

NOVEMBER 2017

PARTNERS FOR ACTION



UNIVERSITY OF WATERLOO
FACULTY OF ENVIRONMENT

About Us

Partners for Action (P4A) is an applied research network advancing flood resiliency in Canada in the face of a changing climate and extreme weather. The collaborative approach brings together diverse stakeholders to create and share knowledge, address information needs, and drive action. P4A is housed in the Faculty of Environment at the University of Waterloo, with founding support provided by The Co-operators Group Ltd. and Farm Mutual Re.

Our objectives are to better understand flood risk, and make sound decisions to reduce risk through:

Facilitating collaboration

between researchers, government, and non-governmental organizations towards making strategic decisions to improve flood resiliency in our communities;

Identifying innovative, practical research

tied directly to flood resiliency in Canada, and leveraging relationships towards funding such research;

Sharing results and best practices,

including measurable activities to reduce risk of flood in our communities; and,

Informing Canadians

about their flood risk, actions they can take to reduce this risk, and opportunities for risk transfer, such as through insurance.



Pressed
for time?

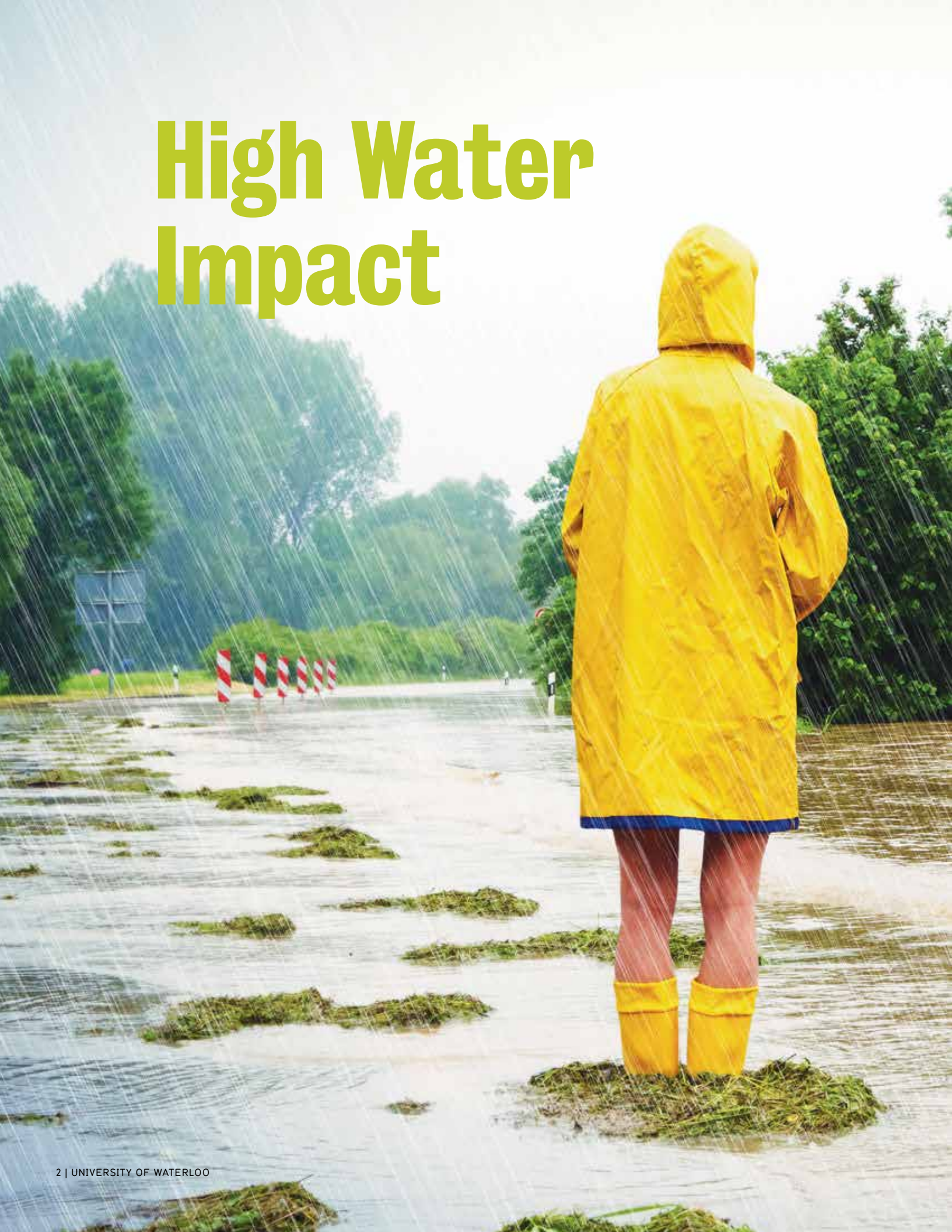
For highlights and a summary of this report, please visit us at:
uwaterloo.ca/partners-for-action



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High Water Impact





Over 1.7 million Canadian households are at risk for flood, but many homeowners are unaware and unprepared for this danger. We need to act now to help Canadians protect themselves and everything they hold dear.

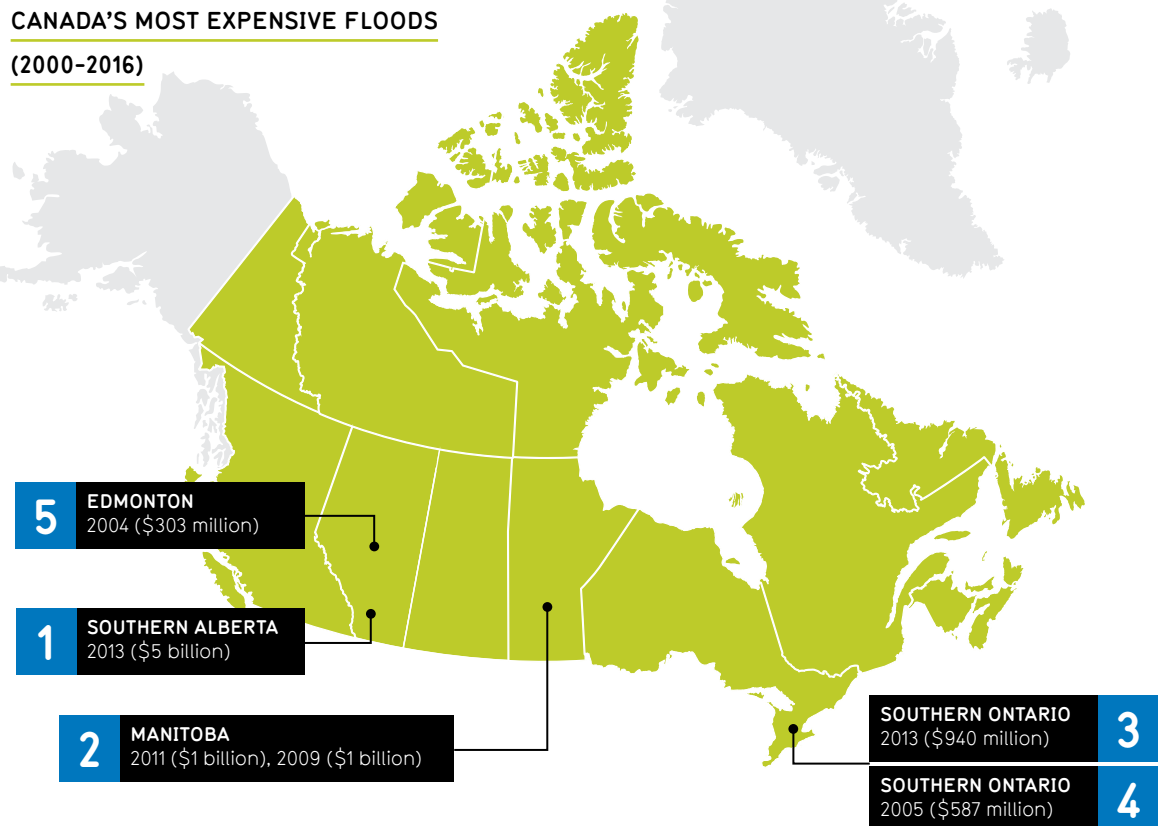
Water-related damage is the leading cause of disaster and recovery costs in Canada. 2017 saw many rainfall records broken, with rivers and lakes in southern Canada reaching levels not seen in decades. Flooding and evacuations were reported across the country — from farmers' fields, to river and lakefront properties, to downtown cores.

Despite national exposure to flood stories, Canadians are typically not aware of the risk that flooding poses to their health, homes, and livelihoods. Many do not take action to protect themselves, believing that insurance and government disaster assistance will return flooded lives to normal, when this is rarely the case.

And the problem will only grow worse as our climate changes, with heavier and more frequent rainfall events anticipated across the country. Over the next five years, Canadians can expect to pay over \$12 billion in flood damages through insurance, personal savings, and government relief spending. We cannot afford to ignore this threat any longer.

Partners for Action (P4A) is addressing these challenges by cultivating informed decision-making through sound science and effective partnerships. Our goal is simple: to protect the health and prosperity of Canadians by building resiliency to flooding.

CANADA'S MOST EXPENSIVE FLOODS (2000-2016)



Source: The Weather Network

TURNING THE TIDE



DIRECTOR'S MESSAGE

P4A is getting the message out and making it count — we can protect ourselves and reduce flood risk.

Partners for Action is entering our third year as an established research network at the University of Waterloo, and our future path is clear — we need to understand what drives Canadians when it comes to protecting ourselves from floods, and give homeowners and governments the information and tools they need to make the best decisions. As our climate continues to change, we need to prepare for more water, more often, and empower Canadians to drive change. Property owners deserve to know what a flood could mean for their families and homes, and take action.

P4A continues to foster a national stakeholder group and lead conversations on flood resilience at the individual and community level. We are working with our partners to generate applied knowledge, forge resolve, and spur collective action on an issue that affects us all.

P4A also continues to work towards our vision of a risk-aware Canada, where homeowners take responsibility for protecting themselves and recovering from floods, and decision-makers consider risk in planning and preparing our communities.

In the following report, we document our plans for the future. We hope you are as excited about our progress and optimistic about our future as we are.

While we can't stop the next big flood from occurring, we can, with your assistance, help our communities grow stronger, more connected, and more resilient.

A handwritten signature in black ink that reads "Shawna Peddle". The signature is fluid and cursive.

SHAWNA PEDDLE
DIRECTOR, PARTNERS FOR ACTION

CHAIR'S MESSAGE



P4A is building partnerships that will help Canadians weather the storm.

Our exposure to extreme weather will intensify in the near future — even if we reduce greenhouse gas emissions today. Unless we work together to both mitigate and adapt to climate change, our communities will suffer from the impact of extreme weather.

Fortunately, the eyes of the world — including those of citizens, businesses, universities, non-governmental organizations, and all levels of government — are focused on our climate crisis. We've waited a long time for this moment of shared vision to arrive, and, now that it's here, there is no time to waste.

P4A has succeeded in creating effective cross-sector collaboration to address one of Canada's biggest climate challenges. By bringing together expertise and experience of a diverse group of stakeholders, P4A is helping Canadians understand what they can do to protect themselves and their communities against the threat of flooding.

At the University of Waterloo, we have nation-leading research strength in climate change adaptation, a proven track record of academic-industry-government collaboration, and a dynamic culture of innovation and entrepreneurship. We could not be prouder to leverage these capabilities as part of P4A, and we are incredibly grateful for the support of our partners.

We look forward to advancing our goal of a flood risk-aware Canada through understanding the needs of our residents, fostering relationships with our partners, conducting cutting-edge research, clearly communicating our findings with Canadians, and training the next generation of leaders and change makers.

The Faculty of Environment is committed to continuing our journey over the coming year as together we build a climate-resilient Canada.

A handwritten signature in black ink that reads "Jean Andrey". The signature is written in a cursive, flowing style.

JEAN ANDREY

DEAN, FACULTY OF ENVIRONMENT
CHAIR, PARTNERS FOR ACTION ADVISORY COMMITTEE

Advisory Committee Members

Jean Andrey

Chair | Waterloo, ON
Dean, Faculty of Environment,
University of Waterloo

Beth Crosbie

St. John's, NL
Past President and current Atlantic Regional Director,
Canadian Real Estate Association
International Director,
Board of the US National Association of REALTORS

Matthew Godsoe

Ottawa, ON
Manager, Research Unit, Public Safety Canada

David Diabo

Ottawa, ON
Senior Special Advisor — Emergency Management,
Assembly of First Nations

Wolf Keller

Calgary, AB
Chair, Expert Panel on River Flood Mitigation,
and Former Director of Water Resources,
City of Calgary

Cathy Maniego

Edmonton, AB
Executive Director, Capacity and Sustainability,
Alberta Municipal Affairs

Dave Murray

Victoria, BC
Past President,
Canadian Water Resources Association (CWRA)

Shawna Peddle

Waterloo, ON
Director, Partners for Action,
University of Waterloo

Steve Smith

Cambridge, ON
President and CEO, Farm Mutual Re

Trevor Smith Diggins

Guelph, ON
Communication Strategist

Cindy Toth

Oakville, ON
Director of Environmental Policy,
Town of Oakville

Barbara Turley-McIntyre

Guelph, ON
Vice-President, Sustainability and Citizenship,
The Co-operators Group Ltd.

Rob Wesseling

Guelph, ON
President and CEO,
The Co-operators Group Ltd.

Education and Awareness

See page eight for more

150

Web and Print
ARTICLES

3,500

Users on
floodsmartcanada.ca

Participated in
10
CONFERENCES



560

Twitter Followers

twitter.com/PARTNERS4ACTION

HOSTED WORKSHOP

Perspectives in Flood Risk Assessment and Management

110+ participants

HOSTED WEBINAR

with Ontario Centre
for Climate Impacts and
Adaptation Resources

220+ PARTICIPANTS

Research

See page eleven for more

RELEASED REPORT

“Canadian Voices on Changing
Flood Risk: Findings from a
National Survey”

Funded academic
research on municipal

**FLOOD RISK
MAPPING**

Research into best practice
approaches and tools for

**FLOOD RISK
awareness**



Interviewed 12 First Nation
Community representatives for a
**REPORT TO INDIGENOUS AND
NORTHERN AFFAIRS CANADA**

Initiated research into
**ECONOMIC BENEFITS
OF FLOOD ADAPTATION**
for communities in Alberta



Partnership and Programming

See page thirteen for more

Partnered with REEP Green Solutions
and the City of Cambridge on the

**CAMBRIDGE GREEN STORMWATER
INFRASTRUCTURE PROJECT**



Green Communities Canada,
the City of Kitchener, and
REEP Green Solutions

**RAIN READY
NEIGHBOURHOODS**



Informing Canadians

**P4A is advancing
flood resiliency with
nationwide communication
and education.**

In a recent study, we found that only six per cent of surveyed homeowners knew that they were living in a designated flood area. Only 21 per cent believed that the risk of flooding would increase over the next 25 years.

Clearly, the need to communicate with Canadians about the risks of flooding is as pressing as ever.

Fortunately, P4A continues to create and disseminate information that educates Canadians about flood risk, and the practical, affordable steps they can take to reduce or eliminate that risk.

In 2017, P4A led the flood discussion in the Canadian media, with over 150 print and online articles, interviews with CBC, CTV, the Weather Network, and various local radio and television outlets. We are currently working with partners to develop and implement a national flood risk awareness program targeted to audiences in high-risk areas. We continue to seek media opportunities whenever we release reports or hold events.

We released our website, floodsmartcanada.ca, in late 2016 to provide relevant, timely, bilingual information to Canadians on what they can do before, during, and after a flood. Since its launch in fall 2016, FloodSmartCanada



received over 3,500 users from across the country, particularly during the May 2017 floods, as the site was referenced in all media interviews done by P4A representatives. The website curates information from sources across the country, and provides Canadians with the tools and resources they need to protect themselves.

P4A also participated in a number of conferences and workshops in late 2016 and 2017, including the following:

- › Seventh National Roundtable on Disaster Risk Reduction (Attendee and Roundtable General Member)
- › CRHNet Symposium 2016 (Speaker and Sponsor)
- › Ontario Centre for Climate Impacts and Adaptation Resources Webinar (Speaker)
- › CatIQ C4 Conference 2017 (Flood Workshop Moderator, Steering Committee Member, and Sponsor)
- › UNISDR Fifth Regional Platform on Disaster Risk Reduction in the Americas (Attendee and Roundtable General Member)
- › Ontario Climate Consortium Climate Data for Engineers and Planners Workshop (Participant)
- › Flood Risk and Insurance Summit (Speaker)
- › Livable Cities Forum (Speaker and Sponsor)
- › Canadian Association of Mutual Insurance Companies Annual General Meeting (Invited Speaker)
- › Eighth National Roundtable on Disaster Risk Reduction (Attendee, Session Facilitator, and Roundtable General Member)
- › CRHNet Symposium 2017 (Speaker)

We were pleased to serve as advisors for the following initiatives:

- › CatIQ's Canadian Catastrophe Conference (C42017 and C42018)
- › REEP Cambridge Green Stormwater Infrastructure Project
- › REEP RAIN Ready Neighbourhoods Steering Committee and Expert Panel
- › ICLEI/The Co-operators Resiliency Game Collaborator Committee

P4A also hosts a University of Waterloo-based website (uwaterloo.ca/partners-for-action), a Twitter page (@Partners4Action), which has gained more than 560 followers in the past year, a LinkedIn page, to exchange information and share events and results with our diverse stakeholders. We continue to work with our partners to create and share programs and easy-to-digest materials with residents.



Programs and Research

Collaboration and information towards a flood-resilient Canada

The overarching vision of P4A is a flood risk-aware Canada, where homeowners take responsibility for protecting themselves and recovering from floods, and decision-makers consider flood risk in planning and preparing our communities. We develop research, programming, and partnerships to create and mobilize relevant, national-level information on how to meet the three ‘winning conditions’ to facilitate a residential flood insurance market in Canada, as identified by the Co-operators and Partners for Action in 2014:

1 Canadians must understand the risk that flooding presents to their homes, businesses, and communities.

2 Canadian decision-makers must use their understanding of flood risk to make sound adaptation decisions.

3 Canadians must have access to means to transfer the risk associated with flood damage that remains after they have engaged adaptation.

Our Weather Network

Networking and Sharing Ideas

Our Stakeholder Group members (approximately 250) have actively engaged P4A, asking to participate, and providing input as required. We provide information on a regular basis to over 800 individuals on our contact list, including members of the general public who have registered to receive updates through our project website floodsmartcanada.ca.

HIGHLIGHTS

- › P4A recently hosted two workshops, entitled “Perspectives in Flood Risk Assessment and Management”, in conjunction with CatIQ’s Canadian Catastrophe Conference. Over 110 participants, from the insurance industry, all levels of government, academia, and the business community, contributed to in-depth discussions on flood risk assessment, management and mitigation in Canada. Recommendations included improvements in data sharing and common understanding of risk, cross-sectoral collaboration, and homeowner awareness and education programs to understand flood risk and the role of insurance.
- › P4A continues to:
 - Recruit and collaboratively engage our stakeholder group on project ideas, partnerships, and opportunities to participate in P4A activities
 - Provide relevant information to our broader contact list
 - Host webinars and workshops to consult our stakeholders and provide information on our efforts towards a risk-aware Canada
 - Speak and participate at relevant national conferences

Creating and Mobilizing Knowledge

P4A has been conducting groundbreaking research related to flood resiliency in Canada. This work has yielded many

new and helpful insights into the challenges and issues confronting our county. We are committed to translating this knowledge, so that decision-makers and Canadians can use it to drive real change.

HIGHLIGHTS

- › P4A released “Canadian Voices on Changing Flood Risk: Findings from a National Survey”, in partnership with the Interdisciplinary Centre on Climate Change. The report demonstrates that although the risk of floods may be on the rise, risk awareness of homeowners is lacking. The vast majority of the 2,300 Canadians we spoke to are not aware of their flood risk, and are unprepared for flooding events. But, homeowners want to know, and acknowledge their responsibility for protecting their homes. This report shed light on the current status of flood awareness nationally, and will serve as the basis for our risk awareness efforts over the coming year.
- › P4A interviewed 12 First Nation community representatives for a report to Indigenous and Northern Affairs Canada that highlighted what communities throughout the country were doing to assess flood risks, and what resources were required to help understand the potential impacts of climate change on their communities and way of life. This work led to the development of an Indigenous section on our website, floodsmartcanada.ca, and infographics identifying potential climate change impacts and the process to undertake climate change impact assessments at the community level.
- › P4A participated on a project funded by the Canadian Water Network which incorporated climate change scenarios in flood risk modeling for a Canadian municipality.
- › P4A initiated research into the economic benefits of flood adaptation for communities in Alberta. This work will get underway in 2018.

Programming and Partnerships towards Action

P4A continues to leverage our partnerships with University of Waterloo researchers, the business community, governments, and non-governmental organizations to further our reach and improve our ability to meet our goal of a risk-aware Canada.

HIGHLIGHTS:

- › RAIN Ready Neighbourhoods — we continue our partnership with REEP Green Solutions, the City of Kitchener and Green Communities Canada to help transform local neighbourhoods to be more beautiful, flood-resistant, and sustainable.
- › Cambridge Green Stormwater Infrastructure Project — we continue our partnership with REEP Green Solutions and the City of Cambridge to bring together residents and the City towards design and implementation of neighbourhood initiatives to manage rain where it falls, reducing flood risk while beautifying their neighbourhoods.
- › We continue to partner with stakeholders and municipal staff to develop programs aimed at giving municipal staff and councillors relevant information on local flood risk, and the benefits of adaptation.
- › We will work with national and international partners to develop tools to quantify resilience and demonstrate the value of adaptation.



Research Spotlight: Communicating with Canadians

We know homeowners don't act to protect what they hold dear. We're investigating why, and how we can impact behaviour and drive change.

Our research shows Canadians are unaware of the risk flooding poses to their homes and communities, and rely heavily on government and insurance to recover from flood events. We also know we would be better served if we took the initiative to protect ourselves before a flood happens. So why don't we act?

P4A is currently undertaking a two-year national flood-risk awareness to action program, targeted to residents and schoolchildren in high-risk areas across the country. We are working with partners from all levels of government (including Public Safety Canada, Health Canada, Natural Resources Canada, and the province of Alberta, with pilots in the Town of Oakville), the non-governmental sector (The Canadian Red Cross), and private industry (including insurers, the Canadian Real Estate Association, the Weather Network, and others) to examine flood risk communication best practices internationally with the goal of developing an overarching communication strategy. We are co-ordinating focus groups and surveys to determine what works in a Canadian context and to tailor the strategy for diverse audiences and information needs. We have pilots planned for 2018 and a national roll-out targeted for spring 2019.

Our goal is to combine the knowledge of our flood and communication experts with the real, personal flood understanding of Canadians, to develop messages and approaches that personalize flood vulnerability and give homeowners simple, quick information to get them thinking about flood risk.



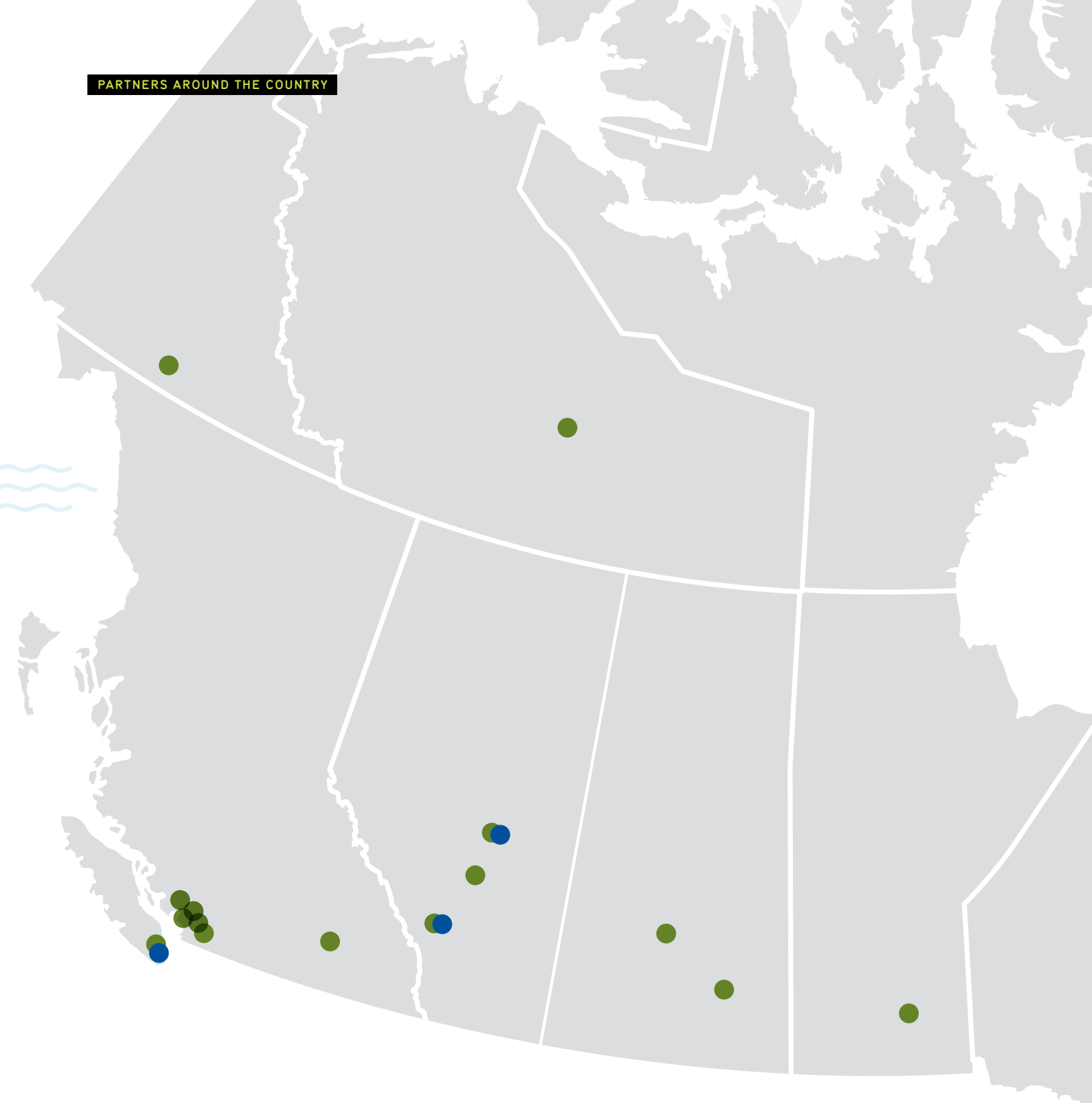
“Farm Mutual Re and the Canadian regional mutuals are proud to be an inaugural contributing partner of the Partners for Action project. Led by Shawna Peddle within the University of Waterloo’s Faculty of the Environment, this opportunity to advance flood resiliency and educate Canadians on flood risk is critical to addressing the effects of climate change and extreme weather that we face on an almost weekly basis.

The importance of bringing all levels of government, the insurance industry, communities and academia together to create a truly sustainable and resilient response to climate change and flood risk cannot be emphasized enough.”

G.S. (STEVE) SMITH, CIP, CRM
President and CEO, Farm Mutual Re



PARTNERS AROUND THE COUNTRY



- P4A Advisory Committee
- P4A Stakeholder Group

P4A's National Reach







Forecasting The Year Ahead

We have the science and the tools to reduce flood risk for Canadians, now.

Our vision is a risk-aware Canada where homeowners take responsibility and action for protecting themselves and recovering from flooding, and decision-makers consider flood risk in planning and preparing our communities.

Our 2017-2018 projects and programs focus on furthering our goals, including:

- › Implementing a national flood risk awareness program, combining social marketing, behavioural psychology and the knowledge and expertise of our stakeholders to discover what motivates Canadians to protect their homes, and develop messages and approaches to drive action to reduce flood risk (see Research Spotlight).
- › Undertaking a study of the benefits of flood mitigation efforts in an Alberta community in reducing future recovery costs, but also insurance premium costs for residents.
- › Creating a framework for municipalities looking to effectively engage homeowners towards installing and maintaining green infrastructure (rain gardens, permeable pavement, etc.) to manage rainfall at the property level.
- › Hosting workshops and webinars with our stakeholders to share what's working towards making our communities flood resilient.

Get Involved

To create a flood risk-aware Canada, we must cultivate collaboration between municipal, provincial, federal, and indigenous governments, non-governmental organizations, financial institutions, business and industry, and our citizens. To make real progress, we need a diversity of perspectives, a culture of co-operation and mutual understanding, and a lively and creative exchange of ideas.

Over the coming year, we look forward to meeting with Canadians to talk about flood risk, and the barriers faced when trying to understand and reduce this risk. We look to our stakeholders to help shape these conversations, and get the best information out to homeowners. We also plan to evaluate the success of our efforts, always with an eye towards the continuous improvement of our approach.

We continue to expand our network of partners and stakeholders. Please join us and share our message with individuals and organizations interested in promoting climate resiliency. Together, we can build a better future.

“Flood risk for Canadians and their communities is on the rise, but homeowner awareness remains low. In fact, Partners for Action’s 2017 report Canadian Voices on Changing Flood Risk revealed only six per cent of Canadians surveyed living in flood risk areas were aware. This is why the work being done by P4A is invaluable: through research and collaboration, P4A is influencing decision-makers, educating homeowners, and advancing resiliency to create a risk-aware Canada. As a co-operative insurer, we’re committed to providing security for Canadian communities and are proud to be a partner and co-founder of P4A.”

ROB WESSELING

President and Chief Executive Officer, The Co-operators Group





Connect with us



@Partners4Action

uwaterloo.ca/partners-for-action



YEARS OF INNOVATION
UNIVERSITY OF WATERLOO

For further information regarding this report, please contact:
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