



# 2015 Livable Cities Forum

## Building Flood Resilient Communities

Canadian towns and cities are experiencing increased exposure to flooding from many sources, including extreme rainfall events, riverine floods, coastal flooding, groundwater intrusion, infrastructure failure, and more. Some of the increase has been attributed to changes in climate and weather patterns and while the direct impact may be uncertain, the magnitude of the financial loss and human suffering is clear. The Livable

Cities Forum, hosted by The City of Calgary in partnership with ICLEI Canada and the Canadian Water Resources Association from September 28<sup>th</sup> to 30<sup>th</sup>, 2015, provided an excellent opportunity for delegates to learn and share information on building flood resilient communities. The conference included a discussion on finding ways to continue efforts to enhance flood resilience in Canada.





## What we saw at the Forum

### **Engaging communities on understanding risks, aligning with community efforts, and involving them in decision making are the biggest challenges to increasing the resilience of regions and municipalities.**

One of the biggest challenges highlighted by delegates and presenters was the need to work with communities to help them understand their flood risk. From there, it is possible to work with community leaders to design effective resilience measures aligned with community values. At the conference, we heard heartening stories of citizens pitching in to help each other in times of crisis, particularly in recovery efforts. However, to really deal with risk, citizens and leaders need information on how to identify, avoid, mitigate, and transfer (by insuring against) risks at optimal cost and benefit.

There is also a need to get citizens to focus some energy towards planning and preparation in advance of the next incident. Once citizens and political leaders understand each other's perspectives on flood risks, citizens can be empowered to help build resiliency, develop community level solutions to flooding, and aid in response during possible future flood events.

### **Municipalities need to consider design flexibility and adaptability when building new, more resilient infrastructure.**

Municipal infrastructure typically focuses on a single function and, once built, can be costly to modify. One of the key themes from our presenters was that municipalities need to plan infrastructure that can be adapted for

possible future risks, such as the impacts of a changing climate, in addition to meeting today's requirements.

Future risks need to be evaluated and accounted for in any municipal development scheme or the actions of individual parties. Many municipalities have not yet clearly delineated all of the flood risks they currently face, much less made provisions for possible future scenarios. Presenters identified riverine flooding, coastal flooding, local rainfall events, groundwater and sewer backup as frequent contributors to flood damage. Multi-functional infrastructure, the ability to scale infrastructure designs to account for potential future challenges, or considering non-traditional solutions like blue-green infrastructure such as rain gardens, permeable pavement, and bioretention sites to reduce runoff, will help ensure municipalities and their citizens remain resilient to many of the threats they could potentially face.

### **Some tools and best practices are available to municipalities to help enhance resiliency in their work, but more research is required.**

The 2015 Livable Cities Forum identified and highlighted some tools and resources, both structural and non-structural, that currently exist to help build flood resilient communities. However, these tools need to be considered holistically to ensure they are used to maximize positive and minimize negative outcomes on municipalities, watersheds, and regions.







How these tools are applied can significantly affect whether a municipality or region can become more resilient to floods and other extreme weather events, by helping reduce negative impacts. That said, the resources currently available are far from exhaustive and more work needs to be undertaken. This will help build a comprehensive understanding of options to mitigate the risks faced by municipalities and communities.

**Planning horizons must increase when it comes to building resilient cities.**

Many presenters spoke about the importance of explicitly considering climate change and its effect on flooding in the future. With increased frequency of extreme weather events, municipalities will have to adjust their long-term planning horizons beyond existing infrastructure lifecycles. They must consider how they plan development, infrastructure, maintenance and replacement in light of continuing long-term uncertainty. However, communities also need to determine how to keep long-term planning both cost-effective and financially sustainable, while ensuring minimum standards provide adequate protection.

**Lack of stable funding and higher-level organizational leadership prevents the move from concept to reality when it comes to resiliency work.**

Funding for municipalities to engage in resiliency work continues to be a significant challenge to making resilience a reality. This is a difficult problem for political leaders since resilience work is about preparing for possible future events, and does not solve one of the many immediate issues a typical leader faces. Some provinces have established programs for resilience building but many gaps continue to exist and federal involvement, beyond disaster relief, is unclear.

Progress on this issue will require strong leadership to make it a priority for all orders of government and to obtain a commitment to build flood resilient communities.

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**Presentations from the Forum** can all be accessed on the 2015 Livable Cities Forum website [here](#). In addition, you can view footage from the Tuesday community session, where Calgarians were able to share their thoughts and hear from delegates on how other communities have invested in resilience.

Please feel free to download any of the presentations and share the content with others who might be interested in finding out how to enhance flood resiliency in their community.





# National Network on municipal flood resilience

In addition to the breakout sessions and the community event Tuesday night, a session was held inviting delegates to comment on whether there is a need to continue this discussion among municipalities and their partners, as well as what form this would take. Working in small groups, the delegates present concluded that:

- **A national network on flood resiliency** could provide many benefits.
- **It could address a number of issues** in the realm of flood resiliency, but its main purpose could be to help identify and coordinate existing water resource activities and agencies on flood resiliency issues.
- **Various types of participation** were suggested, from ongoing collaborative groups to annual events to share knowledge and research.
- **A full time secretariat and funding** would be needed to coordinate the network and its efforts if it was to be effective in the long term.

Building on the learnings from the conference and the general direction received from the delegates, the existing 2015 Livable Cities Forum steering committee has agreed to continue to move forward with work towards developing an ongoing Network on Municipal Flood Resilience. To get underway, the committee is working to:

- **Expand the Flood Resilience Network Steering Committee** membership to build the Network's capacity.
- **Solidify the membership of the Network** by identifying and confirming interested individuals and organizations.

- **Identify existing significant potential partners and stakeholders** already active in flood resilience, disaster mitigation, and climate change adaptation, and initiate discussions on alignment of activities, priorities and investments.
- **Formalize Network membership, organization, governance, and initial funding** for foundational activities. Find the right "*place*" for the Network among a variety of options (stand alone organization, specialty group within an existing organization, loose network, arms length agency, NGO etc.)
- **Develop the Network Terms of Reference or Charter** to provide vision, governance and direction.

As the National Network becomes active, it is anticipated it will:

- **Facilitate discussions among stakeholders** on sharing best practices and information gained from prior events.
- **Identify knowledge gaps and opportunities** for scientific research and studies.
- **Consider and articulate recommendations** for changes to government policies and regulations.
- Organize an **annual or biannual conference**.
- **Be a bilingual, national voice for municipalities** and communities dealing with flooding issues.
- **Develop tools for assessing flood vulnerabilities**, readiness and resilience.
- **Identify partners to provide ongoing funding** for Network activities.









# National Network on municipal flood resilience

## Become a part of the National Network!

Recognizing similarities with its intended activities, the National Network would like to welcome its first new steering committee member Shawna Peddle, Director of the Partners for Action Network at the University of Waterloo.

You have received this communication because of your attendance at the Livable Cities Forum or because we believe that you may be interested in this work. The Steering Committee would like to know how or if you would like to be involved. **[Click on the links below OR email \[iclei-canada@iclei.org\]\(mailto:iclei-canada@iclei.org\), and indicate one of the following responses in the subject line:](#)**

-  [I would like to continue receiving updates on the Network and to continue participating in the discussion on Municipal Flood Resilience.](#)
-  [As above and I would like to contribute specifically in my area of interest on task forces or committees](#)
-  [As above and I would like to put my name forward to become a member of the steering committee](#)
-  [I am not interested in further communications about the Network](#)

Please forward this invitation to colleagues who you think may also be interested.

We thank you for your time and hope you will help us build more flood resilient communities.

Sincerely,

The 2015 Livable Cities Forum Steering Committee

**Carolyn Bowen**, The City of Calgary  
**David Murray**, Canadian Water Resources Association  
**Ewa Jackson**, ICLEI Canada  
**Rick Carnduff**, Canadian Water Resources Association  
**Wolf Keller**, The City of Calgary