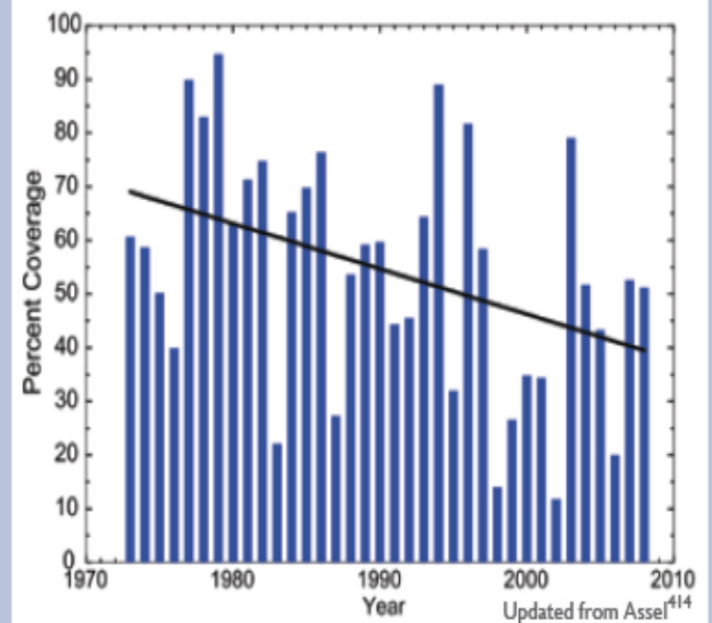
Predicted Climate Change Impacts:

Severe Weather

- More frequent, severe storms
- Sudden snow melt
- Richelieu and Lake Champlain valleys –worst flooding in 140 years
- Greater Toronto Area has experienced 3 '100 year's'torms and 5 '50-year' storms over the last eight years.



Observed Changes in Great Lakes Ice Cover
Seasonal Maximum Coverage, 1973 to 2008



Nearshore Water Quality

IJC 15th biennial report

‘nearshore water quality problems are serious in most areas of the Great Lakes... the need to address them is clear.’ ‘urban and agricultural non-point sources of pollution are key contributors to the continued and excessive loadings of phosphorus to nearshore waters and need to be reduced.’

‘ Perform a binational condition assessment of the nearshore waters of the Great Lakes using existing trend data and methods.”



Areas of Improvement

- Ten areas identified:
 - Where municipal improvements have resulted in more effective stormwater management
 - Where support is needed from federal state and provincial governments and others.



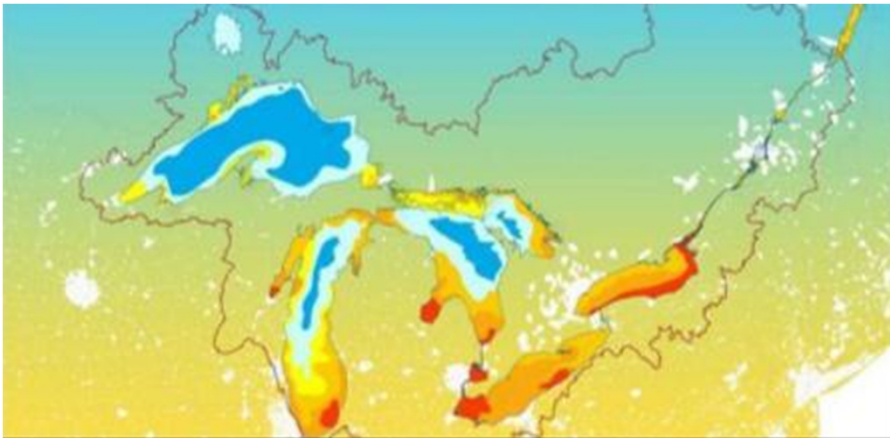
Integrating Stormwater & Land-Use Planning

- Are Smart Growth and stormwater management at odds?
- Integrate stormwater considerations at conceptual stage of land use planning, not just lot by lot.
- Working towards designing communities that reduce stormwater flow 'at source'.
- The ***City of Trois-Rivieres***' Strategy to Integrate Natural Areas in Urban Development has a goal of protecting one hectare of land for every 1 hectare of land developed.

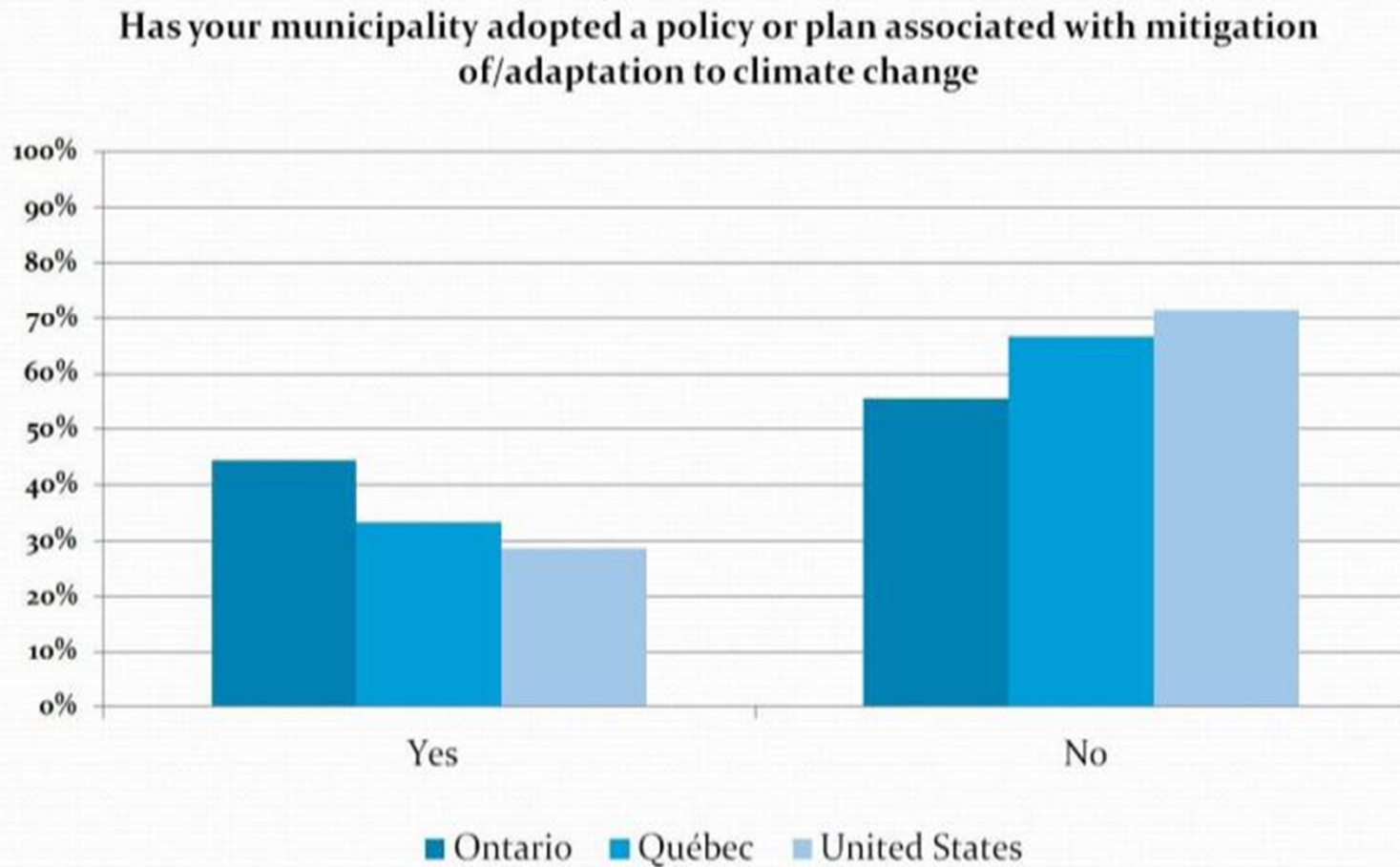


Climate Change Adaptation

- Most cities see changes in their climate, but fewer have developed adaptation strategies.
- Cities need technical and financial support from other levels of government for local predictive modeling and climate change infrastructure vulnerability assessments.
- The **City of Montreal's** 'Program on Sustainable Stormwater Management in Light of Climate Change', involves multiple departments, engages researchers and citizens in citizen awareness patrols, construction of retention ponds, a cross connection detection program, and free inspections of buildings for protection against the effects of sewer overflows.

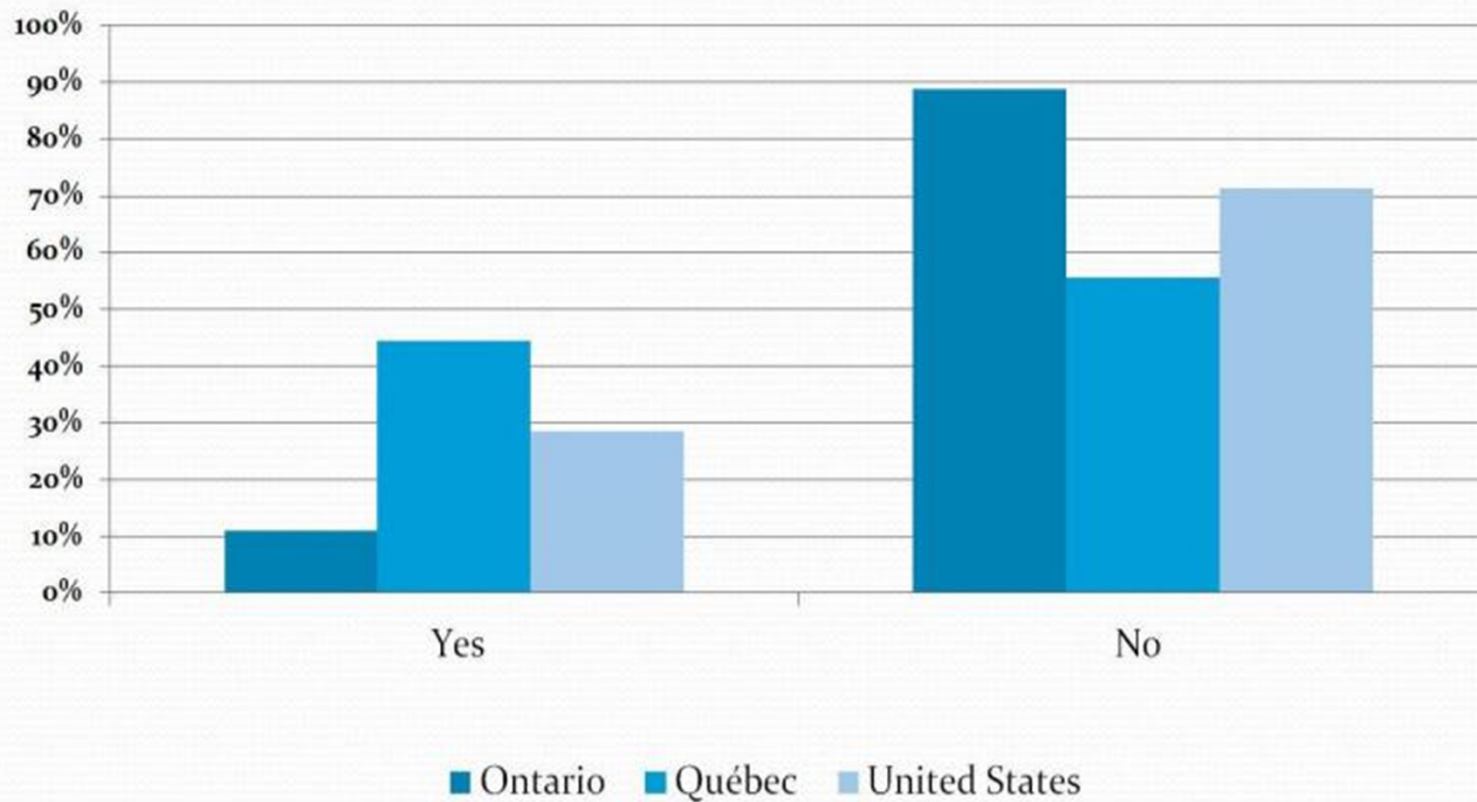


Climate Change Plans



Climate Change Assessment

Have you assessed your vulnerability to climate change as it relates to municipal planning/infrastructure/services?



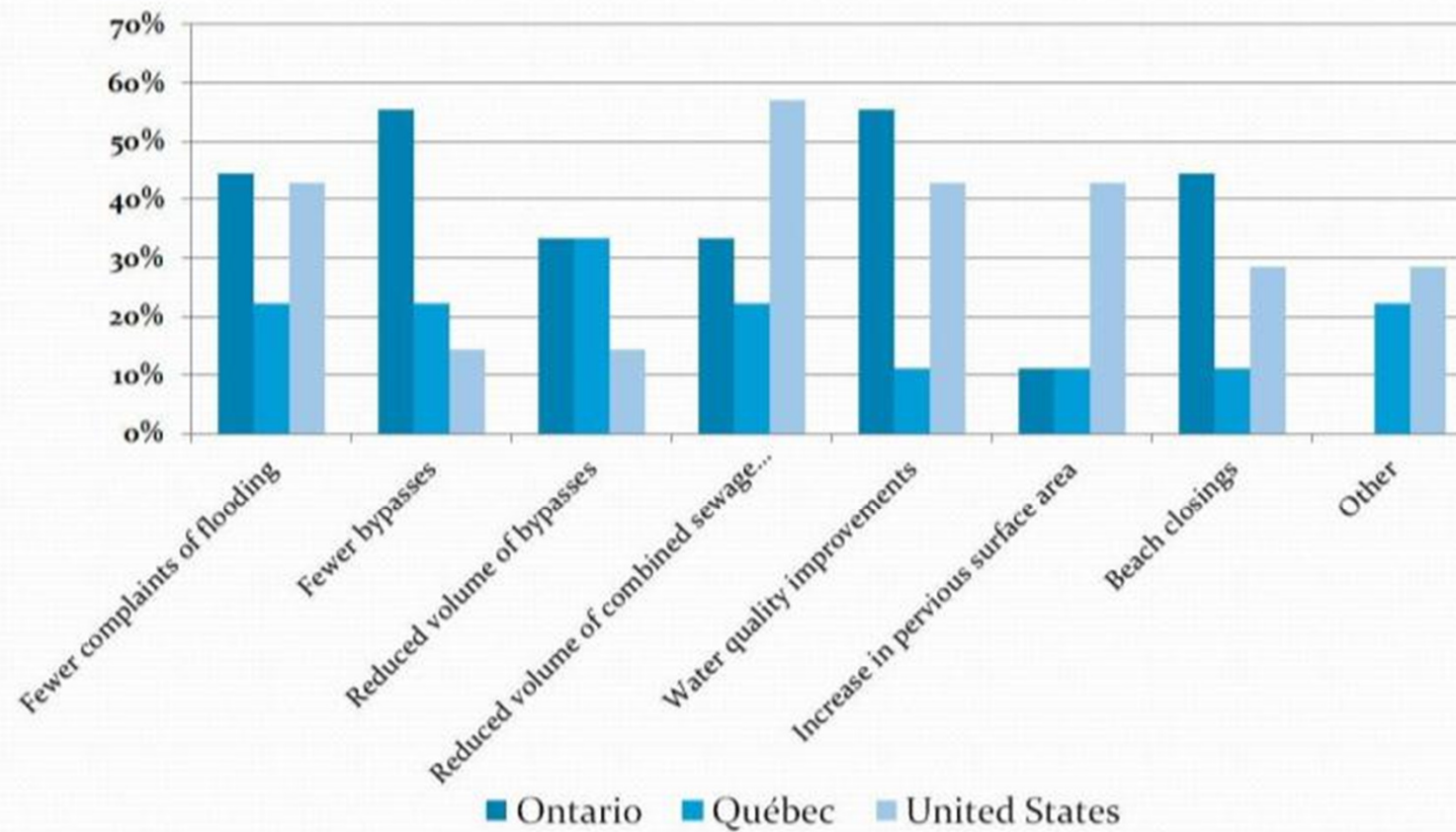
Monitoring Impacts Reporting on Progress



- Great concern over impact of urban run-off on water quality.
- Showing direct link between stormwater controls and improvements to water quality is challenging
- New monitoring protocols and support are needed from other levels of government to make stormwater monitoring programs more effective in identifying and tracing back pollution to its sources.
- The ***City of Grand Rapids, MI*** uses a long term river monitoring program that provides an effective means to trace water quality concerns back to their source.

Metrics

Which, if any, metric(s) do you use to measure progress/impact of your stormwater activities? - by region



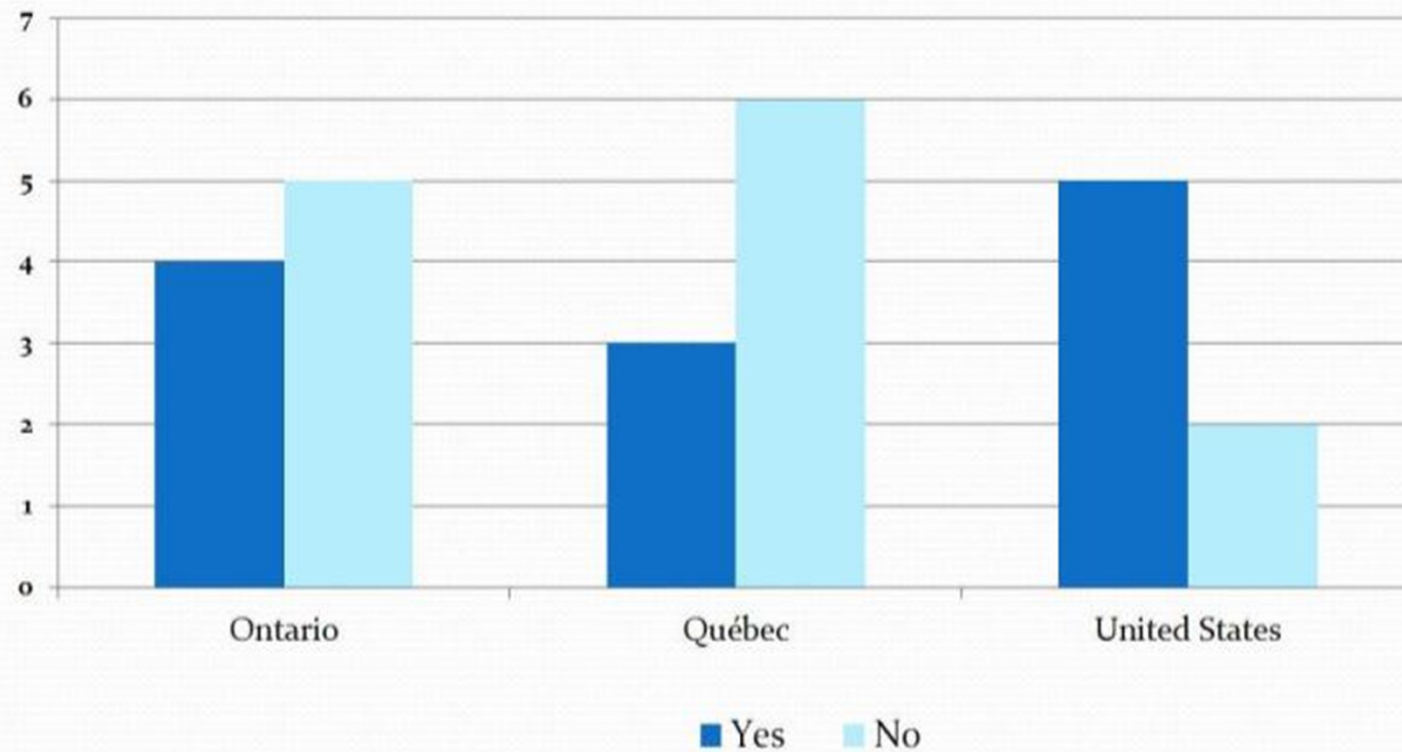
Stormwater Plans

- Stormwater management decentralized, delivery across multiple departments
- Stormwater plans can bring focus by setting corporate goals and assign clear responsibilities across departments.
- Stormwater plans are common in U.S, less so in Canada.
- The City of Toronto's 25-year Wet Weather Flow Master Plan is a good example of long term planning on stormwater management.



Stormwater Plans

Do you have a formal stormwater management plan?
by region



Low Impact Development

- Green infrastructure like green roofs or pervious pavements capture stormwater naturally before it flows into and pollutes waterways.
- Green infrastructure enhances people's enjoyment of their property, increase property values while saving cities money from deferred infrastructure costs.
- Need support from regulators and researchers, through demonstration projects, sharing performance data, and increased public and private sector awareness.



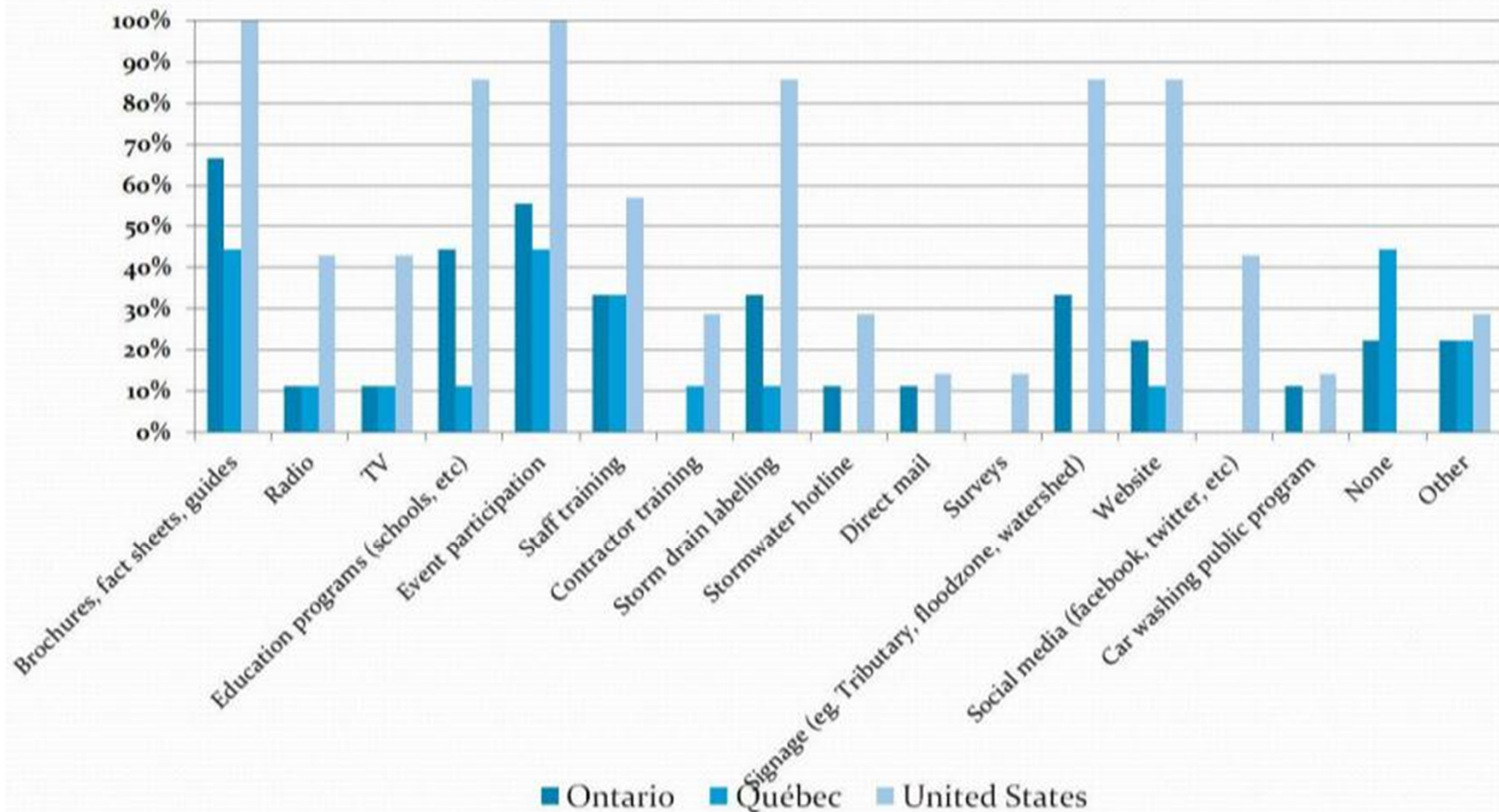
Public Education and Outreach

- Most effective stormwater programs have strong public education component because most stormwater originates from private lands.
- More support for public education and outreach, from the local level to the state, provincial and national levels, is needed to help increase public awareness across the basin.
- The **City of Duluth's** Regional Stormwater Protection Team delivers TV ads, brochures, and exhibits on stormwater impacts and mitigation strategies throughout Northeastern Minnesota and Northwestern Wisconsin.



Public Education and Outreach

Which of the following activities are part of your stormwater education and outreach program?



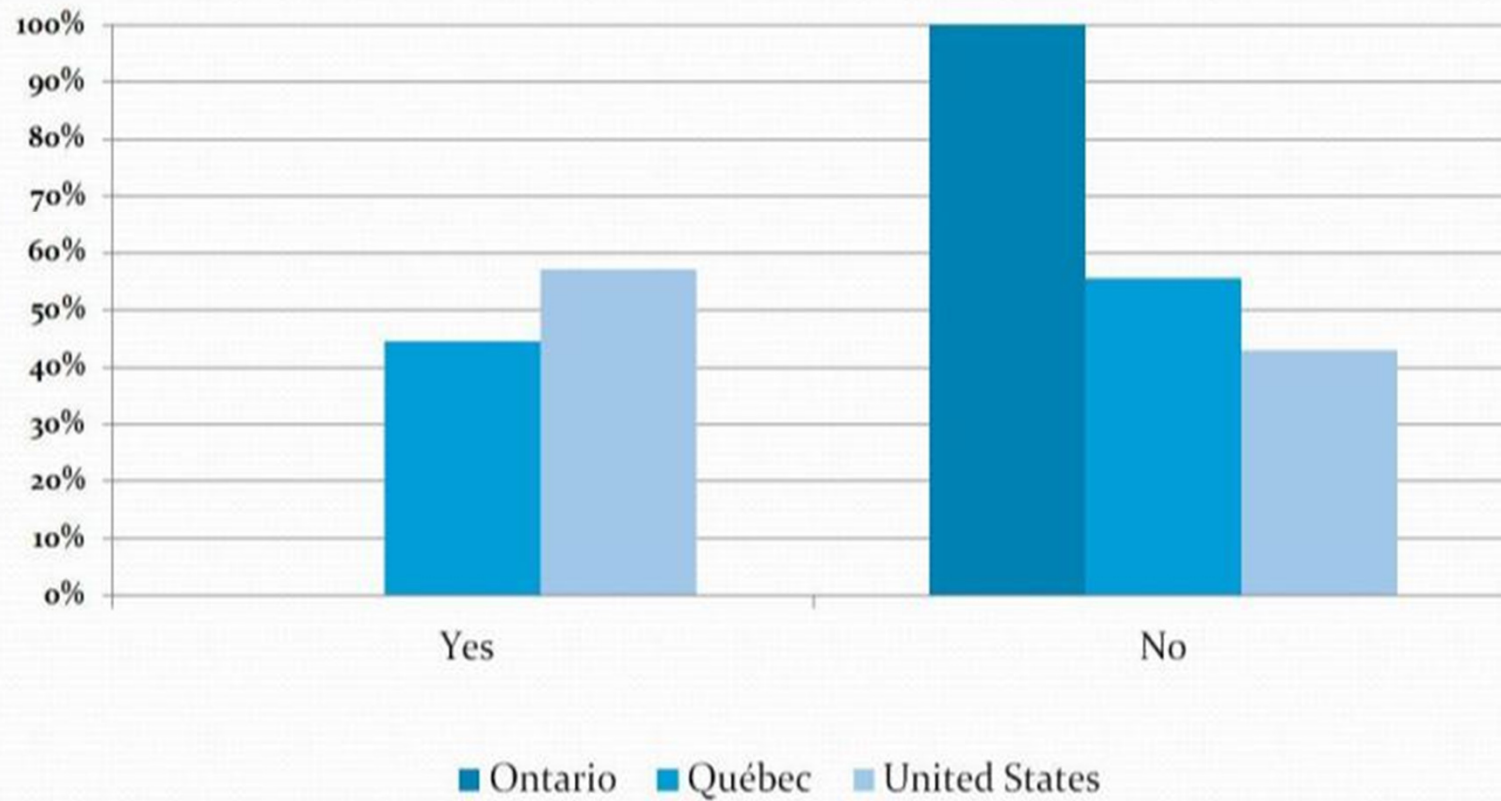
On-site Stormwater Management

- Municipal on-site stormwater performance standards, and sewer-use ordinances or by-laws provide a strong first-line defense from stormwater flow and pollutants.
- Further requirements or incentives for the installation of stormwater controls in retrofitted ICI properties would reduce inflow and infiltration of stormwater into a municipal storm or sanitary collection system.



Retrofits

Do you have a stormwater retrofit program?



Training, Inspections, Maintenance

- Cities have demonstrated how training can be used to improve interdepartmental coordination, and effectiveness of their stormwater programs.
- Condition of retention ponds not always known, inventory and maintenance plan needed.
- Training for building inspectors provides them with most up-to-date information on stormwater management.



Financing Stormwater Management

- Securing a stable and sufficient source of funding is vital to maintain and improve stormwater practices.
- Some municipalities have found ways to secure a dedicated source of funding, by introducing a stormwater fee.
- The ***City of Milwaukee's*** Stormwater management charge, introduced in 2006, is based on the impervious surface area of a property.
- Given the shared interest in improving nearshore water quality, financial support from other governments is needed.



Government Regulation

- The regulatory environment is a primary driver for and barrier against stormwater action.
- The U.S. stormwater permitting system has put in place a comprehensive stormwater program at the local level.
- By comparison in Ontario and Quebec, authority over stormwater is less prescriptive, resulting in varied approach.



For Further Information...

- www.glslcities.org/initiatives/greencities/stormwater.cfm
- Information on best practices, Green CiTTS awards, stormwater guides and other resources.

