Manitoba

Assiniboine River and Lake Manitoba Basins Flood Mitigation Study: Providing Greater Protection For Manitobans From Flood Risks

Welcome!

Manitoba Infrastructure and Transportation is studying flooding in the Assiniboine River and Lake Manitoba watersheds and how we can provide greater protection from flooding risks.

The study will help the province better understand the flood risks and the possible options that can be used to reduce effects from future flood events. This study is focused on:

- The main stems of the Assiniboine River and Souris River
- Lake Manitoba
- Lake St. Martin
- Dauphin Lake
- Shoal Lakes

We value your feedback.

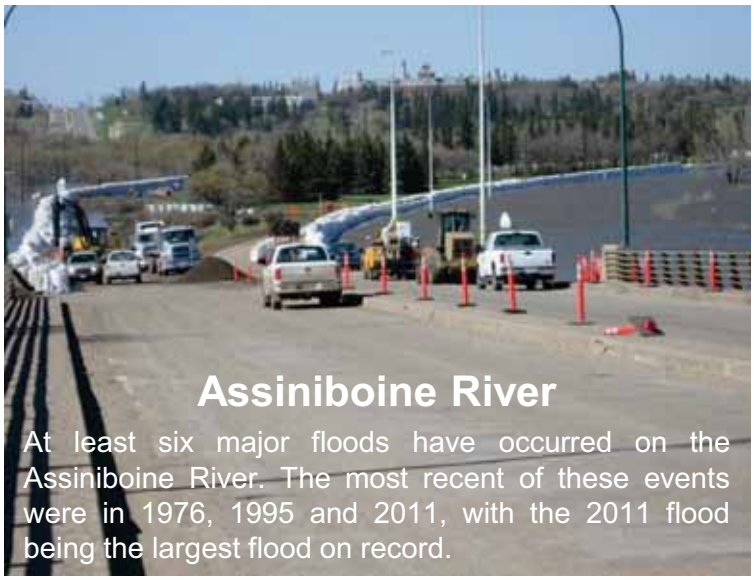
- Ask us any questions you have about the study.
- Share your experience with different types of flood protection works.
- Fill out a comment form.

Your input and feedback will help improve the study through local knowledge and experience.

Background

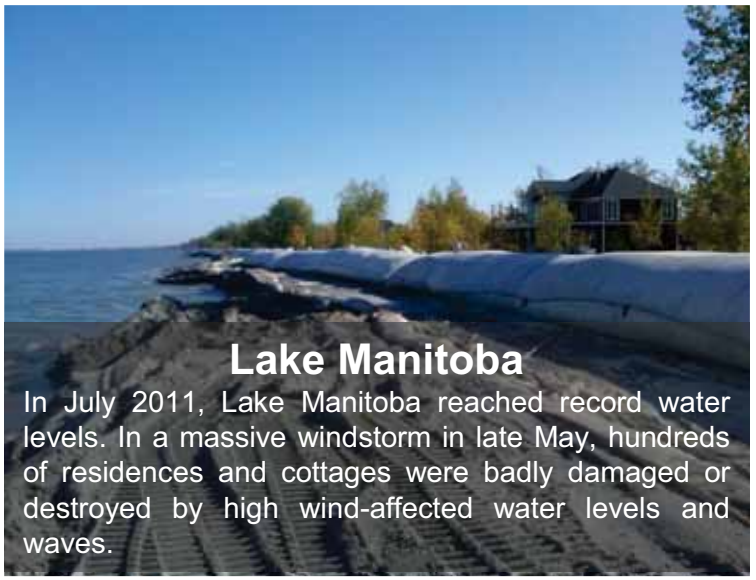
In the last hundred years, Manitoba has experienced several major floods. The flood of 2011 was unique. High flows were recorded on almost all streams and rivers in the Assiniboine River and Lake Manitoba watersheds. For a flood event like this to occur on one or two major rivers is rare, let alone for a flood to occur over all of western Manitoba.

The flood of 2011 highlighted several potential weak links in some of the existing flood control systems.



Assiniboine River

At least six major floods have occurred on the Assiniboine River. The most recent of these events were in 1976, 1995 and 2011, with the 2011 flood being the largest flood on record.



Lake Manitoba

In July 2011, Lake Manitoba reached record water levels. In a massive windstorm in late May, hundreds of residences and cottages were badly damaged or destroyed by high wind-affected water levels and waves.

Souris River

In 2011, the Souris River was affected by several major rainstorms in May and June. The spring peak related to snowmelt runoff occurred in late April and the summer, record-high peak occurred in early July as a result of the significant rain events in May and June.

Dauphin Lake

In 2011, water levels began to rise in early April as a result of the snowmelt. Lake levels continued to rise due to several major rain events in May and June, reaching a record level in mid-June. Very significant damages occurred in the late-May wind storm.

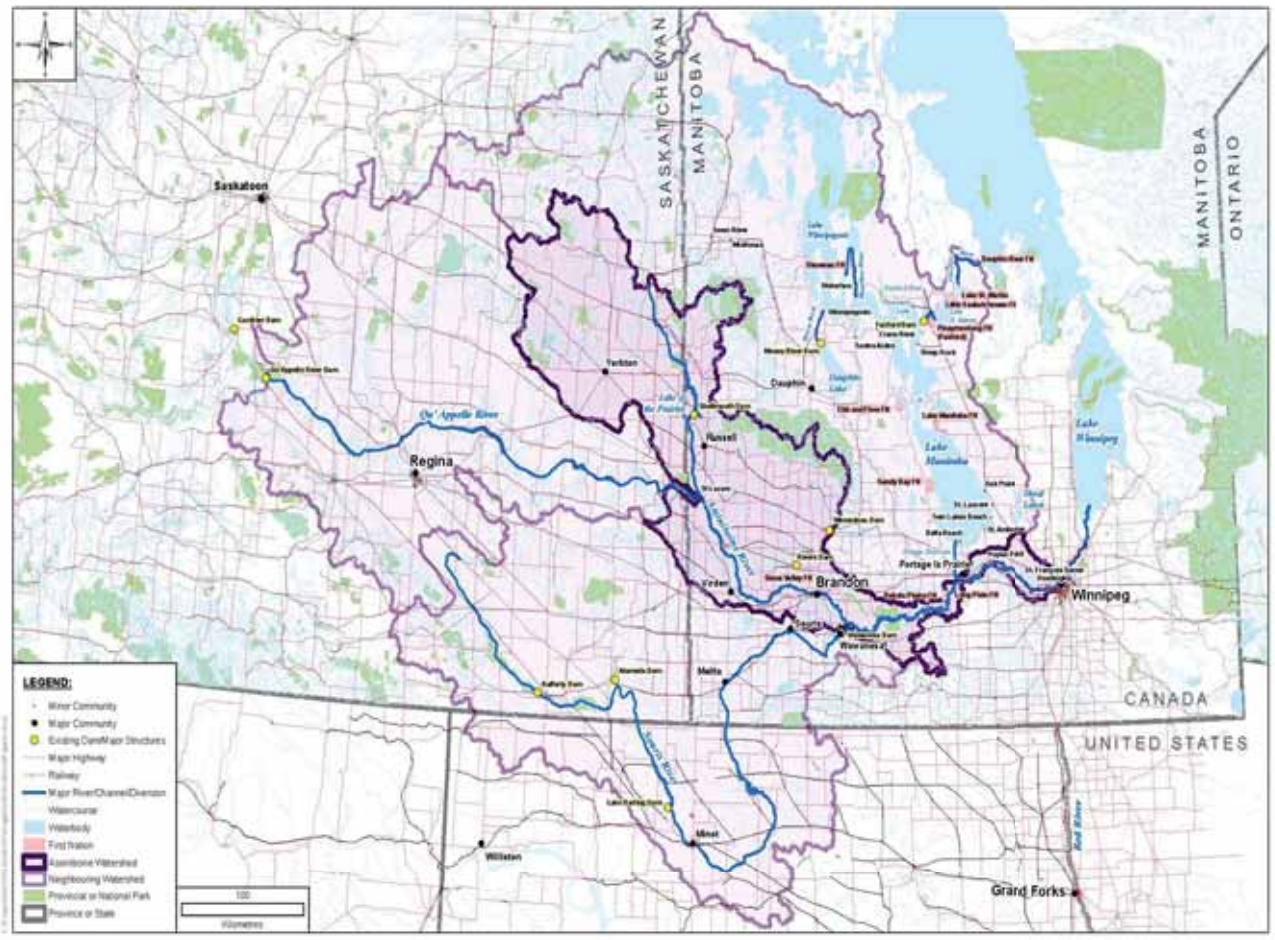
In May 2013, a wind and ice event resulted in significant damages at Ochre Beach.

Study Objectives

The study will identify the flood risk, and assess potential options to reduce flood risk for communities and major infrastructure along the following lakes and rivers.

- Assiniboine River
- Souris River
- Qu'Appelle River
- Dauphin Lake
- Lake Manitoba
- Fairford River
- Lake St. Martin
- Dauphin River
- Shoal Lakes

A number of activities to reduce flood effects are currently well underway and will be considered in the study. Results from this study will be used to plan for and carry out future activities.



Watershed

Other Completed Provincial Activities

The Manitoba Government recently released various studies and reviews including the following:

- **The 2011 Manitoba Flood Review Task Force**

  The Task Force reviewed and provided recommendations on the following components of the 2011 Flood:

  - Flood forecasting
  - Emergency preparedness, flood fighting ability and response
  - Operation of flood control infrastructure
  - Environmental impacts
  - First Nations

- **Lake Manitoba, Lake St. Martin Regulation Review**

  The review considered:

  - The need for additional water control works.
  - The most acceptable and practical range of control for the levels of Lake Manitoba and Lake St. Martin.
  - Land use and zoning rules for areas around the water bodies that are vulnerable to flooding.

- **Lake St. Martin Flood Mitigation Alternatives Study**

  This study reviewed options to reduce flood effects for each of the four First Nations affected by operation of the Fairford River Water Control Structure.

Other Provincial Activities

Other studies and reviews commissioned by the Manitoba Government include:

- **Lake Manitoba Outlet Channel – Conceptual Design Study**

  This study is evaluating options for enhanced Lake Manitoba outlet capacity to better control water levels.

- **Lake St. Martin Outlet Channel – Conceptual Design Study**

  This study is evaluating options for a permanent Lake St. Martin outlet channel, including a review of the approval and licensing requirements of The Environment Act.

- **Surface Water Management Strategy**

  This strategy will develop an integrated approach to improve the management of surface water in Manitoba, considering the needs of Manitobans and the importance of water to the environment.

Lake St. Martin Emergency Outlet (photo courtesy of KGS)

Potential Infrastructure Options

- **Diversion channels**: Review existing and potential diversion channel projects, including improvements to the Portage Diversion and the Fairford River Water Control Structure.
- **Community dikes**: Review existing and proposed dikes, and consider potential new diking options.
- **Flood storage dams and reservoirs**: Review existing and potential dam sites to store water and reduce the risk of flooding.

Shellmouth Dam *(photo courtesy of KGS)*

Potential Policy and Planning Options

- **Development rules and regulations**: Consider ways that future development could be controlled, regulated, and/or restricted to reduce future flood damages.
- **Land use**: Examine the pros and cons of land use changes and identify opportunities to preserve, expand, or enhance key areas to reduce runoff.
- **Wetland retention and restoration**: Consider potential ways of improving and increasing wetlands throughout western Manitoba, and the flood-reduction benefits of these wetlands.

Wetlands *(photo courtesy of KGS)*

Other Flood Reduction Options

Temporary flood mitigation options: Sometimes permanent options to reduce flood effects may not be possible or economical. Temporary options to reduce flood effects will be considered in these cases.

Temporary options may include:

- Sandbags
- Water filled barriers such as Aquadams and Tiger Dams
- Geotubes
- Hesco cage-type barriers

Sandbags

Flood Tubes at Lake Manitoba Basin

Photos courtesy of KGS)

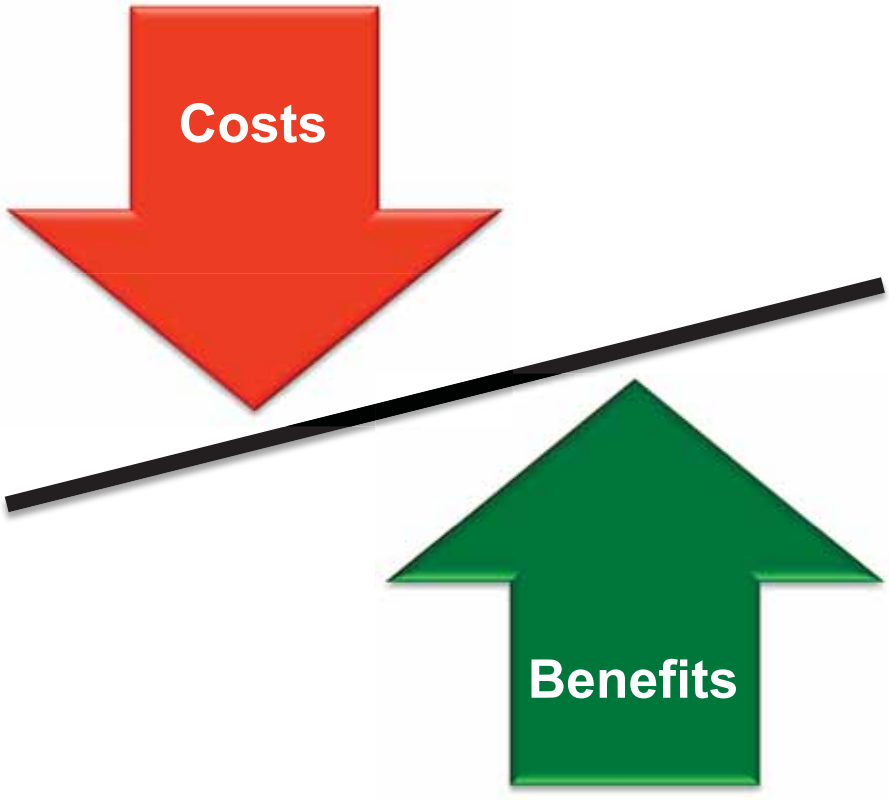
Benefits, Costs, and Priorities

The study will identify potential benefits and costs of the various options to reduce flood effects.

Potential benefits include minimizing:

- Damage to home, cottage, business and farm structures
- Loss of agricultural land and/or losses in productivity
- Effects of temporary relocation due to evacuation
- Transportation restrictions
- Damage to public infrastructure
- Temporary mitigation measures (e.g., sandbags, flood tubes)
- Costs associated with flood defence

The assessment of benefits and costs will help determine the priority of the studied flood reduction and flood protection options.



Study Process

Several steps are required to complete the study.

Data Collection

- Collect and review existing reference reports and data (water levels, flows, flooded areas, rating curves, frequency curves).
- Collect survey information (topographic maps, river cross sections, road and railway elevations).

Identifying Alternatives

- Identify potential options for flood control and reducing weak links in the system.
- Options include: development regulation and rules, diversion channels, dikes, storage dams and reservoirs, land use, wetlands, etc.

Modeling/ Evaluation

- Develop computer models of the river and lake systems and watersheds.
- Evaluate options to reduce flood effects using the models.

Benefit/Cost Analysis

- Identify and assess benefits, costs and other implications of all the alternatives studied at a conceptual level.
- Consider a wide range of flood events including 100-year event, 500-year event, and flood of record.

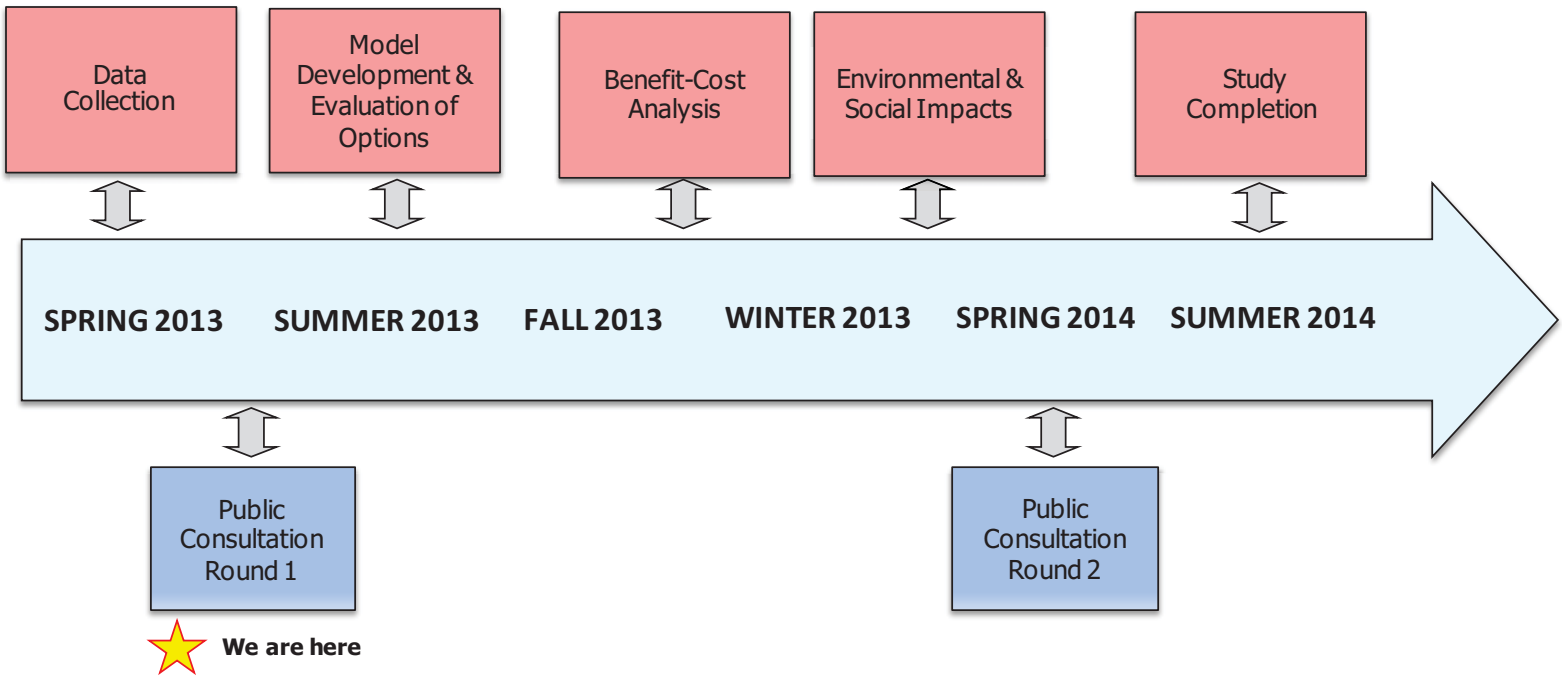
Impacts of Alternatives

- Identify environmental and social impacts of the most feasible options including all potentially impacted resources (fish, wildlife, agriculture, water quality, etc.)

Final Report

- Document options that have been considered, including benefits, costs, impacts and recommendations.

Study Schedule



Public Consultation

Round 1 Consultation

Today is the first part of the public consultation process. This session is intended to:

- Communicate the scope of the study; and
- Provide opportunity for people to provide thoughts on what options should be considered to reduce flood effects and how these options should be prioritized.

Round 2 Consultation

The second round will be an opportunity to review preliminary results and provide feedback prior to the development of the final study report.

Manitoba

Sharing your opinions, knowledge, and experience

The study team would like to know:

- Based on what you have observed and heard today, what are your thoughts about the study?
- What are your thoughts about the considered flood mitigation options?
- What have been your past experiences with different forms of flood mitigation, particularly those presented today?

Comment forms are available for you to fill out.

Forms can also be submitted electronically or by mail, so long as they are received before July 15, 2013.

Details are provided on the comment form.

Please feel free to approach a study team member to help you through the documentation process.

Contact information: feedback@floodstudy.ca

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Thank you!