
Transportation and Climate Risks on the Prairies Study Underway

Natural Resources Canada and Transport Canada co-launched an “Assessment of Climate Risks and Adaptation Practices for the Canadian Transportation Sector” in 2014 to further inform adaptation planning in Canada. As part of this study, six regional chapters are being prepared, including one focused on the Prairies. This chapter will focus on transportation networks and infrastructure of regional and national importance on the Prairies; a separate chapter focused on urban transportation systems is being prepared. Preparation of this chapter is being led by the Richardson College for the Environment at the University of Winnipeg in collaboration with the University of Manitoba Transport Institute.

When completed the Prairies chapter will provide an overview of the region’s existing transportation system and key transportation trends, looking at all modes of freight and passenger transportation (road, rail, air and marine). It will also identify relevant climate-related risks and assess the climate sensitivity of the sector based in part on historical

examples of climate impacts. Taking into account current climate trends and projections, key future climate risks for the sector will be assessed using an analytical framework developed for use within all chapters of the national assessment. The study will also describe different types of adaptation practices being implemented on the Prairies by transportation sector practitioners, as well as those being used internationally that could be applied. Finally, gaps in information and knowledge that currently constrain decision-making will be identified.

The national assessment is expected to be completed before the end of 2015.



Photo courtesy of iStock

Alberta Municipalities Explore Practical Adaptation Measures

action,” a new web-based tool that uses a story-telling approach to connect climate change implications and adaptation actions.

Several examples of municipalities proactively engaged in adaptation planning were presented, such as Quebec City’s downspout disconnection initiative. The City of Leduc discussed development of its Weather and Climate Readiness Plan, released in 2014. The plan addresses freezing rain storms and extreme precipitation, the top climate risks identified by the city through a risk assessment. In developing its plan, Leduc identified the need for more guidance from the province, along with federal and provincial government support to enable municipalities to be proactive in addressing future climate risks.

Above all, presenters emphasized the need to blend “hard” (e.g. engineered) and “soft” (e.g. social) approaches to adaptation. They also noted the essential need to take a multidisciplinary approach and incorporate climate change into policy and strategy documents in

order to achieve cost effective adaptation and long lasting solutions.

Presenters included Dr. David Sauchyn, Research Professor at the Prairie Adaptation Research Collaborative, who spoke about observations and variability of climate change in the Prairies. Dr. Suzan Lapp, Urban Systems Engineering, and Dan Sandink, Institute of Catastrophic Loss Reduction, pointed to the potential risks of climate change and the role of risk assessment and resiliency planning. Representing the City of Leduc, Mayor Greg Krischke and Environment Sustainability Coordinator Kerra Chomlak presented on the city’s climate change readiness and adaptation planning process. The second half of the workshop concluded with presentations by Guy Greenaway, Miistakis Institute, and Devin Causley, Federation of Canadian Municipalities, which highlighted adaptation planning resources and tools available for municipalities.

Presentations from the workshop can be found on the [PRAC II website](#).

Interesting Reads:

[Cities Adapt to Extreme Rainfall](#)

By Paul Kovacs, Sophie Guilbault and Dan Sandink
(December 2014)

Severe rainfall has replaced fire as the leading cause of damage to Canadian homes. The cost of damages from basement flooding and sewer backup has been rising unsustainably for more than 25 years, and now exceeds \$2 billion a year. The frequency and severity of extreme rainfalls is only expected to increase across Canada in the coming decades. Substantial effort and new investment will be needed by local governments to regain control over the risk of damages from these events to ensure that they do not cause damage to private properties.

The book "Cities Adapt to Extreme Rainfall" by the Institute for Catastrophic Loss Reduction celebrates stories of successful efforts by local governments to address the growing challenge of extreme rainfall events and their impact on waste and stormwater management. The recent publication provides 20 mini case studies that recognize and acknowledge local leadership, actions and policies to confront this challenge. It suggests that much of the damage to homes is preventable if communities' efforts to manage waste and stormwater infrastructure is combined with property owners applying knowledge and designs to protect their homes.

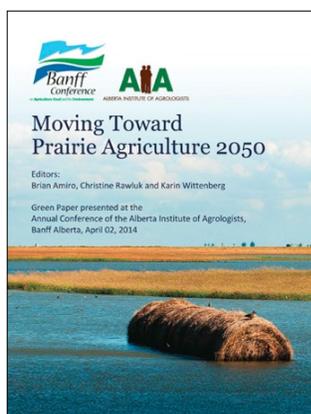
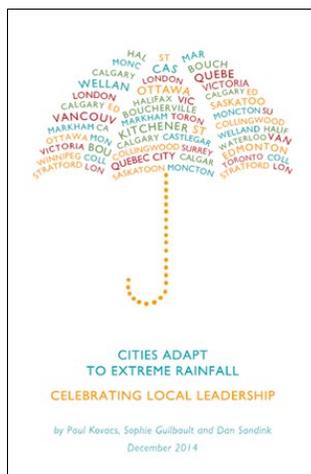
The book documents how municipal governments aim to influence private behaviour and try to take early action before large losses occur. For example, the City of Saskatoon mapped the location of flooded basements and developed a hydraulic model of the area to identify high-risk homes for sewer backups and basement flooding. The city introduced Saskatoon's Flood Protection Program and offered residents up to \$3,000 to install backwater valves on their sanitary sewer lateral. Over 50 per cent of targeted property owners participated in the program and 85 per cent of those had no further basement flooding issues. Similar to Saskatoon, the City of Winnipeg created a by-law requiring the installation of backwater valves in all new homes as well as a subsidy program to encourage the installation of backwater valves and sump pumps in older houses.

Other actions highlighted in the book include tax credits, regular inspections of storm laterals, downspout disconnection programs and public outreach. The authors suggest that the best practices identified in the book are scientifically sound and provide a foundation for long-term success.

[Moving Toward Prairie Agriculture 2050](#)

By Brian Amiro, Christine Rawluk and Karin Wittenberg
(April 2014)

This Green Paper presented at the Annual Conference of the Alberta Institute of Agrologists addresses the question of how climate change will shape the Prairie agricultural system over the next 35 years. The paper's 23 contributors discuss the need for adaptation in response to likely future climate scenarios and uncertainties. The paper provides an opportunity to present how climate change is relevant to farmers and what to expect. It summarizes the current state of knowledge of future climate and includes 14 essays on individual topics that provide a diversity of outlooks. Despite the large number of contributors, they all come to agreement that governments, educators and farmers need a strategy to adapt if agriculture on the Prairies is to continue to remain competitive and thrive.



Some highlights of the paper include an essay by Bruce Burnett, CWB weather and crop specialist, who discusses positive and negative impacts of climate change on crop selection. He further adds that climate variability will be one of the biggest concerns for agricultural systems. Charles Grant, agricultural economist from the University of Manitoba, points to the impact climate change will have on insurance, warning of higher premiums and increasing deductibles. Other scientists and researchers explore issues around climate change and weeds, beef cattle production, the agri-food sector's capacity to adapt, and the future of international food and agricultural trade.

The authors conclude that future resilience will be affected by a variety of variables that will likely influence agriculture's ability to adapt, calling for strategies to be broad and aggressive.

Upcoming Events:

[Climate Change Technology Conference 2015](#)

May 25-27, 2015 (Concordia University, Montreal, QC)

The Climate Change Technology Conference 2015 is a Canadian and international forum for the exchange of ideas for dealing with climate change. It is an opportunity to keep abreast of emerging techniques and technologies for mitigating and adapting to climate change.

[Our Common Future Under Climate Change](#)

July 7-10, 2015 (Paris, France)

Organized by the United Nations Educational, Scientific and Cultural Organization, this four-day international scientific conference will bring together researchers from around the world to discuss climate change in the broader context of global change and how to move from present knowledge to future solutions. The conference's daily themes are: state of knowledge on climate change, scenarios exploring our common future, responding to climate change challenges, and collective action and transformative solutions. With more than 140 Parallel Sessions, the conference promises to be the largest forum for the international scientific community engaged in climate change leading up to the Paris Climate Conference in December 2015.

[2015 Livable Cities Forum: Building Flood Resiliency](#)

September 28-30, 2015 (Calgary, AB)

The City of Calgary, in partnership with ICLEI and the Canadian Water Resources Association, invites municipal representatives, water management professionals, elected officials and other stakeholders to join the dialogue around solutions for building more flood resilient communities. The Forum will explore ways to better understand, plan for, mainstream and advance municipal flood resiliency. The event includes a study tour through Calgary to explore how the city has recovered from the 2013 flood. Innovators and leaders will share solutions, strategies and best practices to enhance the flood resiliency of communities.

In the News:

[New collaboration aims to advance flood resilience in Canada](#)

The Co-operators and Farm Mutual Reinsurance Plan have committed \$1.1 million for the creation of the Partners for Action (P4A) Network, housed at the University of Waterloo. The new collaboration will bring together a diverse group of stakeholders to advance flood resiliency and risk management through research. The first study will be released this spring, and will assess the preparedness of Canadian cities for extreme weather and flooding.

[Changing winds due to climate change pose safety risks to Arctic airports](#)

Andrew Leung, a PhD Candidate from the University of Toronto, has been collecting historical metrological data from small airstrips in the Hudson Bay and Eastern Arctic. The results suggest that wind speed and direction have changed over time due to climate change. A combination of increased average wind speed and a shift in direction can result in dangerous crosswinds, which make it riskier to attempt a landing unless costly upgrades are put in place to mitigate the risks. Results of the study have yet not been published.

[Federal government releases 2015 Budget](#)

The latest federal budget released on April 21 commits funding to a number of environmental measures such as the species at risk act, conservation programs and Arctic meteorological and navigation services. Nonetheless, it contains little in terms of specific measures or spending for climate change adaptation or mitigation. Funding for climate change adaptation programs to four federal agencies will expire in 2016 and has not been renewed to this point. Neither does the budget make mention of the government's \$300 million commitment to the international Green Climate Fund. Under the New Building Canada Plan, \$5.35 billion per year will continue to be provided for provincial, territorial and municipal infrastructure. Budget 2015 also boosts funding for public transportation, providing \$750 million over two years, starting in 2017-18, and \$1 billion annually for a new Public Transit Fund thereafter.

Acknowledgement

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