



# PARTNERS FOR ACTION

Priorities for Advancing Flood Resiliency in Canada

**Dr. Blair Feltmate**

[bfeltmat@uwaterloo.ca](mailto:bfeltmat@uwaterloo.ca)

**Dr. Jason Thistlethwaite**

[jasonthistlethwaite@me.com](mailto:jasonthistlethwaite@me.com)



**UNIVERSITY OF WATERLOO**  
**FACULTY OF ENVIRONMENT**





## Executive Summary

In 2013/14, a two-phase process (initiated by The Co-operators Group Ltd. and executed by the University of Waterloo) was engaged to determine means to de-risk the Canadian residential property market from the increasingly negative impacts of overland flooding. This effort involved a diverse group of stakeholders (“*Partners for Action*”) that included property & casualty (P&C) insurers, government policymakers, flood risk experts, professional associations, businesses and the legal community.

In **Phase I**, senior P&C executives – representing 57 per cent of Canada’s P&C 2011 underwriting market – identified 14 conditions that, if met, would create an environment conducive to offering overland flood insurance.<sup>1</sup>

**Phase II**, which is the focus of this report, began with a survey of 18 flood stakeholders that provided their views regarding the urgency and feasibility (i.e., cost-effectiveness and technical capacity to execute) to act upon the 14 flood insurance conditions identified in Phase I. The Phase II survey results were then then circulated in advance of the June 10, 2014 *Partners for Action* roundtable.

During the roundtable, approximately 60 participants (see Appendix I for a list of participating organizations) identified three *winning conditions* that must be established within Canada to help de-risk flood potential: (a) Canadians understand the risk that flooding presents to their homes, businesses and communities, (b) Canadian decision-makers use their understanding of flood risk to make sound adaptation decisions, and (c) Canadians have access to means to transfer the risks associated with flood damage that remains after they have engaged adaptation.

Using these winning conditions as guidance, *Partners for Action* reviewed each of the 14 initiatives and subsequently voted to establish a short list of three priority areas that could constitute focal points to de-risk flood potential within Canada. The result of that vote was as follows (1 = most important):

1. **Flood Plain Maps** – develop new flood plain maps with projections that anticipate changes in the intensity and duration of future precipitation
2. **Preparedness of Cities** – conduct a national assessment of the degree of preparedness of major Canadian cities to extreme weather events, with a primary focus on flooding, and
3. **Built Infrastructure** – factor extreme weather/flood potential into new build design and retrofits

Going forward, *Partners for Action Phase III* will engage actions to address Points 1-3 above, with an initial emphasis on Point 2 – Preparedness of Cities – which is not being materially pursued by any level of government or organization within Canada. However, governments and various NGOs are engaging in activities to address challenges pertaining to Flood Plain Maps and Built Infrastructure. In response to varying levels of attention being directed to Points 1-3, Phase III will establish sub-committees to monitor and assess progress in each of the three areas, to identify issues that may require additional focus to mitigate flood stress in the future.

---

<sup>1</sup> “Assessing the Viability of Overland Flood Insurance: The Canadian Residential Property Market” - <http://newsreleases.cooperators.ca/index.php?s=5651&item=137189> ).

## Background

In 2013, a report based on a survey of senior executives from Canada's largest property & casualty insurers – “Assessing the Viability of Overland Flood Insurance: The Canadian Residential Property Market” – identified the need and means to de-risk the residential property market from the impacts of extreme weather and flooding<sup>1</sup>.

This 2013 research, initiated by The Co-operators Group Ltd., and executed by the University of Waterloo, captured 57% of the P&C market and represented a critical reading of the insurance industry's perspective towards flood risk management – organizations represented in the 2013 survey included:

- Aviva Canada
- La Capitale
- Chubb Insurance
- The Co-operators
- Desjardins
- The Dominion Insurance
- Gore Mutual Insurance Company
- Intact Insurance
- RBC Insurance
- SGI Insurance
- Swiss Re
- TD Insurance
- Wawanesa Insurance
- ICLR
- Toronto Region Conservation

The report revealed how effective flood risk management depends on a multi-faceted policy response embracing flood plain mapping, weather-hardening of city infrastructure, and public sector incentives to encourage actions to mitigate vulnerability to extreme flooding.

Building on the “Phase I” research described above, Phase II (presented herein) identified policy measures and initiatives to reduce the impact of climate change, extreme weather and urban flood risk, based on a survey of influential stakeholders that included government policymakers, flood risk experts, professional associations, businesses and the legal community (see Table 1 for summary). A total of 18 survey responses were received, which constituted a 64% response rate. Ten organizations declined to participate because they felt they lacked adequate subject matter expertise. The substance of the Phase II survey benefitted from input from departments of the federal government of Canada, and senior provincial and municipal officials in Ontario and Alberta.

Respondents to the Phase II survey included:

- Conservation Ontario
- ICLEI Canada
- Canadian Real Estate Association
- The City of Calgary
- CSA Group
- QUEST - Quality Urban Energy Systems of Tomorrow
- Green Communities Canada
- Government of Alberta
- Cement Association of Canada
- Environmental Commissioner of Ontario
- Canadian Electricity Association
- Bennett Jones LLP
- Canadian Public Works Association
- Office of the Auditor General of Canada
- Delta Management
- The Nature Conservancy

Responses from the Phase II survey provided the basis for a roundtable meeting held June 10, 2014, the purpose of which was two-fold:

1. Identify *winning conditions* that Canadians must embrace to help de-risk the country relative to future flood potential, and
2. Produce a short-list of three areas of priority focus (based on a longer list of 14 areas of consideration) that should constitute Canada's direction to de-risk flood potential going forward.

The results of the June 10<sup>th</sup> roundtable, which included the *winning conditions* and the three priority areas to de-risk flood potential within Canada, are profiled below, followed by an overview of Phase III research direction.

**Table 1: Policy Issue Consensus Between Insurers and Survey Respondents**

Policy Issue	Level of Consensus Between Insurers and External Stakeholders	Explanation
Extreme weather is a problem now and in 30 years	High	Recent extreme weather events have raised the profile of resiliency and climate change adaptation. Improvement in the measurement of extreme weather represents an important shared priority.
Flood maps should be updated to reflect extremes	High-medium	Stakeholders share concern with insurers that Canada's flood plain maps are insufficient. But, there is less consensus on the appropriate government or private sector authority to coordinate new work on flood plain maps.
Major Canadian cities should: <ul style="list-style-type: none"> <li>○ Utilize natural infrastructure to reduce flooding</li> <li>○ Incorporate extreme weather into infrastructure design</li> <li>○ Separate storm and sanitary sewer lines</li> <li>○ Assess preparedness for extreme weather</li> </ul>	High-medium	Consensus was most prominent for policies supporting the integration of extreme weather into infrastructure design, the separation of storm and sanitary sewer lines, and the use of natural infrastructure to reduce flooding. Support for a national assessment of preparedness for extreme weather was more mixed with concern about the challenges involved in establishing a national benchmark.
A report on technologies to improve resiliency at the lot-level should be funded  A campaign to educate homeowners on practices to improve resiliency should be initiated	High-medium	Respondents were supportive of these policies, but noted that much of this research already exists and has yet to be disseminated in an effective way. Education outreach was also identified as a priority among other stakeholders involved in the housing market, such as planners, engineers and real estate agents. The insurance industry was identified as the more appropriate source of funding for further outreach and education.
Home adaptation program	Low	Concerns about cost of delivering a program on a property-by-property basis were identified as a limitation to this program. The integration of adaptation initiatives into existing policies, such as real-estate inspections, was identified as a potential easier path towards implementation. The federal government was identified as the most appropriate source of funding, but comments suggest insurers should also play a significant role.
Building codes should be updated	High	There was consensus behind the use of building codes as a tool to reduce extreme weather and climate change vulnerability. Costs were identified as a potential limitation, and other complementary policies such as land-use planning and green infrastructure were identified as equally significant.
Government should purchase homes in flood plains	Low	The feasibility of acquiring property located in floodplains was identified as a significant limitation of this policy. Such efforts could become politicized. A government moratorium on limited property transfers in these locations was identified as a potentially more feasible approach.
Properties located in floodplains should not qualify for disaster assistance if rebuilt	High	Respondents supported policies limiting disaster assistance for properties rebuilt in floodplains. But opinions were quite strong both in support of such policy as the most effective for risk mitigation, and potential political obstacles.
Property insurers should offer incentives for investments in risk mitigation	High	Consensus was significant in support of using insurance services as a means to improve risk mitigation.
Banks should require that home inspections identify vulnerabilities to extreme weather	High	Support for the use of bank services to incentive investment in risk mitigation was also clear, but some respondents were unclear on the potential costs of such action.
Real estate associations should educate agents about actions to reduce extreme weather damage	High	Support was high for further education of real estate agents on actions to reduce vulnerability, but some respondents did note that opposition within the sector to such policy could be significant.

## Results

Responses of Phase II survey participants – to statements regarding extreme weather/flood related challenges facing Canada – are presented below relative to four categories of assessment: **Extreme Weather and Flooding**, **Cities and Extreme Weather**, **Property and Extreme Weather**, and **Financial Services and Extreme Weather**.

The terms “Urgency” and “Feasibility”, both of which were measures of assessment addressed in the survey, were defined for survey participants as:

- Urgency** – refers to the degree of importance the respondent attached to an action  
**Feasibility** – refers to the degree that the respondent believed an action can be engaged cost-effectively and technically.

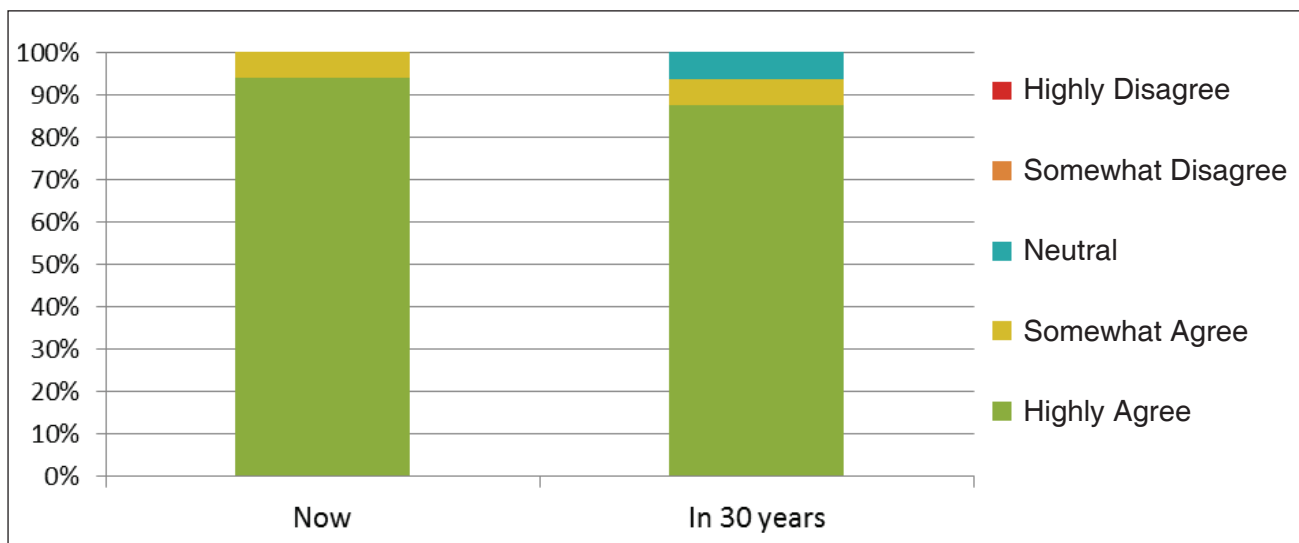
Following the presentation of the four response categories, the section **Prioritizing Survey Results** profiles the outcome of a vote at the roundtable, whereby 60 property & casualty (P&C) insurers, government policymakers, flood risk experts, business associations and the legal community ranked 14 flood risk challenges facing Canada, in order of those that should be addressed first-to-last.

### Extreme Weather and Flooding

**Statement 1: Extreme weather is a serious problem for major Canadian cities to address from the perspective of adaptation now and 30 years from now.**

Statement 1 reveals near unanimous consensus that extreme weather represents a serious problem for Canadian cities. This finding confirms that concern about the impacts of extreme weather now and in the future is shared between the insurance industry and external stakeholders. Such concern represents an important opportunity for the insurance industry to establish a coordination and leadership role in facilitating actions that reduce risk and improve resiliency within Canadian cities.

**Figure 1:** Extreme weather is a serious problem for major Canadian cities to address from the perspective of adaptation now and 30 years from now.



**Statement 2: Flood plain maps in Canada should be updated to account for new and future extremes in precipitation.**

Statements 2 and 3 (next page): Insurers are strong advocates for improving Canada’s flood plain maps. Stakeholders shared this concern, but were divided on the level of government (federal, provincial, municipal) responsible funding this update. Research on Canada’s flood maps suggests a fundamental lack of coordination between governments and private agencies responsible for flood map data. The federal government has the most capacity to coordinate the standards required to harmonize and update Canada’s flood plain maps. The provinces, however, are ultimately responsible for flood plain management. This division in authority and capacity suggests a need for more discussion on the steps necessary to update Canada’s flood maps.

Figure 2a: Flood plain maps in Canada should be updated to account for new and future extremes in precipitation. (agreement with Phase I)

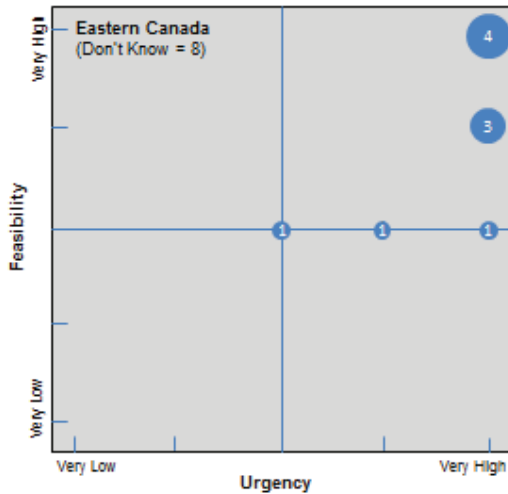


Figure 2b: Flood plain maps in Canada should be updated to account for new and future extremes in precipitation. (agreement with Phase I)

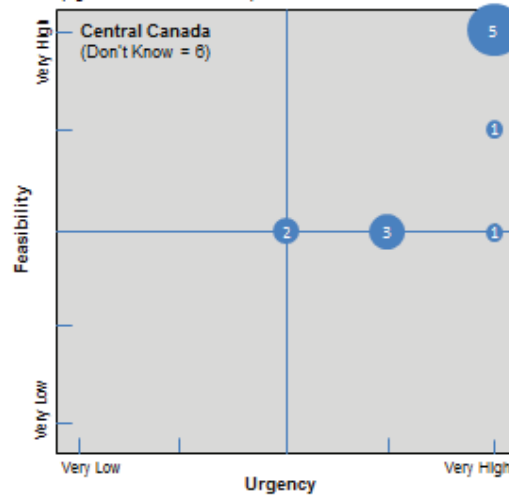


Figure 2c: Flood plain maps in Canada should be updated to account for new and future extremes in precipitation. (agreement with Phase I)

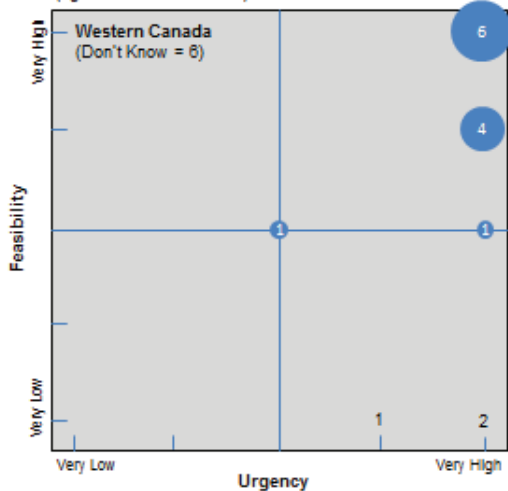
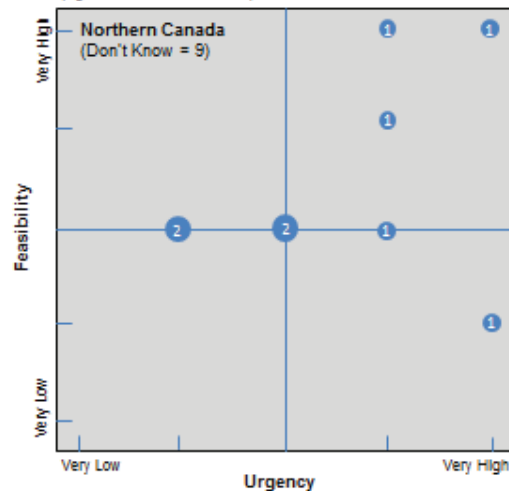


Figure 2d: Flood plain maps in Canada should be updated to account for new and future extremes in precipitation. (agreement with Phase I)



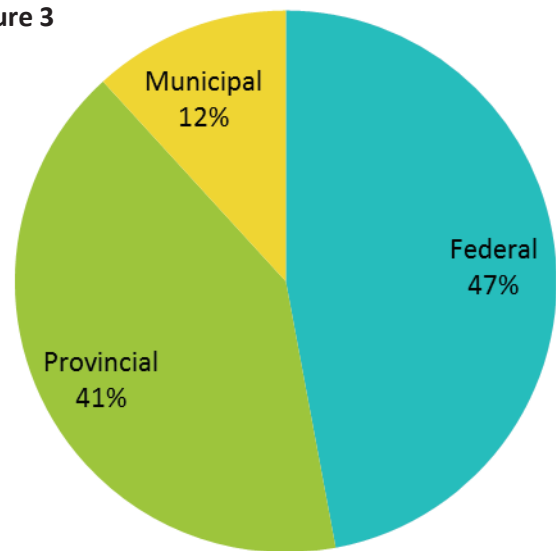


**Statement 3: Development of up-to-date flood plain maps for major Canadian cities should be funded by which level of government?**

### Cities and Extreme Weather

Statements 4 – 9 highlight the need for policies that improve the resiliency and reduce the vulnerability of Canadian cities to extreme weather, including natural infrastructure, changes to the design requirements for new and refurbished infrastructure, storm and sanitary sewer separation, and preparedness assessments and funding. The insurance industry is equally supportive of these policies. Implementation, however, faces several obstacles, including inadequate cost-benefit analyses and decision-useful research to inform policy development.

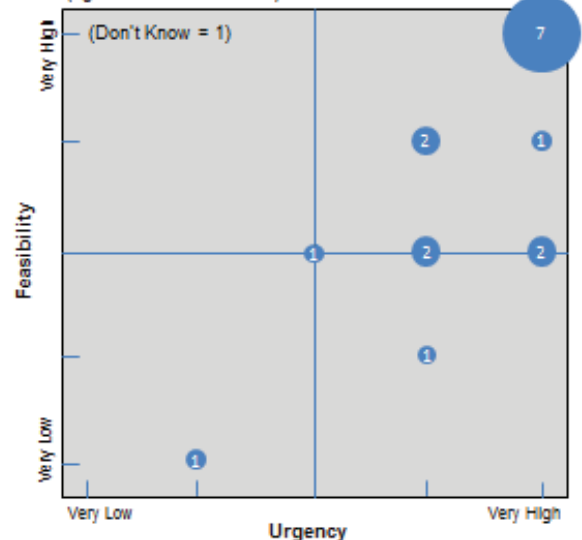
Figure 3



**Statement 4: Major Canadian cities should develop programs to identify and maintain natural infrastructure that can alleviate flooding due to extreme precipitation.**

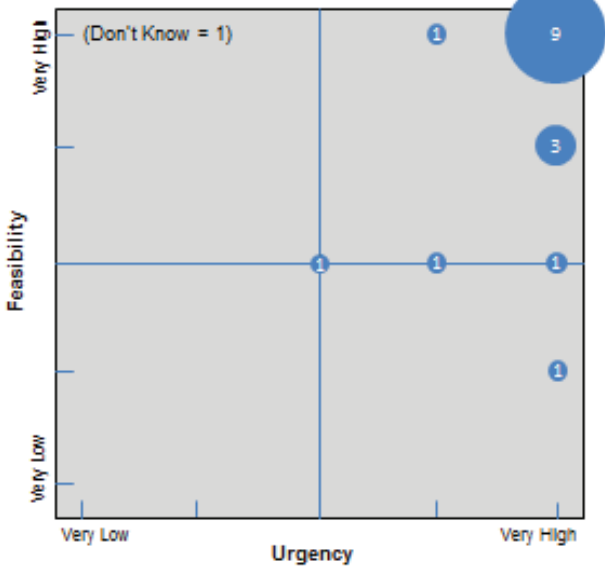
The use of natural infrastructure to prevent flooding is growing in popularity across many Canadian cities. In Ontario, for example, Conservation Authorities have championed the benefits of natural infrastructure to prevent flooding. Despite support, concern about the costs-benefits and standards necessary to ensure effectiveness suggests further analysis is necessary. Municipalities also face significant fiscal constraint that limits their capacity to rejuvenate natural infrastructure or promote green infrastructure. Coordination to facilitate these objectives represents an important precursor to expansion of natural infrastructure as a best-practice.

Figure 4: Major Canadian cities should develop programs to identify and maintain natural infrastructure that can alleviate flooding due to extreme precipitation. (agreement with Phase I)



**Statement 5: Major Canadian cities should factor extreme weather into the design of infrastructure scheduled for refurbishment.**

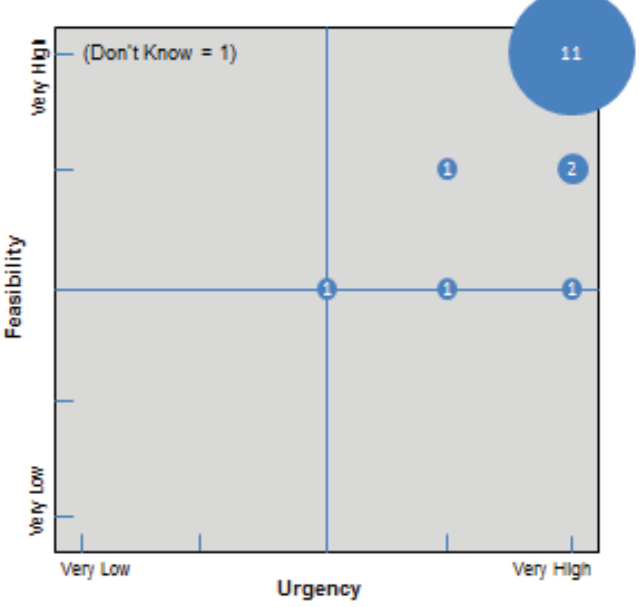
Figure 5: Major Canadian cities should factor extreme weather into the design of infrastructure scheduled for refurbishment.



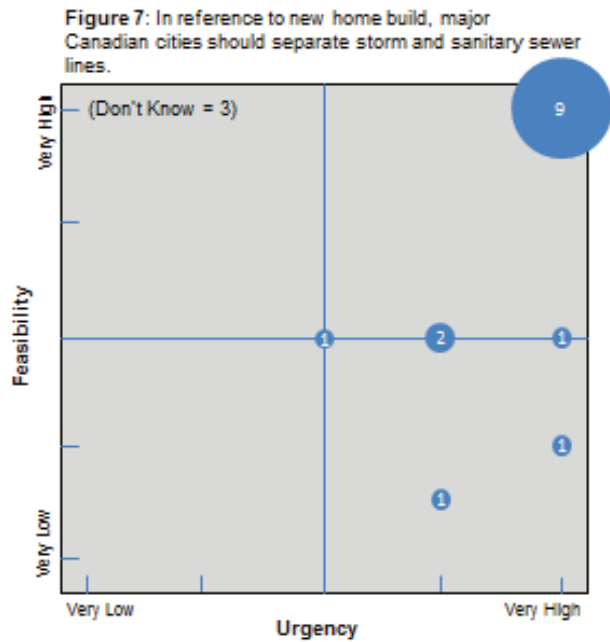
Infrastructure investment represents an important and recognized extreme weather and climate change adaptation strategy. These investments, must however, recognize that historical weather events are not an effective benchmark for design criteria. This data tends to downplay extremes that go beyond commonly adopted 1-in-50 year return periods. Incorporating extreme weather into design criteria represents a data intensive process that remains exposed to significant uncertainty, specifically around the cost-benefits of such action. Survey responses reveal significant support that extreme weather needs to play a greater role in infrastructure design criteria despite some of the challenges involved.

**Statement 6: Major Canadian cities should factor extreme weather into the design of new infrastructure.**

Figure 6: Major Canadian cities should factor extreme weather into the design of new infrastructure.

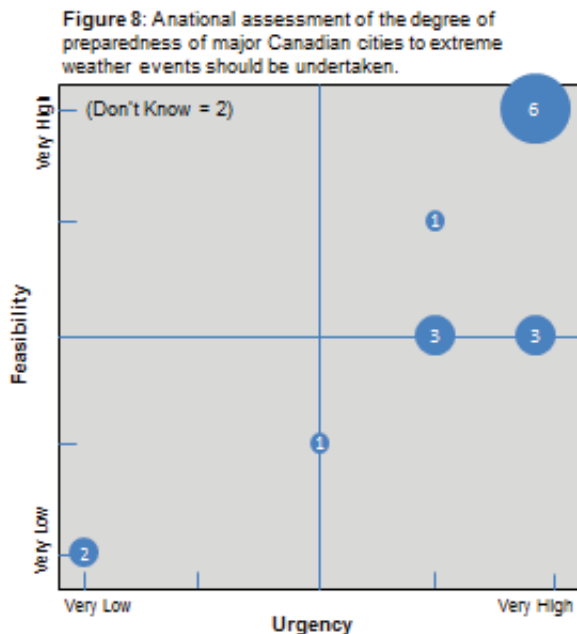


**Statement 7: In reference to new home build, major Canadian cities should separate storm and sanitary sewer lines.**



Combined storm and sanitary sewer lines represent a significant source of sewer backups and overflows as water from extreme precipitation events combines with sewer flows that can overwhelm a system. Older areas of cities with a high population density often depend on these combined systems creating a significant vulnerability. Accordingly, the separation of storm and sanitary sewers represents one of the most effective but also cost-intensive approaches to improving the resiliency of Canadian cities. The City of Vancouver has committed to eliminating sewage overflows by 2050 through the separation of storm and sanitary sewers.

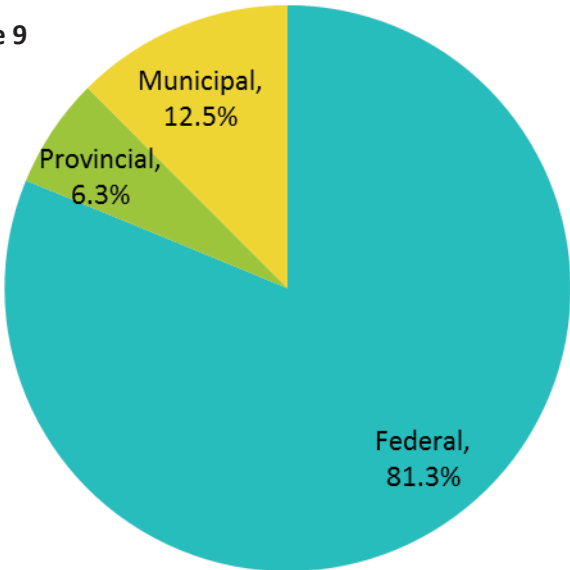
**Statement 8: A national assessment of the degree of preparedness of major Canadian cities to extreme weather events should be undertaken.**



As is evident based on Figure 8, support for a national assessment of the flood preparedness of Canadian cities was substantial – nonetheless, developing a national benchmark or standard on preparedness would be difficult due to local variation in exposure to extreme weather.

**Statement 9: A national assessment of the preparedness by major Canadian cities to extreme weather events should be funded by which level of government?**

Figure 9



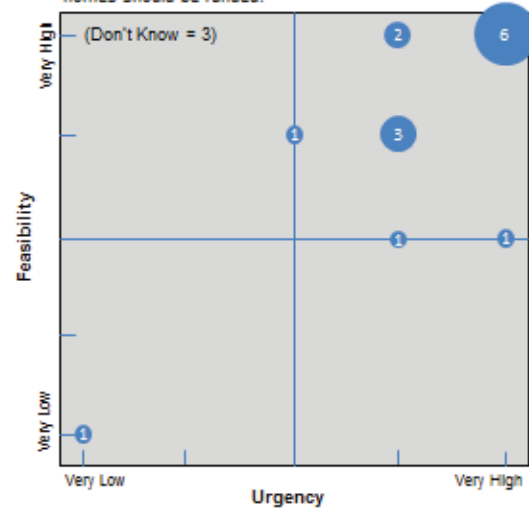
### Property and Extreme Weather

Statements 10 and 11 reveal support for research on technologies that can help property owners reduce flood damage to their homes, and an organized campaign to deliver such information. Several survey respondents noted that much of this research exists, but has yet to be aggregated and delivered to homeowners in an effective manner. Also, outreach to professionals involved in the real estate market, such as planners, engineers and real estate agents was identified as a goal for further education. This finding parallels research findings that awareness of adaptation and resiliency remains insufficient among a wide range of business sectors, policymakers and professionals.

These ideas enjoy significant support within the insurance industry, and statement 12 suggests insurers should be responsible for funding and delivering research and programming. Many insurance companies are supporting research and awareness campaigns. The collective response to these questions suggests limited awareness of this research and these campaigns amongst policy leaders. This gap could be related to a lack of coordination among insurance companies seeking to educate home owners about extreme weather. Whether insurers are willing to commit to a more robust and public outreach program represents an important point for further discussion.

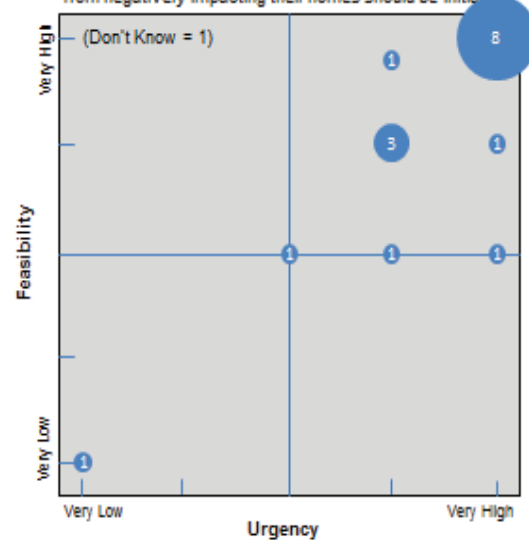
**Statement 10: A report that identifies technologies available globally to reduce the probability of flood damage to homes should be funded.**

Figure 10: A report that identifies technologies available globally to reduce the probability of flood damage to homes should be funded.



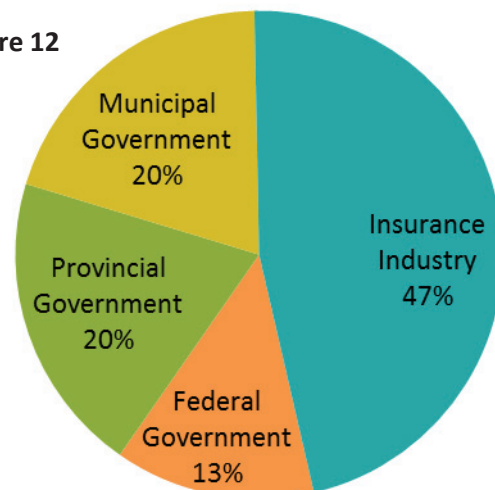
**Statement 11: A campaign to educate home owners on means to lower the probability of extreme weather events from negatively impacting their homes should be initiated.**

Figure 11: A campaign to educate home owners on means to lower the probability of extreme weather events from negatively impacting their homes should be initiated.



**Statement 12: Responsibility to educate home owners on means to lower the probability of extreme weather events from negatively impacting their homes should reside with which body?**

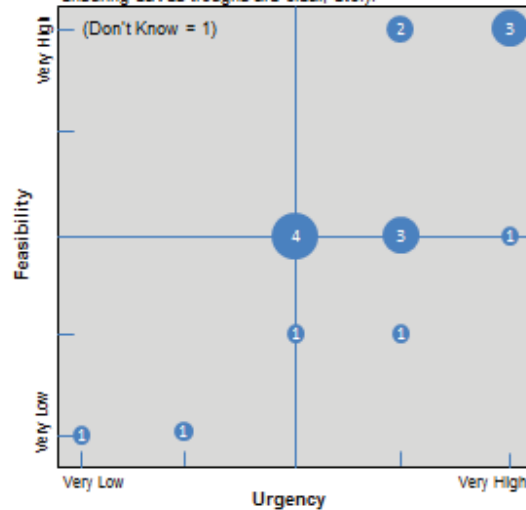
Figure 12



**Statement 13: A “Home Adaptation Assessment Program” should be offered in Canada (i.e., an adaptation expert would inspect a home and make recommendations that would reduce potential damage due to extreme weather – e.g., directing downspouts away from foundation, ensuring eaves troughs are clear, etc.).**

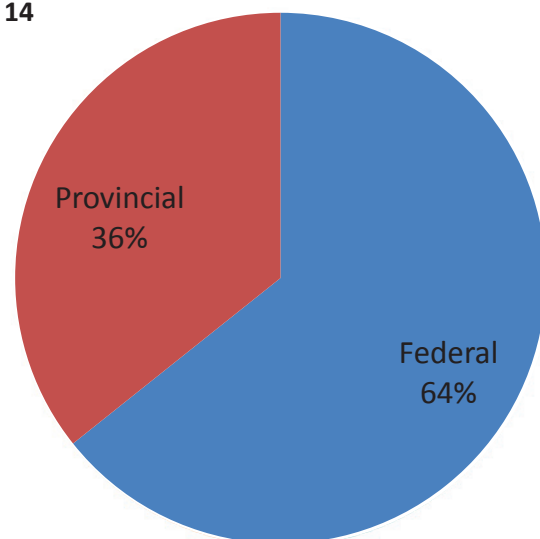
Statement 13 and Question 14 approach the problem of property owner awareness regarding adaptation by referencing a more intensive approach to education then might be realized through general research and awareness campaigns. As Figure 13 demonstrates, there was less consensus regarding urgency and feasibility pertaining to a more intensive approach that would involve a home adaptation assessment program. This finding suggests that while there is consensus around expanding awareness and research on property-level resiliency, the means by which this objective may be accomplished is less clear. Insurance companies are supportive of a home adaptation assessment program as a model for a more intensive approach to reaching property owners. More reflection is therefore required on the question of the most viable approach to engaging homeowners, and the appropriate tools required to improved flood resiliency. Consensus was, however, clear that the federal government and insurers should have a role in implementing a more intensive awareness and education campaign.

Figure 13: A “Home Adaptation Assessment Program” should be offered in Canada (i.e., an adaptation expert would inspect a home and make recommendations that would reduce potential damage due to extreme weather – e.g., directing downspouts away from foundation, ensuring eaves troughs are clear, etc.).



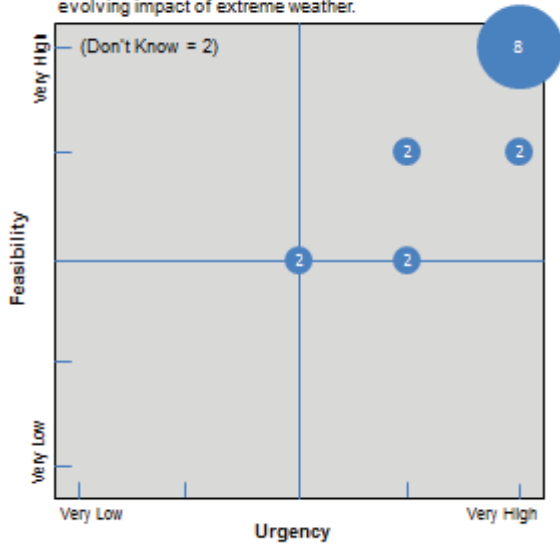
**Statement 14: If a “Home Adaptation Assessment Program” were to be offered in Canada, training for inspectors should be financially supported by which level of government?**

Figure 14



**Statement 15: National and provincial residential building codes should be reviewed and updated to reflect the evolving impact of extreme weather.**

Figure 15: National and provincial residential building codes should be reviewed and updated to reflect the evolving impact of extreme weather.

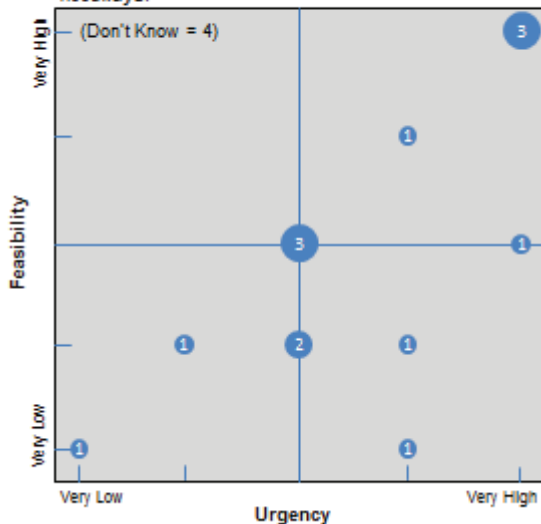


Statement 15 confirms a well-known conclusion within the building science, insurance and home builder community, that the building code represents a powerful tool for reducing the impacts of extreme weather. Leadership and the resources required to leverage the code, however, remain scarce. While the building science community has developed many innovative resilient design practices, these remain largely unviable without cost-benefit information on their effectiveness as tools to reduce weather damage. Most importantly, an aggregated data set on the cost impacts of extreme weather with the specificity that can be linked to changes in design practices, and leadership capable of influencing stakeholders within the code development process, has yet to emerge. Additional standards beyond the building

code were also identified as potential areas of influence for improving resiliency, specifically by-laws, source controls and land-use planning. Further discussion on leveraging the tools needed to influence the building code and other standards is warranted based on this question.

**Statement 16: Government should declare to purchase homes at municipally assessed property value from homeowners that were allowed to build/purchase in floodways.**

Figure 16: Government should declare to purchase homes at municipally assessed property value from homeowners that were allowed to build/purchase in floodways.

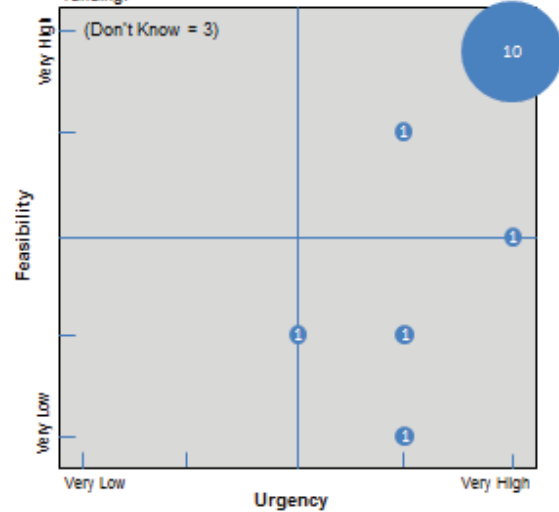


Consensus for property acquisition was not as strong as other policy areas. Feasibility was identified as a significant limitation of property acquisition in survey responses, specifically that taxpayers would have to absorb the costs of poor planning decisions by local or provincial governments. Such policy could easily become politicized and question the credibility of adaptation and extreme weather policy more broadly. Government moratoriums on transferring property in flood plains or voluntary buy-outs were identified as more feasible options. Regulatory uncertainty as to which government is responsible for property acquisition was also identified as a weakness in this approach.

Evidence is emerging, however, that with effective communication of the risks, property owners are willing to re-locate without significant opposition. Statement 17 reveals support for policy that eliminates public disaster recovery financing for property owners who choose to rebuild in high flood risk areas. This policy represents a critical motivator for reducing opposition to government re-location programs. But, similar concerns were raised about the feasibility of limiting disaster assistance payments as ideas around government acquisition. Recent (2013) experience in Alberta with the implementation of these policies represents an important opportunity to study their effectiveness and feasibility.

**Statement 17: Government policy should declare that homeowners that choose to rebuild in designated floodways should not qualify for future flood damage claims supported through government disaster relief funding.**

Figure 17: Government policy should declare that homeowners that choose to rebuild in designated floodways should not qualify for future flood damage claims supported through government disaster relief funding.



## Financial Services and Extreme Weather

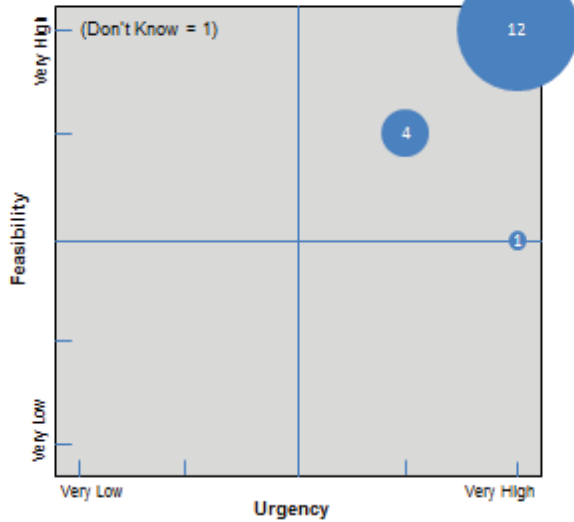
Statements 18, 19 and 20 discuss opportunities to leverage the influence of insurance, banking and real estate services to incentivise risk-averse behaviour amongst property owners. Although the most coherent consensus recognized the potential use of insurance services, strong support for the use of banking and real estate services was evident. These services are recognized in research on climate change and extreme weather risk as extremely influential tools for changing behaviour. Incentives were also recognized as a potential motivator for municipalities to adopt risk mitigation measures. Despite this potential, there are significant technical and political challenges involved in aligning financial incentives with risk-averse behaviours and investments.

For example, the insurance industry's most significant source of property insurance claims is sewer backups. The installation of backwater valves, improved lot-level grading, placing valuable property at higher levels in the home, and disconnection of downspouts all represent identified policies to reduce this damage. Understanding of which of these mechanisms should be rewarded, and at what level, remains poor.



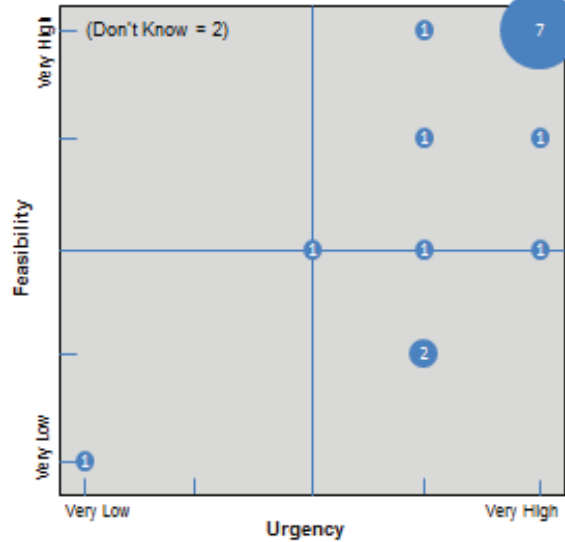
**Statement 18: P&C insurers should offer incentives (e.g. lower premium, lower deductible) to home owners who lower the risk of extreme weather causing damage to their home.**

**Figure 18:** P&C insurers should offer incentives (e.g., lower premium, lower deductible) to home owners who lower the risk of extreme weather causing damage to their home.



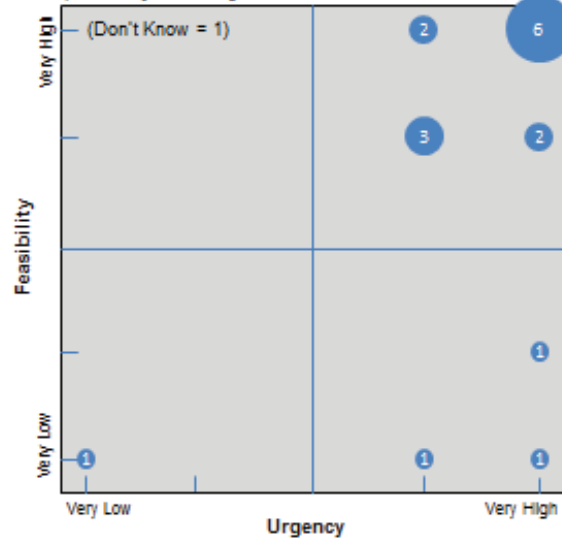
**Statement 19: When issuing mortgages, banks and credit unions should require that home inspections identify vulnerabilities to extreme weather.**

**Figure 19:** When issuing mortgages, banks and credit unions should require that home inspections identify vulnerabilities to extreme weather.



**Statement 20: Real estate associations (e.g. Toronto Real Estate Association) should educate real estate agents regarding features of homes that could lower the probability of damage due to extreme weather.**

**Figure 20:** Real estate associations (e.g., Toronto Real Estate Association) should educate real estate agents regarding features of homes that could lower the probability of damage due to extreme weather.



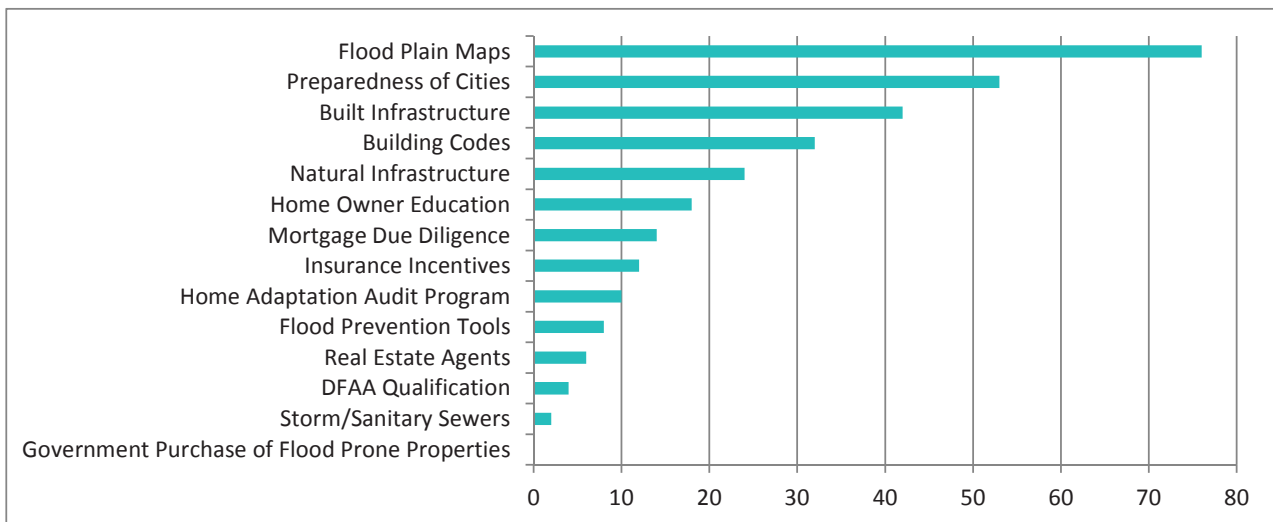
## Prioritizing Survey Results

During the *Partners for Action* roundtable flood risk survey results (profiled on Figures 2 – 20 above) were presented to 60 P&C insurers, government policymakers, flood risk experts, businesses, professional associations, and the legal community (see Appendix I for a list of participating organizations).

The 60 member roundtable attendees agreed upon three *winning conditions* that must be established in Canada to help ensure success to de-risk Canada relative to flood potential: (1) Canadians understand the risk that flooding presents to their homes, businesses and communities, (2) Canadian decision-makers use their understanding of flood risk to make sound adaptation decisions; and (3) Canadians have access to means to transfer the risks associated with flood damage that remains after they have engaged adaptation.

Using the three winning conditions as guidance, the “group of 60” voted to identify the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> highest priority flood-related risks they believed Canada should address – Figure 21 profiles the outcome of that vote.

**Figure 21:** Prioritization of flood risk challenges to be immediately addressed within Canada (scale reflects cumulative votes based on a 3-stage voting process).



As is evident based on Figure 21, the three greatest extreme weather/flood challenges to be addressed in Canada are (in order of priority): (1) the need to develop new flood plain maps, (2) the need to assess the preparedness of major cities for extreme weather/flood potential; and (3) the need to factor extreme weather/flood potential into infrastructure new build design and retrofits.

## Conclusion

At the *Partners for Action* Roundtable, three priority areas of focus were identified to de-risk flood potential within the Canadian residential property market (in order of priority):

1. **Flood Plain Maps** – develop new flood plain maps with projections that anticipate changes in the intensity and duration of future precipitation
2. **Preparedness of Cities** – assess the preparedness of major cities for extreme weather/flood potential, and
3. **Built Infrastructure** – factor extreme weather/flood potential into new build design and retrofits.

*Partners for Action's* Phase III research will engage actions to address Points 1-3 above. Initial emphasis will be directed to Point 2 – *Preparedness of Cities* – which is not being materially pursued by any level of government or organization within Canada.

Canada must operationalize adaptation measures, consistent with Points 1-3 above, in an effort to limit the potential for flood damage to the residential property market. Phase III research will make a material contribution to this mandate, through the identification of adaptation initiatives that will be communicated nationally to key government policy decision-makers and the media. It will also be used to better inform and equip Canadian consumers and non-governmental decision makers to make practical, meaningful and cost-effective choices to facilitate flood resiliency.

---

<sup>2</sup>MMM Group Limited. 2014. "National Floodplain Mapping Assessment – Final Report". Public Safety Canada. 44 pp.

<sup>3</sup>Institute for Catastrophic Loss Reduction - <http://www.iclr.org/homeowners/newhomes.html>

<sup>4</sup>Cement Association of Canada - <http://www.cement.ca/en/Publications.html>

<sup>5</sup>Conservation Ontario - <http://www.conservation-ontario.on.ca/what-we-do/flood-management/conservation-authority-flood-management>

## Appendix I: Participating Organizations at the Partners for Action Roundtable Forum June 10, 2014

Adaptation to Climate Change Team	ICLEI - Local Governments for Sustainability
Aon Benfield	Institute for Catastrophic Loss Reduction (ICLR)
Aviva	Insurance Brokers Association of Alberta
Bennett Jones	Insurance Brokers Association of Ontario
Brookfield RPS	Insurance Bureau of Canada (IBC)
Building Owners & Managers Association (BOMA)	International Institute for Sustainable Development (IISD)
Canadian Institute of Actuaries (Northbridge)	Last Spike Capital
Canadian Institute of Actuaries (RSA Canada)	Marsh Risk Consulting
Cement Association of Canada	Munich Reinsurance Company of Canada
Conservation Ontario	Ontario Mutual Insurance Association
Conservation Ontario	Quality Urban Energy Systems of Tomorrow (Quest)
Credit Valley Conservation	RBC Insurance
Department of Municipal Affairs & Housing, Ontario	Royal LePage
Desjardins General Insurance Group	S&G Insurance
Environmental Commissioner of Ontario	State Farm
Farm Mutual Reinsurance Plan Inc.	Swiss Re
Federation of Canadian Municipalities (FCM)	TD Insurance
Gore Mutual Insurance Company	The Co-operators
Green Communities Canada (GCC)	University of Waterloo
Habitat Seven	WWF Canada

---

The list of attendees above represents only those that provided consent for their organization's names to be presented and does not fully represent all organizations that participated. Attendance does not necessarily indicate the endorsement of any statements of public policy positions presented within this report.