LAKE MANITOBA
LAKE ST. MARTIN

REGULATION REVIEW

Finding the Right Balance:

A Report to the Minister of Infrastructure and Transportation

Volume 2: Appendices

February 2013

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Appendix A: Terms of Reference

TERMS OF REFERENCE
2012 LAKE MANITOBA/LAKE ST. MARTIN REGULATION REVIEW

The flooding on Lake Manitoba and Lake St. Martin was unprecedented in 2011. The peak level on Lake Manitoba of 249.1 m (817.2 ft) at the end of July was more than 1.2 m (4 ft) higher than the desirable top of range on Lake Manitoba and in late fall water levels were still approximately 0.6 m (2 ft) above the top of the desirable range. The unprecedented high levels were a result of numerous factors combined to cause the worst flooding ever recorded on Lake Manitoba.

The ability to lower Lake Manitoba through the winter is restricted by the high potential of the risk of frazil ice jamming and associated flooding at freeze-up downstream of Lake St. Martin along the Dauphin River. Due to the current high water levels on Lake Manitoba and the need to lower Lake Manitoba and Lake St. Martin over the winter, an emergency outlet was constructed from Lake St. Martin. The ongoing operation of the emergency outlet in future high water years will require an Environment Act license including operating rules and/or a range of regulation for Lake Manitoba.

Following the unprecedented water levels experienced in 2011, the Manitoba Government has committed to undertake a review of the operation of provincial water control structures and the water levels on Lake Manitoba, Lake St. Martin and other associated waterways. The Lake Manitoba/Lake St. Martin Regulation Review will be undertaken by an appointed Committee, to be chaired by an expert who is familiar with the review of flood events. The Lake Manitoba/Lake St. Martin Regulation Review Committee will be provided with resources sufficient to undertake the review, which is expected to include: significant engagement and dialogue with the public and with stakeholders; hiring of independent experts to provide technical advice or research on discrete issues of interest; collection of data and site visits, as required; and production of a final report, including recommendations to government.

The Lake Manitoba/Lake St. Martin Regulation Review will consider and provide recommendations on the following matters:

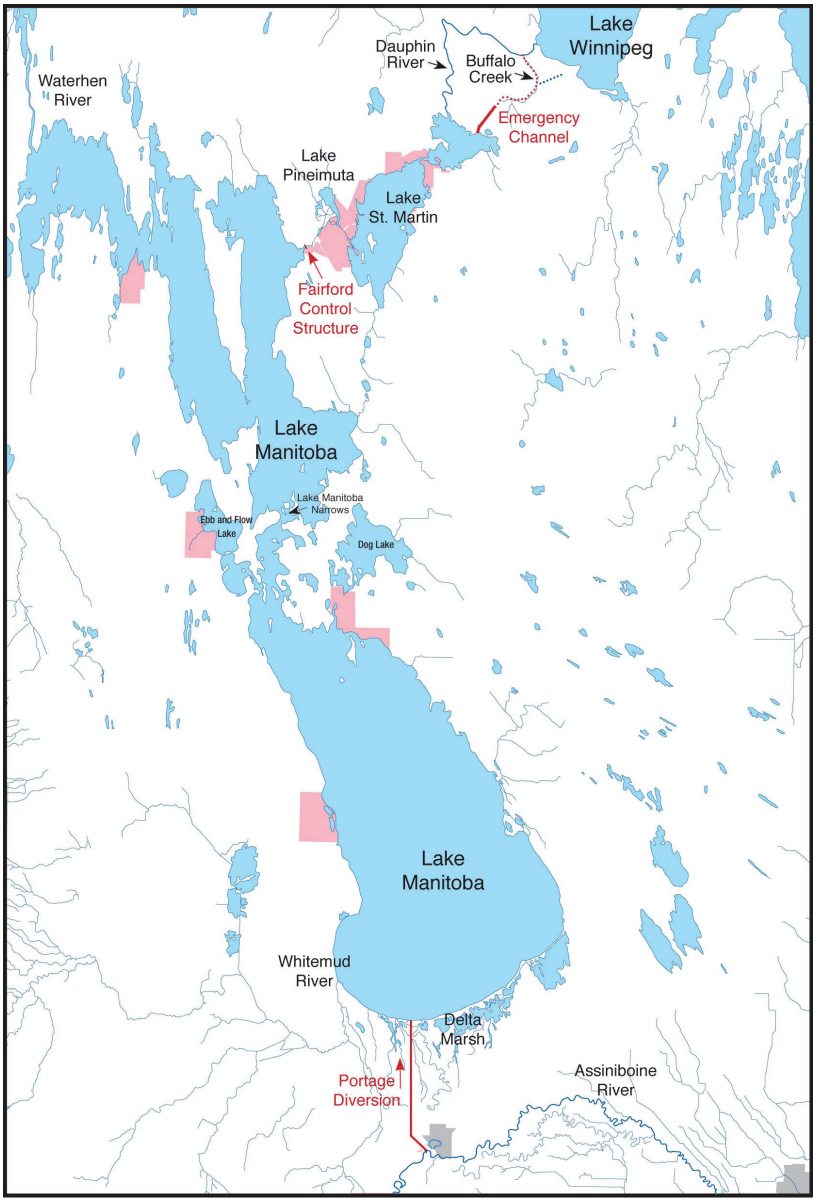
- The current range of regulation of Lake Manitoba and Lake St. Martin and the rules of operation for the Fairford Water Control Structure;
- The need for additional water control works in the future;
- The impact of water level regulation on the lake and surrounding land, including people and communities, agriculture, wetlands, fisheries, wildlife, water quality, and recreation etc;
- The most acceptable and practicable range of regulation within which the levels of Lake Manitoba and Lake St. Martin might be controlled; and
- Land use policies and zoning criteria relative to areas around the water bodies that are vulnerable to flooding.

The Lake Manitoba/Lake St. Martin Regulation Review will require significant engagement with the public and key stakeholders in a transparent and meaningful manner. The Lake Manitoba/ Lake St. Martin Regulation Review Committee may choose the format and extent of public engagement and it is expected that feedback, along with the Committee's findings, conclusions and recommendations are to be made available to the public; a 'What We Heard" type of document is encouraged. While engagement with the public is critical in this process, it must also be made clear that the scope is limited to a public review; the process is not to be construed or communicated as a hearing.

The Committee's work will rely on expertise and information resident within government departments. Provincial government officials will cooperate with the Committee to provide information to ensure that work is completed on a timely basis. In some cases, this may extend to departments completing discrete pieces of research and/or planning, providing mapping support, or providing administrative support. Requirements for expertise may also include requirements for legal opinions. All requests from the Committee for support from provincial officials must be approved at senior levels. The Committee is encouraged to utilize their budget to engage independent service providers when required.

The Lake Manitoba/Lake St. Martin Regulation Review will be conducted concurrently with the 2011 Flood Review. It is expected that where there are items of mutual interest to both reviews, that the Flood Review Task Force and Regulation Review Committee will coordinate their investigation, activities and so much as possible, their recommendations.

Appendix B: Lake Manitoba and Lake St. Martin



Lake Manitoba is Canada's thirteenth largest lake (4,700 km2) and the world's 33rd largest freshwater lake.[1]

Lake Manitoba is about 200 km long, up to 40 km wide and effectively divided into two basins by The Narrows, an 800 m channel in the centre of the lake. This natural channel at The Narrows is substantially constrained by bridge works that include embankments extending from each side of the lake.

The south basin with a maximum depth of 7 m is somewhat shallower than the north basin. The lake drains via the Fairford River east into Lake St. Martin and from there via the Dauphin River into Lake Winnipeg at Sturgeon Bay.

The lake was known to French explorers as Lac des Prairies.

Lake Manitoba is primarily fed by Lake Winnipegosis via the Waterhen River. With the commissioning of the Portage Diversion in 1970 there have been flows diverted from the Assiniboine River but not every year and with significant variation.

On average, most of the water inflow is from the Waterhen River (42 % of the inflow) and from precipitation directly on the lake's surface (40 %), while nearly 50 % of the outflow is by evaporation. The high rate of evaporation relative to total outflow partially explains why it is difficult to maintain lake levels in periods of drought.

[1] By way of comparison, Lake Winnipeg is about 24,500 km2 and some 415 km long.

Lake St. Martin is also comprised of two basins, a larger western basin connected by a narrow channel to a smaller basin to the northeast. The total surface area is 345 km2. The overall length the two basins is about 38 km with the widest distance at about 10 kilometres. Lake St. Martin is shallow; the main basin has a maximum depth of 4.1 m and the smaller basin 1.5 m.

Pineimuta Lake is a shallow, 39 km2 wetland complex situated between Lake Manitoba and Lake St. Martin.

Dog Lake on the east side of the lake and **Ebb and Flow Lake** on the west side are both connected to Lake Manitoba by short channels and generally fluctuate with changing Lake Manitoba levels. Although they normally flow into Lake Manitoba, when lake levels are high the channels reverse and backflows from Lake Manitoba cause the smaller lakes to rise.

Appendix C: Previous Reviews, Recommendations and Outcomes

C1. The Lake Manitoba Regulation Review Advisory Committee (2003)

The Lake Manitoba Regulation Review Advisory Committee was appointed in 2001, following complaints to the Minister of Conservation with respect to relatively high water levels on Lake Manitoba.

The Terms of Reference developed to guide the Lake Manitoba Regulation Review Advisory Committee were as follows:

1. Determine the most acceptable and practicable range of regulation within which the levels of Lake Manitoba might be controlled;
2. Decide if it is practicable and desirable to maintain the lake at certain levels during different seasons of the year, and from year to year, and if so recommend specific levels or range of levels;
3. Determine the best course of action for water levels along the Fairford River, Pineimuta Lake, Lake St. Martin and the Dauphin River, including the best course of action with respect to the operation of the Fairford Dam; and
4. Examine existing data with respect to the present water quality of Lake Manitoba and compare to historical water quality.

During the course of is two year tenure, the Committee held more than 20 regular meetings at which it reviewed and discussed the concerns and issues placed before it, heard presentations from a variety of agencies and organizations, and evaluated the findings of studies and reports prepared on its behalf. The Committee also conducted a number of inspection tours. The Committee also held public meetings and received more than 25 presentations in these public forums. The work of the Committee was presented to the government in its report, *Regulation of Water Levels on Lake Manitoba and along the Fairford River, Pineimuta Lake, Lake St. Martin and Dauphin River and Related Issues, July 2003.*

One of the committee and one of the technical advisors from the 2003 report sit on the Lake Manitoba/Lake St. Martin Regulation Review Committee. There are issues in common to the work of both committees and common technical resources. The work of the 2003 Committee has been carefully considered in development of our findings and recommendations.

C2. Lake Manitoba Stewardship Board

The Lake Manitoba Stewardship Board was formed by the Minister of Water Stewardship, on February 27, 2007, with a mission to: "Maintain and enhance the long term health of the Lake Manitoba watershed along with Lake St. Martin, Lake Pineimuta, Fairford River, and Dauphin River to Lake Winnipeg."

TERMS OF REFERENCE

1. To establish and maintain an ongoing dialogue with local interests, municipalities and the Province regarding the management of Lake Manitoba, Lake Pineimuta, Lake St. Martin, and the Fairford and Dauphin rivers, to solicit, as required, public input related to these concerns, and to communicate with the public on a regular basis.
2. To communicate with the Minister on an ongoing basis with regard to water levels on Lake Manitoba, Lake Pineimuta, and Lake St. Martin, including the operation and maintenance of the Fairford River Water Control Structure and the associated fish ladder, and to recommend appropriate seasonal flows to be maintained in the Fairford and Dauphin rivers insofar as this is reasonably possible.
3. To advocate long-term monitoring and research on water levels and the health of Lake Manitoba, Lake Pineimuta, and Lake St. Martin, including coastal marshlands along these water bodies, to be carried out by the appropriate agencies and report on the results to the Minister. This should include all aspects of water quality, fisheries, wildlife, agriculture, recreation, shoreline erosion, marshland rejuvenation, impacts on First Nations and other communities, and such other matters as deemed advisable by the Committee or by the Minister.
4. To investigate, and if considered advisable, recommend remedial projects to enhance all aspects of the general health of the lakes, associated marshlands and associated resources and resource uses, as outlined above. In this regard, the Committee shall actively encourage jointly funded private sector/government projects.
5. To provide advice to Manitoba Water Stewardship on the operation of the Portage Diversion to ensure that Lake Manitoba interests are taken into consideration.
6. Review fishery management plans according to the following criteria in order of importance: a) biological sustainability, b) economic viability, and c) social fairness and community benefits. In doing so a more reasoned and fair approach can be developed (i.e. with supporting data / information and fair public values incorporated).

The Board held four types of meetings: regular meetings, subcommittee meetings, special meetings, and public consultations; received presentations, undertook consultations and produced a series of reports.

In the year ending December 2009, the Board produced reports on its Science Workshop, Public Consultation, Residents Report and a Census Report. The work of the Lake Manitoba Stewardship Board formally came to a conclusion in mid-2012. The chair of the Stewardship Board, Dr. Gordon Goldsborough, sits as a member of the Lake Manitoba/Lake St. Martin Regulation Review.

Appendix D: Concurrent Studies and Reviews

D1. The 2011 Manitoba Flood Review Task Force

The 2011 Manitoba Flood Review Task Force (The Task Force) was commissioned at the same time as the Lake Manitoba/ Lake St. Martin Regulation Review. The Task Force has a province wide mandate and is to review and consider:

- The operation of provincial flood control infrastructure and ancillary works;
- Suggested procedures for undertaking flood mitigation measures;
- The accuracy and timeliness of the Province's flood forecasting efforts;
- The level of flood preparedness;
- The adequacy of existing flood protection infrastructure, and the need for additional works;
- The environmental, social, water quality and human health impacts related to flooding of environmentally sensitive developments;
- Land use policies and zoning criteria relative to areas of the basin that are vulnerable to flooding;
- Adequacy of communications to the public; and
- Impacts on the road networks and bridges to businesses and public access.

The two reviews have one task in common, which is to consider and make recommendations respecting land use policies and zoning criteria. While this task is being led by the Regulation Review Committee, there were general principles developed that have province-wide application.

The work of the Task Force has a slightly longer schedule than that of the Committee and its report, therefore, will be forthcoming slightly later than this report. Its findings and recommendations, however, will have direct application to flood issues relative to Lake Manitoba and Lake St. Martin.

D2. Surface Water Management Strategy

Manitoba Conservation and Water Stewardship is developing a province-wide surface water management strategy to be complete by mid-2013. The strategy will address the management of water in a holistic and integrated way that will consider the diversity of human needs and the importance of water to sustain our natural environment.

Extensive consultations with stakeholders will be essential in finding a balanced approach to surface water management in Manitoba.

The strategy will guide future planning and issue management for water. It will also reduce the tendency for escalation of water issues by providing local authorities and provincial officials with a consistent rationale for decision making on water management for all scales of watersheds. The strategy will be grounded in principles of shared governance, with clearly articulated roles for all who have authority and responsibility for water and individual Manitobans.

D3. The Assiniboine Basin and Lake Manitoba Flood Mitigation Study

Manitoba Infrastructure and Transportation has commissioned a conceptual level study for the Assiniboine River and Lake Manitoba watersheds and to make recommendations on how future flood events can be mitigated on the main stems of the Assiniboine River and Souris River, and around Lake Manitoba, Lake St. Martin, Dauphin Lake and Shoal Lakes.

The study will include examination of a wide range of possible measures including non-structural measures, such as land use changes as well as structural measures, such as large dams.

The results of this study will be the foundation for flood mitigation programs for the next few decades. Reviews being conducted by the 2011 Flood Review Task Force and the Lake Manitoba/ Lake St. Martin Regulation Review Committee will be used as inputs to this study.

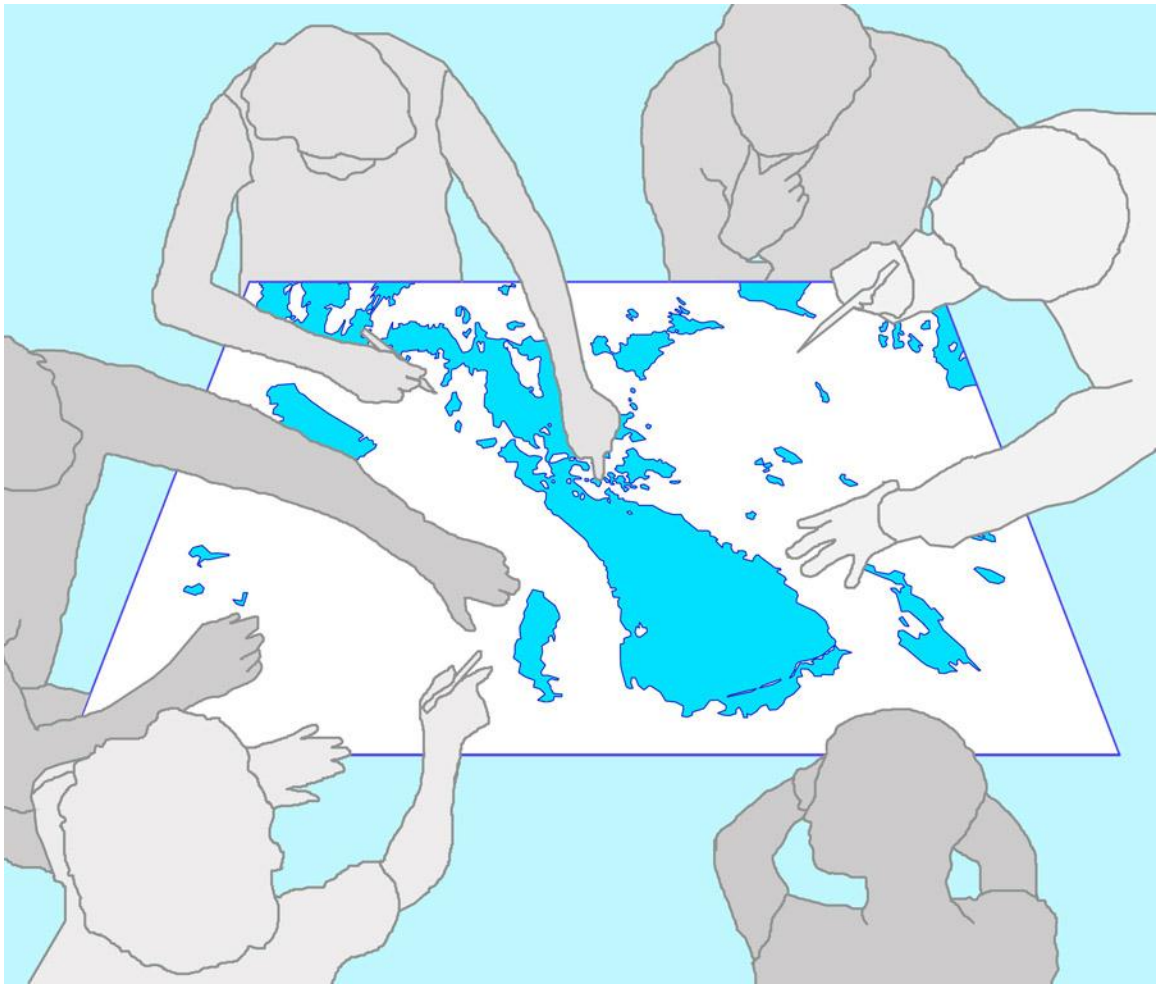
D4. Lake St. Martin Flood Mitigation Alternatives Study

The Flood Mitigation Study for First Nations along Fairford River, Lake St. Martin, and Lake Pineimuta is being conducted by the engineering firm AECOM concurrently with this work. It is an economic analysis which would assess the feasibility of flood mitigation alternatives for each of the four First Nations impacted by operation of Fairford River Control Structure. This study is to evaluate the cost-effectiveness of upgrading and/or rebuilding the existing on-reserve flood protection measures and evaluate alternative improvements to the capacity of the Dauphin River and flood mitigation alternatives for Lake Pineimuta. The purpose of this analysis is to:

- Determine effectiveness of Lake St. Martin Emergency Outlet Channel at reducing flood levels;
- Determine dike elevations and other measures required to protect the First Nations from flooding;
- Estimate the costs for flood protection

Appendix D5: Land Use Planning Report

Final Report on a Study of Land Use Policies and Regulations Relating to Flooding



For: **The Manitoba 2011 Flood Review Task Force and**
The Lake Manitoba and Lake St. Martin Flood Review Committee

By: **McKay Finnigan and Associates**
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November, 2012

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I. Introduction

Manitobans will remember 2011 for the record flooding which occurred in many areas of the province. On February 8, 2012 the Manitoba Government announced four separate initiatives intended to ensure that lessons learned from 2011 were well understood, with the overall aim to help improve Manitoba's ability to fight floods and manage water in the future. The four initiatives included:

1. an independent Flood Review Task Force expected to release a public report examining a number of areas and focusing on how they can be improved for future flood events including:
    a. provincial and municipal preparedness and response;
    b. flood forecasting;
    c. public communications and information sharing;
    d. operation of flood control infrastructure; and
    e. flood protection works.
2. a Lake Manitoba and Lake St. Martin Regulation Review Committee;
3. a flood-mitigation study for the Lake Manitoba watershed and the Assiniboine River basin; and
4. a forum leading to a province wide surface‐water management strategy.

The Lake Manitoba and Lake St. Martin Regulation Review Committee was assigned the tasks of consulting with local stakeholders and advising the province on the appropriate interim regulatory ranges for the lakes and complementary operating guidelines for the Fairford River Water Control Structure and Lake St. Martin channel. In particular, this Committee was mandated to provide recommendations on the following matters:

1. the current range of regulation of Lake Manitoba and Lake St. Martin, and the rules of operation for the Fairford Water Control Structure;
2. the need for additional water-control works in the future;
3. the impact of water-level regulation on the surrounding lake uses such as agriculture, wetlands, wildlife, recreation, etc;
4. the most acceptable and practicable range of regulation within which the levels of Lake Manitoba and Lake St. Martin might be controlled; and
5. Land-use policies and zoning criteria relative to areas around the water bodies that are vulnerable to flooding.

This study was commissioned by the Manitoba 2011 Flood Review Task Force and the Lake Manitoba and Lake St. Martin Regulation Review Committee to help them address those parts of their mandates with respect to land-use policies and zoning criteria. From the outset it was anticipated that while this study would be focused on Lakes Manitoba and St. Martin, the conclusions and recommendations emanating from it would have broader application throughout the province. The study was structured to provide a high level understanding of approaches to land use policies/regulations and to develop general principles and arrive at conclusions that would be helpful to the Review Committee as well as the Flood Review Task Force in making their respective recommendations to the Government of Manitoba.

Work on this study took place from early June through to October, 2012. It involved meetings with community leaders, research into land use planning policies/regulations "best practices" elsewhere, a half-day workshop which looked at experience in this area across Canada and the United States, and structured interviews in each community to seek more detailed information directly from individual First Nations, the Planning Districts and municipalities around Lake Manitoba and Lake St. Martin.

Land use planning when done properly can make life for future generations that much better. It can result in what most people really want – i.e. a sustainable community that meets the needs of the present without compromising the ability of future generations to meet their needs. To be effective, planning must be done through a process that balances ecological, cultural, historic, and aesthetic values with economic development.

Communities use planning to direct development and public projects and ensure their land use regulations (zoning) meet the community's needs. Land use planning can prevent many hazard-related problems by directing poorly conceived new developments and post-disaster rebuilding away from dangerous locations. When it comes to directing where new development should go or not go, planning can have a huge impact on what individuals and families will experience in future when it comes to floods.

II. Background Information

Before getting into the details of this study, it is helpful to take a brief look at the people living around Lake Manitoba and Lake St. Martin, how water in the basin is impacted by man-made interventions, how the land currently is used, how land use planning is organized in Manitoba, and how new development in flood prone areas is regulated.

1. Population and Land Use

According to Statistics Canada, in 2011 the overall population of the municipalities and First Nation communities surrounding Lake Manitoba and Lake St. Martin was around 27,380.[1]

Eleven municipalities directly border Lake Manitoba including the rural municipalities (RMs) of Alonsa, Coldwell, Eriksdale, Grahamdale, Lakeview, Lawrence, Portage La Prairie, St. Laurent, Siglunes, Westbourne, and Woodlands. In 2011 the total population of these municipalities stood at 20,177. Of this total, around 5,400 people lived in the RMs of Woodlands and Westbourne, two municipalities with only a small proportion of their overall land area bordering Lake Manitoba. In addition, the RM of Portage La Prairie, while encompassing a significant portion of the southern end of the basin, has only a small percentage of its overall population residing near Lake Manitoba. The table below provides detailed information on each of the municipalities in the area. Among other things it is interesting to note that the total population of the 11 rural municipalities decreased by 4.6% from 2006 to 2011.

Municipality	2006 Population	2011 Population	Percent Change	Total Private Dwellings	Private Dwellings occupied by usual residents	Population Density per km2	Land area km2
Alonsa	1,446	1,270	-12.2	651	495	0.4	2,977.50
Coldwell	1,339	1,351	0.9	711	564	1.5	901.84
Eriksdale	911	846	-7.1	428	378	1.1	784.76
Grahamdale	1,416	1,354	-4.4	891	580	0.6	2,384.62
Lakeview	342	311	-9.1	142	132	0.5	567.87
Lawrence	501	456	-9	263	216	0.6	761.64
Portage la Prarie	6,793	6,525	-3.9	2,442	2,072	3.3	1,964.32
St. Laurent	1,454	1,305	-10.2	1,179	529	2.8	465.62
Siglunes	1,480	1,360	-8.1	886	629	1.6	837.42
Westbourne	1,906	1,878	-1.5	578	528	1.5	1,261.79
Woodlands	3,562	3,521	-1.2	1,317	1,234	3	1,177.22
TOTAL	**21,150**	**20,177**	**4.6**	**9,488**	**7,357**	**1.4**	**14,084.60**

Source: Statistics Canada; 2011 Census

[1] A map outlining the location of these First Nation communities and municipalities is included in the Appendix.

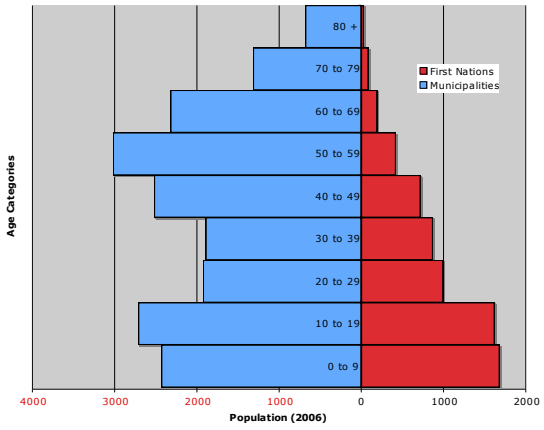
While the population of the RMs has been decreasing steadily in recent years, the population living on the reserves in the area has been increasing.

The First Nation communities bordering Lake Manitoba include Ebb and Flow, Dog Creek (Lake Manitoba First Nation), O-Chi-Chak-Ko-Sipi (Crane River), Sandy Bay, and Pinaymootang (Fairford) First Nation. There are also two First Nation communities bordering Lake St. Martin including Little Saskatchewan and The Narrows (Lake St. Martin First Nation). Dauphin River First Nation is further downstream located at the mouth of the Dauphin River on Lake Winnipeg. The total population for these First Nations communities in 2011 was 7,203 (note: this does not include Dauphin River where in 2006 a population of 84 people was recorded via the Census and figures for 2011 were not available at the time of writing this report). As indicated in the following table the total population in these First Nations' communities increased by 9% between 2006 and 2011.

First Nation	2006 Population	2011 Population	Percent Change	Total Private Dwellings	Private Dwellings occupied by usual residents	Population Density per km2	Land area km2
Ebb & Flow	1,189	1297	9.1	292	288	26	46.28
Lake Manitoba	617	680	10.2	187	182	11.4	53.9
Lake St. Martin	505	826	63.6	172	130	21.1	23.98
Little Saskatchewan	445	399	-10.3	120	108	32.9	13.54
O-Chi-Chak-Ko-Sipi	432	503	16.4	114	105	12	35.95
Pinaymootang	904	989	9.4	253	234	11.7	77.43
Sandy Bay	2,518	2509	-0.4	518	509	41	61.42
TOTAL	**6,610**	**7203**	**9.0**	**1,656**	**1,556**	**23.0**	**312.50**

Source: Statistics Canada; 2011 Census

While the population of the RMs surrounding Lake Manitoba is aging with a median age in 2006 of 45.4, the population on the reserves is much younger with more than half of their residents in 2006 under the age of 29. This contrast in age differences between these respective population groups is illustrated in the figure opposite.



Water and the Use of Land[2]

The Lake Manitoba watershed takes in about 79,000 square kilometres which includes much of west-central Manitoba and a portion of east-central Saskatchewan. Drainage within the basin generally is from west to east. But for that portion lost to evaporation, all of the water that enters Lake Manitoba must exit through the Fairford River, then into Lake St. Martin on its way through the Dauphin River and finally east into Lake Winnipeg.

Over the past 130 years the landscape surrounding Lake Manitoba and Lake St. Martin has experienced substantial changes due to shifts in land use and water levels. Various interventions to control the water levels of Lake Manitoba have been introduced since the late 1800s in response to high water levels in the early 1880s, low levels in the 1930s, and high levels in the mid-1950s. The construction of the Fairford River Water Control Structure in 1961 is seen to have had the most dramatic impact on lake levels generally allowing water elevations to be regulated within the range of 810.5 to 812.5 feet above sea level. Another frequent and significant contributor of water to Lake Manitoba is the Portage Diversion which was completed in 1970 as a means of protecting municipalities (including the city of Winnipeg) and farmlands to the east from flooding. Located just west of the city of Portage la Prairie, the Diversion connects the Assiniboine River to Lake Manitoba at the Delta Marsh.

The economy of the area surrounding Lake Manitoba and Lake St. Martin is primarily based on agricultural and resource based industries, including commercial fishing, and service industries. Agriculture varies from south to north along the lakes with cattle ranching representing the predominant agricultural use. The remaining farm acreage adjacent to Lake Manitoba consists of lands from which native hay is harvested at approximately 40% of the total acreage.

Development of cottages and recreational land around Lake Manitoba has increased significantly, particularly in recent years. According to information collected by the Lake Manitoba Stewardship Board, in 2008 there were approximately 5 lodges/outfitters, 7 campgrounds (public and private), and 28 subdivisions encompassing over 2100 lakeshore/near shore cottage/recreational lots around the lake.

With an estimated 236,700 hectares of wetlands in the area surrounding Lake Manitoba, Pineimuta Lake and Lake St. Martin, wetlands are another dominant feature of the landscape around the lakes. The Delta Marsh eco-system, one of the largest coastal marshes in North America, comprises the majority of the wetland area around Lake Manitoba and is a major destination for eco-tourists.

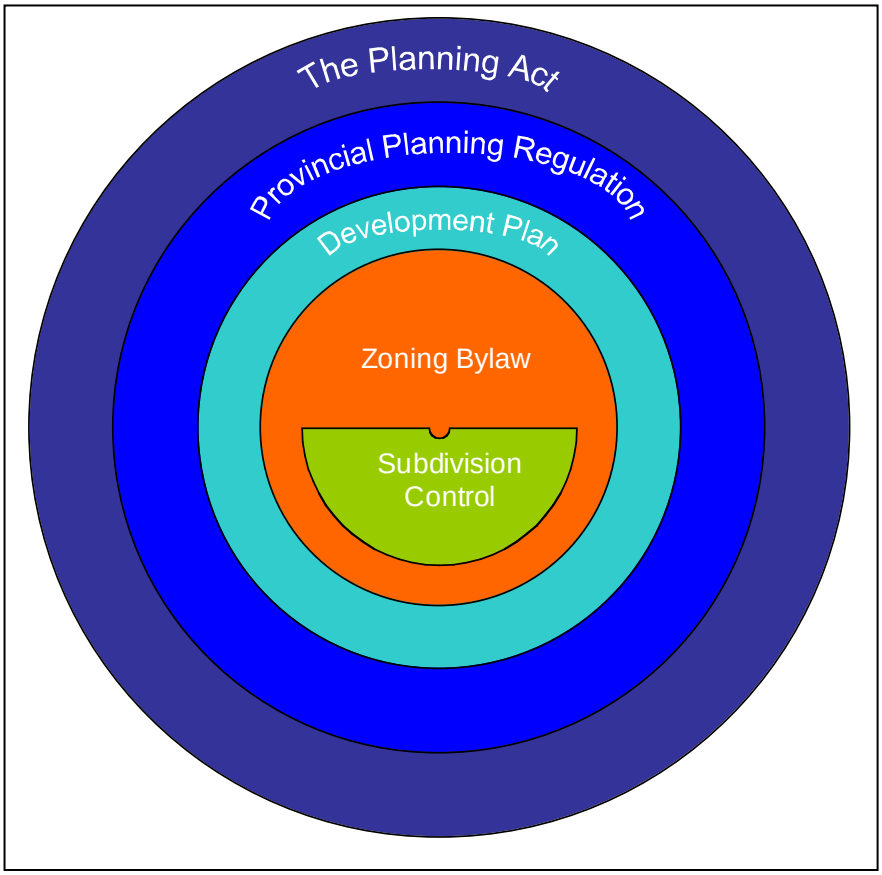
[2] Most of the information in this section is referenced from the Lake Manitoba Regulation Review Advisory Committee Report (July, 2003) and the Lake Manitoba Stewardship Board Science Workshop Report, May/June 2008.

2. Land Use Planning System and Development in Flood Risk Areas in Manitoba

The Legal Framework – The Planning Act

Land use planning in Manitoba is a joint responsibility of the Province and local authorities – i.e. municipalities acting either individually or jointly as part of a planning district. The Province has the responsibility for setting the legislative or statutory framework for land use planning within Manitoba. For all areas within the province, outside of the city of Winnipeg, it does so through *The Planning* Act.[3] However, it should be noted that lands under federal jurisdiction, reserve lands and/or those claimed or acquired through agreements, such as Treaty Land Entitlements or other settlement agreements, fall outside of *The Planning Act and* therefore are not subject to provincial policies.

The Planning Act provides for adoption of the *Provincial Planning Regulation* which defines the Province's interest in land and resources. The *Act* sets out a hierarchical framework whereby *Provincial Land Use Policies* (PLUPs) guide the preparation of Development Plans (land use policy plans) by Municipalities and/or Planning Districts, which in turn guide the preparation of zoning by-laws and the approval of subdivisions. The Figure below illustrates how this hierarchy works. Essentially, within this framework each planning policy



Source: Manitoba Local Government

[3] The legislative framework for planning by the City of Winnipeg is set out in *The City of Winnipeg Charter*.

or tool must be consistent and conform with the one that supersedes it in the hierarchy. For example, development plans must be generally consistent with the Provincial Planning Regulation and PLUPs while zoning by-laws must be consistent with development plans.

Provincial Land Use Policies (PLUPs) and Provincial Planning Regulation No. 5.2 (Water)

Provincial Land Use Policies (PLUPs) cover general development and sustainable development as well as development within various specific areas of interest such as agriculture, water, renewable resources, infrastructure and transportation. Provincial Planning Regulation No. 5.2 (Water) includes policy direction intended to ensure that land use patterns and development minimize risk to people and property from hazards related to flooding, erosion or bank instability.

Policy Area 5.2 requires that flood protection levels be identified to design flood levels and that any development, including access roads, be built to these levels. The Policy also states that development should not remove natural shoreline vegetation and that development should be setback a minimum of 30 metres from the normal summer high water level in areas where the flood level cannot be readily defined.

Once development plans are approved, the policies contained in The Provincial Planning Regulation do not apply to subdivision proposals, and are replaced with polices contained in the approved development plan and zoning by-law adopted by the planning authority.

Development Plans

A development plan is a Municipality's or Planning District's core document in the local planning and development process and sets out physical, social, environmental and economic objectives and policy statements. There are approximately 90 adopted development plans in Manitoba that address flood protection in various ways. Some directly incorporate policy from the Provincial Planning Regulation; others include policies specific to the planning area that maintain consistency with the Provincial Planning Regulation. Some development plans do not identify any particular flood risk areas and/or incorporate standardized general references to "hazard areas" or "areas subject to flooding" without specifically identifying areas.

Zoning By-laws

Zoning bylaws set out specific regulations for the use and development of land within a Municipality. Besides regulating the intensity and use of land, they define development standards as well as standards for clearing and grading, waste storage, and the protection of sensitive lands. Zoning bylaws divide the municipality into zones and set permitted uses in each. Essentially they serve as the implementation tool for the policies outlined in the development plan.

As with development plans, zoning bylaws identify flood risk areas either on a map or, more frequently, through general textual reference to land "adjacent" to a particular waterway or water body, reference to a specific distance from a particular waterway or water body, or reference to land below a specific elevation. Some zoning by-laws contain very detailed flood proofing requirements. Others contain a general requirement to meet a one in 100-year event, or building to a specific elevation, or to an elevation grade to be determined by Manitoba Water Stewardship (now Manitoba Infrastructure and Transportation). Some Municipal Zoning By-laws contain specific development setback requirements from specific waterways or water bodies and some contain generalized requirements intended to provide for both erosion and flood protection.

Municipalities involved in the Canada Manitoba Flood Damage Reduction Program often refer to floodway areas and floodway fringe areas in their zoning by-laws. All require flood proofing to meet a one hundred year flood event.

Administration and Enforcement

Municipalities administer and enforce the provisions of their zoning by-laws through the issuance of development permits. Subdivisions of land, which involves legally dividing a single parcel of land into one or more parcels, must be approved both by the Municipality and the Subdivision Approving Authority. For most municipalities in Manitoba, the Approving Authority is the Manitoba Local Government's Regional Manager; however some Planning Districts have been delegated this Authority (e.g. Selkirk and District Planning Area). A subdivision cannot be approved unless it conforms to the development plan and zoning by-law. Subdivision approvals are often subject to Development Agreements between the Municipality and the developer that contain flood proofing requirements.

Administration and enforcement of flood proofing requirements outside the Red River Valley Designated Flood Areas are implemented by Municipalities and Planning Districts through their own development/building permit process.[4]

Manitoba Water Resources Administration Act and Designated Flood Areas (DFAs)

Following the 1997 "flood of the century", when water spread to a width of 40 km in the Red River Valley, exceptional actions were taken which were felt to be in keeping with the exceptional nature of the devastation which was experienced on the ground during the flood. Perhaps most importantly, the provincial government introduced regulations under the *Water Resources Administration Act W70* which designated specific areas along the Red River to be "designated flood areas", within which construction henceforth would be more strictly regulated, thus minimizing risk within these particularly flood prone areas.

[4] Flood proofing requirements for Winnipeg are set out in the *Designated Floodway Fringe Area Regulation 266/91* under the *City of Winnipeg Charter* and are administered and enforced by permits issued by The City of Winnipeg.

As a result, large tracts of land within some Municipalities in the Red River Valley now are included within a Designated Flood Area (DFA) and as such fall under the direct authority of the Provincial Government when it comes to approving/regulating new development. At present there are two such Designated Flood Areas (DFAs) within Manitoba:

1. Red River Valley Designated Flood Area (RRVDFA)
   Extending south from Winnipeg to the US border, the RRVDFA encompasses an area of 2103 sq. km and includes nine rural municipalities. Permanent structures constructed within this DFA must be protected against flooding of the magnitude experienced in 1997 plus a 2 foot (0.6 m) freeboard allowance.

2. The Lower Red River Designated Flood Area (LRRDFA)
   The LRRDFA covers a 326 sq. km area located north of Winnipeg right to Lake Winnipeg and takes in five municipalities - the Rural Municipalities of St. Andrews, St. Clements, East St. Paul, West St. Paul and the City of Selkirk.[5] Permanent structures constructed within the Lower Red River DFA must be protected to design flood conditions plus a 2 foot freeboard allowance.

Essentially then, through these regulations, the Government of Manitoba has assumed the responsibility and authority for determining building heights and/or other flood proofing requirements to be taken by an individual developer or land owner who may wish to build within these designated areas. All structures (besides fences) now require permits from the Province whose staff in Manitoba Infrastructure and Transportation (previously Water Stewardship) administer and enforce the flood proofing requirements.

Should a development be found to be in contravention of these requirements the owner could be ordered to remove the structure and/or a caveat may be registered on the title to the property (which among other things would advise any future owner that the property will not be eligible for disaster assistance funding in the event of a flood).

3. Terms of Reference for the Study

This study was commissioned to review land use policies and regulations relating to development and flooding around Lake Manitoba and Lake St. Martin, with the understanding that at least some of the conclusions and recommendations emanating from it would have applicability throughout the province.

While the study was to focus on past experience with land use planning and flooding within the province, it was also to take a cursory look at land use policies, zoning and development control practices being employed in other jurisdictions with waterways and water bodies vulnerable to flooding so as to identify best practices elsewhere that might be transferable to Manitoba.

[5] A copy of the map outlining the area covered by the LRRDFA is included in the Appendix.

Essentially, the study was expected to:

- provide a high level understanding of approaches to land use policies/regulations;
- tell a story that would make sense to people resident around the lakes; and
- develop general principles and arrive at conclusions that would be suitable for making recommendations to the Government of Manitoba.

4. Methodology

With the above terms of reference in mind, a draft approach to the study and work plan was put together in consultation with the Lake Manitoba and Lake St. Martin Regulation Review Committee together with senior officials within the Community and Regional Planning Branch of Manitoba Local Government. Representatives of both groups, together with a representative of the Flood Review Task Force, volunteered to serve on a Steering Committee for the study.[6]

From the outset the consulting team viewed the proposed approach to the study/work plan as very much of a "draft". It was recognized in particular that if the majority of community leaders around the two lakes chose not to be part of the study, there would be relatively little value to be gained in undertaking it without them. In short there was a sincere desire to ensure that the study could be conducted in a manner that made sense to all stakeholders; and especially those at the grass roots level with first-hand experience in both developing and enforcing land use regulations as well as contending with the devastation resulting from flooding on the ground. Two critical meetings were held in mid-June in which input on the draft approach and work plan for the study was sought from these community leaders.

Representatives of all of the First Nations communities affected by the 2011 flooding were invited to the first meeting which was held in Winnipeg on June 12th. Eight people attended this meeting, including representatives from two of the seven affected First Nations. The second meeting, which was held in St. Laurent on June 19th, was attended by 26 people including representatives from the Western Interlake Planning District as well as representatives from all of the Rural Municipalities surrounding Lake Manitoba (with the exception of Eriksdale). Constructive feedback (which resulted in some adjustments to the approach/work plan) was received at both meetings, those in attendance agreed to participate in the study, and four people at each of the meetings volunteered to serve on the Steering Committee for the study.[7]

Following finalization of the work plan for the study, a review was undertaken of all readily available documentation relevant to the study including past studies and reports, published information on respective websites, census information, and existing maps.

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[6] The Steering Committee helped to provide information and guidance throughout the course of the study. By the end of June, 2012, membership on this Committee was expanded to include representatives of First Nations, rural municipalities and planning districts (a complete list of Steering Committee members is included in the Appendix).

[7] Minutes of both meetings were drafted and sent out to all attendees for review/input. Copies of the final versions of these minutes are included in the Appendix.

Information on "best practices" in Canada and internationally (with a focus on the United States) also was sought. Survey forms, to help to ensure a more focused discussion and consistent approach, were then drafted to serve as a guide for various interviews or meetings which would be held at key phases throughout the study.

A major part of the research into past experience and "best practices" in Manitoba consisted of a series of interviews with federal and provincial officials (current and retired) as well as others who had had first-hand experience in dealing with land use planning issues and floods in Manitoba. Interviews or meetings were also held with a number of representatives from rural municipalities and planning districts in the Red River Valley who had been affected by the major floods of 1996 and 1997. Over 25 people were consulted through this phase of the study.[8]

This research into "best practices" culminated in a half-day workshop which was held in Winnipeg on July 30th. A member of the consulting team for this study, Chris Duerksen, Managing Director of Clarion Associates (Denver, Colorado), served as the keynote speaker at the workshop. Mr. Duerksen, who has written and spoken extensively on sustainability and smart growth issues across the United States, and has authored many books and articles on land use and conservation issues, provided a presentation on his work and lessons learned in the area of land use planning as it relates to flooding. Approximately 40 people attended the workshop including a number of specialists in land use planning/regulations, representatives from affected rural municipalities and First Nations, as well as members of both the Flood Review Task Force and the Lake Manitoba and Lake St. Martin Regulation Review Committee. A detailed report on the workshop is contained in the Appendix.

During the month of August, meetings were held with elected representatives and staff from 10 of the 11 rural municipalities surrounding Lake Manitoba[9] (including the Western Interlake Planning District) as well as representatives from the Sandy Bay First Nation[10] (see Appendix for a list of those interviewed – task 4). These meetings focused on gaining an understanding of how land use policies and regulations actually get implemented by local officials and some of the challenges experienced by them in undertaking this work, and to receive feedback on some of the ideas which had been generated as a result of the recent workshop. An attempt was also made to learn more about how communities had been affected by the record flooding in 2011 and experience gained to date in following Manitoba's interim flood protection guidelines which had been developed for the area.

A PowerPoint presentation was put together summarizing the reasons for the study, the methodology or approach taken, findings or lessons learned through the study, together with preliminary conclusions and recommendations. On August 30th this presentation was given at a joint "working" meeting of the Steering Committee for the study together with the Lake Manitoba and Lake St. Martin Regulation Review Committee. Follow-up presentations were

[8] A list of those consulted is included in the Appendix (re. Task 3).

[9] Representatives of Alonsa were not available due to the agricultural harvesting season.

[10] Despite best efforts to have them scheduled, meetings proved not to be possible with the other affected First Nations nor staff from the Department of Aboriginal Affairs and Northern Development Canada.

made to the Regulation Review Committee on October 10, 2012 and the Flood Review Task Force on October 18, 2012. The intent of these various presentations and meetings was to receive feedback on the preliminary findings and recommendations prior to completion of the final report on the study.

III. Findings

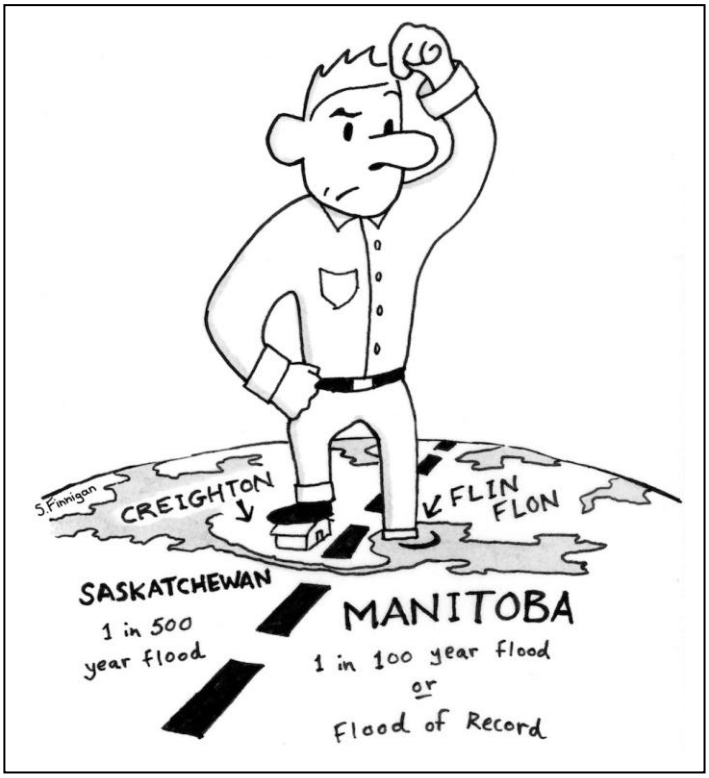
1. Land Use Planning and Floods in Manitoba

When planning, communities generally employ five strategies for managing growth and development in flood prone areas:

- Designating Hazard Lands;
- Dedicating Shoreline Reserves;
- Maintaining/Enhancing Shoreline Vegetation;
- Defining Flood Protection Levels; and
- Establishing Setbacks from Water Bodies

This study found that all of the municipalities in the Red River Valley/Lake Winnipeg area and Lake Manitoba/Lake St. Martin area address each of these five strategies to varying degrees in their respective development plans and zoning by-laws. In fact, with sound policies in place, planning generally seems to be relatively well organized and managed at the provincial and municipal levels. The limited data which was made available through this study, suggests that, for a variety of reasons, such is not the case on First Nations' Reserves in Manitoba (at least those within the study area).

A key issue identified through this study is that there appears to be insufficient initiatives or planning structures currently in place to better ensure an effective coordination of efforts between jurisdictions. For instance, other than a recent initiative between the Manitoba Government with Fisher River and Peguis First Nations and neighbouring municipalities around livestock/hog barn operations, it seems that there have been very few past initiatives taken to coordinate land use planning between adjacent rural municipalities and First Nations communities in Manitoba. Similarly there seems to be little effective coordination taking place between neighbouring municipalities when it comes to drainage (e.g. apparently it is not uncommon for large drainage pipes to terminate at one municipality's boundary with this additional water simply spilling onto the neighbouring jurisdiction's lands).



The need for better, more effective coordination of efforts between jurisdictions can also be found when one ventures beyond the borders of Manitoba and compares the results of decisions which have been made in Manitoba with those in neighbouring Saskatchewan. The drawing included here shows how an individual straddling the

provincial border would find existing regulations confusing as s/he might be treated differently depending upon where they live or rather wish to develop land.

From Manitoba's perspective, Saskatchewan is the most relevant case in point as it is most similar to Manitoba in many respects, and much (though obviously not all) of the water flowing into Lake Manitoba and Lake St. Martin originates in Saskatchewan.

To assist the Province in ensuring the safety and security of individuals, communities and property from natural and human-induced threats, among other things, the Government of Saskatchewan currently requires that all planning documents and decisions, insofar as is practical:

- Identify potential hazard lands and address their management;
- Limit development on hazard lands to minimize the risk to public or private infrastructure;
- Prohibit the development of new buildings and additions to buildings in the flood way of the 1:500 year flood elevation of any watercourse or water body; and
- Require flood-proofing of new buildings and additions to buildings to an elevation of 0.5 metres above the 1:500 year flood elevation of any watercourse or water in the flood fringe.

In comparison, provincial policy in Manitoba essentially requires that new buildings (or additions to existing buildings) being planned for flood prone areas, be constructed to standards which will ensure that the structures will be protected from damage from water levels equivalent to those experienced to the higher of:

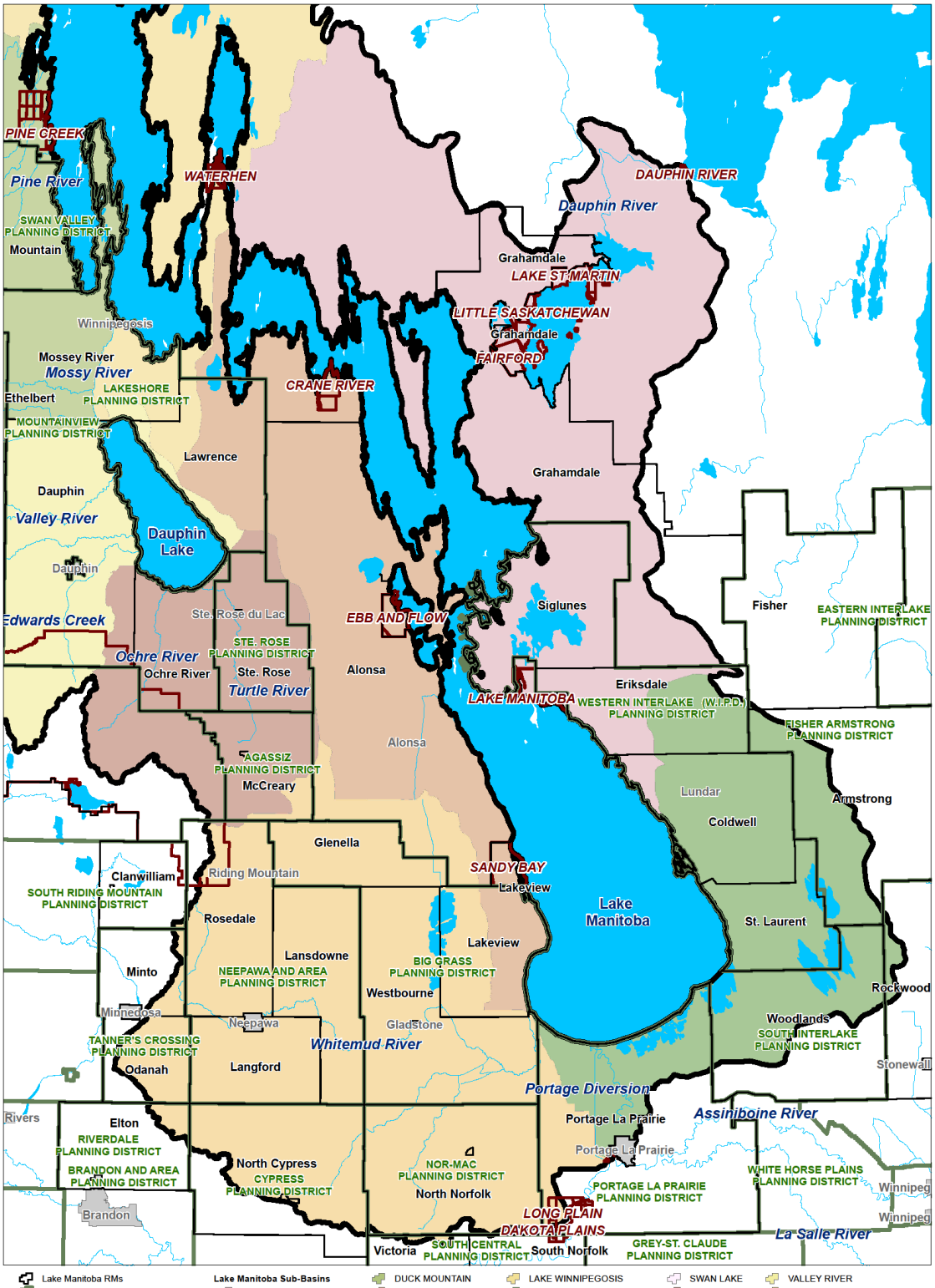
- a 1 in 100-year flood, or
- the worst flood on record of the adjoining water body or water course.

Given their past experience in dealing with floods and surface water issues such as drainage, all municipal and First Nations leaders, who became engaged through this study, recognized the need for an initiative or structure which would encourage collaborative planning between all jurisdictions. As one leader commented, "water knows no boundaries", and natural boundaries (i.e. watersheds) in the end are more relevant than political jurisdictions when dealing with land use planning and floods.

Planning Along Watersheds

The reality is that, when it comes to planning to mitigate damage due to floods, indeed "water knows no boundaries". In fact water could care less about political boundaries and local jurisdictions – i.e. the geographic boundaries for which development plans and zoning regulations are drawn up and enforced by municipalities. The map which follows indicates how watershed boundaries within the Lake Manitoba basin and those of the various political/administrative jurisdictions differ.

Lake Manitoba Basin, Watersheds and Administrative Boundaries



The legacy effects of geographic areas created by treaties also need to be taken into account when having a discussion of this nature as the Province has no authority to enforce land-use planning policies and regulations on reserve lands, while at the same time First Nations have an interest in resolving issues such as road access and drainage with neighbouring municipalities. In spite of these realities and challenges, this study found that significant progress has been made in Manitoba in terms of planning and the regulation of development along watersheds.

Red River Valley

Manitobans have truly learned from experience when it comes to dealing with floods, and have seen the need to take new approaches to land use planning and regulations based on past experience. Those living in the Red River Valley, a flood plain by nature, have had a particularly long history with floods and through experience have learned many lessons on how to do things differently.

As noted earlier in this report, one of the most exceptional actions which were taken following the 1997 "flood of the century" was the introduction of "Designated Flood Areas (DFAs)" both south and north of Winnipeg. Apparently since the Government of Manitoba assumed the responsibility and authority for determining building heights and/or other flood proofing requirements within these DFAs, a compliance rate in excess of 90 per cent has been achieved; a significant improvement over past experience along the Red River in regulating new development.

Municipal leaders within the Red River Valley who were consulted through this study, offered the following viewpoints given their experience to date with this new modus operandi within the Designated Flood Areas:

<u>Pros:</u>

- The Province has the resources and clout to make decisions and require compliance (i.e. can order demolitions and/or place caveats on properties).
- Since a municipality is not the one setting down these rules, it is not seen to be the "bad guys".
- There seems to be a tendency for members of the public to be more accepting of the requirements when they understand that they are a directive of the Provincial Government.

<u>Cons:</u>

- Manitoba Water Stewardship's regional offices are spread too thin as they cover a lot of territory and at times the turn-a-round time for input on a particular application seems unreasonably long. In other words, there is a need for more provincial staff on the ground.
- Municipalities relinquish some of their traditional authority and control over future development.

This study found that the experience gained from the flooding that occurred in 1996 and 1997, led a number of municipalities and planning districts in the Red River Valley to take some exceptional actions, including the following:

- With financial support from the provincial government, bought out cottages located in particularly flood prone areas (e.g. Breezy Point).
- Required some homeowners to raise their houses by 4' or 5'.
- Introduced higher standards for new buildings in terms of elevations/flood proofing requirements.
- For all new construction now require lot grading, building grade elevations, and survey grade level.
- Undertake follow-up inspections to ensure that development has been done according to plan.
- Acquired the necessary equipment (i.e. Amphibex) and the expertise to be able to proactively deal with future ice jams on the river.
- Increased setbacks required from bodies of water from 150' to 300'.
- Introduced greater public reserve requirements and/or easements in order to better protect riparian habitat.
- Require professional geotechnical reports for developments within 300' of a river, stream or lake.
- With financial support from the provincial government, invested in up-to-date contour maps (e.g. LIDAR).
- Increased efforts to encourage staff and elected officials to become more aware of "best practices" in terms of land use planning, water management, etc… (e.g. encourage attendance at conferences/seminars)
- Improved communication with citizens through regular newsletters, open houses, etc.
- Established the "Shoreline Erosion Technical Committee (SETC)" which can provide engineering expertise to R.M.s (note: the study found varying degrees of uptake on this initiative by planning districts).

Red River Basin Commission

Many of those interviewed also mentioned the work of the Red River Basin Commission (RRBC). The RRBC was established in 2002 following the merger of three regional watershed management bodies. Its mandate is to initiate a grass roots effort to address land and water issues in a basin-wide context transcending the borders of North Dakota, South Dakota, Minnesota, and Manitoba. It is a not-for-profit corporation made up of a 41 member Board of Directors comprised mainly of representatives from local government, as well as, First Nations representatives, a water supply cooperative, a lake improvement association, environmental groups, and four at-large members. The RRBC has been successful in establishing a set of goals and objectives for water management in the Red River Basin. It has also commissioned a number of research initiatives which have helped inform locally based policy.

Conservation Districts

In 2006 the Manitoba Conservation District Program was expanded to better "create healthy and sustainable watersheds through focused, priority-based programs that provide definite improvements to watershed health". Through this program 18 Conservation Districts have been established to foster watershed co-operation and communication between upstream and downstream municipalities to address local land and water management issues. To date, 14 have been involved as water planning authorities (under *The Water Protection Act*) and have successfully completed an integrated watershed management plan (IWMP) for their respective areas. When it comes to land-use planning and flooding, these plans are a step in the right direction in that they take more of a land and watershed-based (or regional) approach to planning. Some have been cited as having had good success in engaging representatives of First Nations within their watershed areas in the planning process.

While Manitoba has experienced significant progress over the past decade in establishing Conservation Districts and developing integrated watershed management plans, the reality is that serious problems continue to persist when it comes to trying to put these plans into action. All this planning is very much voluntary and Conservation Districts have no regulatory authority. In spite of not even having to enforce its plan, at least one Conservation District has consciously decided to avoid dealing with surface water management issues altogether – i.e. issues around drainage which can, if not addressed, exacerbate problems during floods.

Importance of Surface Water Management/Drainage

While draining land generally is seen by individual landowners as solving a problem and/or creating an economic opportunity (e.g. providing more land for cash-producing crops), unfortunately this practice often exacerbates existing water problems for others downstream. The reality is that when it comes to flooding, every act taken by an individual to drain his/her land results in more water being added to downstream flows and allows water to flow faster – making flooding and damages due to floods more severe.

In their formal submission earlier this year to the Manitoba Water Council and its "Surface Water Management Strategy Public Consultations", Ducks Unlimited Canada (DUC) make a strong case for the need to develop an integrated approach to wetland protection that includes adequate incentives and an effective regulatory backstop. Among other things they note that the ditches built to drain wetlands not only drain waters from the wetlands themselves, they also drain the lands that surround each wetland. DUC estimates on average that for every hectare of wetland drained, four additional hectares of surrounding land also drains downstream. They suggest that in the southwestern corner of Manitoba alone, some 6 hectares of wetlands are drained on a daily basis, resulting in a cumulative effect of 30

> *"In times like these, our first reaction is usually to improve infrastructure and disaster response plans to prepare for the next flood. However, if we allow wetland drainage to continue, we will only increase the unpredictable nature of our Prairie streams and rivers, which will require further investments in flood mitigation and planning, all of which could be ineffective or possibly even wasted."*
>
> *- Pascal Badiou PhD*

hectares, which translates into the equivalent of 45 football fields.

Dr. Pascal Badiou, a research scientist with the Institute for Wetland and Waterfowl Research, has estimated that wetland drainage over the last 40 to 60 years in parts of southern Saskatchewan and Manitoba has resulted in the loss of flood storage capacity in the landscape of seven times the flood storage capacity of the 35 mile-long Shellmouth Reservoir. He also estimates that two years of wetland drainage in southwest Manitoba has reduced water storage by more than the total volume of water that flowed through the breach at the "Hoop and Holler Bend" in Manitoba, which was cut during the 2011 flooding to relieve pressure on the dikes of the Assiniboine River. [11]

2. Planning Districts and Municipalities: Viewpoints

The over-arching view offered through this study by municipal leaders in the Lake Manitoba area, was that the root cause of the flooding problems which everyone faced in 2011 was the result of poor water management and not planning and land use policies/regulations. It generally was felt that before any planning recommendations can be formulated, clear decisions need to be made by the Government of Manitoba about both the level at which water in the lake will be managed and the new flood building standard to regulate future development.

> *"We will never forget the water flowing from the Assiniboine River, almost touching the bottom of the bridges on #1 Hwy. We will also never forget how quickly the lake rose and the terrible damage it did. The damage to our property and our livelihoods has been horrendous and the stress and heartbreak have been almost unbearable."*
>
> *- Reeve Philip Thordarson, RM of Lakeview*

Serious concerns were raised about the impact that water control structures (particularly the Portage Diversion) have had, and will continue to have on flooding in the Lake Manitoba area. Given the role which past government decisions played in exacerbating the 2011 flood, it is difficult for many to understand why the decision has not already been made to proceed with facilitating the flow of this extra water from Lake Manitoba into Lake Winnipeg through both the construction of a channel(s) and dredging operations. The latter were "top of mind" issues with respect to Lake Manitoba and flooding together with concerns about water quality, the actual level at which the Government deems it to be acceptable at which to regulate the lake water in future, and the potential on-going loss of riparian zones,

Most felt that the flood was caused by artificial interventions and that comparisons cannot be made with the flood of '97 in the Red River Valley; pointing out that river flood waters naturally recede within a reasonable amount of time, whereas flooding from lakes lingers on and on. Essentially, given the degree to which the government seems able to control the amount of water which gets diverted to Lake Manitoba, municipal leaders generally expect the government to do whatever it will take to

[11] "If You Drain Them, Floods Will Come", by Pascal Badiou, PhD, in Conservator Magazine of Ducks Unlimited, 32:3, 2011, pp.16-17.

have this water continue its journey to Lake Winnipeg at a faster rate, and to guarantee that Lake Manitoba will be regulated so that it will be kept to a maximum elevation somewhere in the range of 812'. Besides limiting the maximum amount of water in the Lake at any one time, most would also like to see it regulated in a manner to simulate the natural rise and fall of the water to help nature rejuvenate the vegetation along the shoreline.

At the same time, most municipal leaders recognize that what happened in 2011 cannot be ignored, and that in many ways what happened is a "game changer" when considering land use planning and regulations for the future.

Land Use Planning Policies, Regulations and Enforcement

Municipal leaders who were interviewed through this study generally felt that given the exceptional nature of the devastation which was experienced on the ground during the 2011 flood, all involved need to take a step back and consider what might be done differently in the future.

In terms of the biggest challenges faced by rural municipalities in being able to administer and enforce adequate land use policies and zoning regulations when it comes to trying to limit potential damage due to floods, the following were mentioned most frequently:

- Limited budgets/resources available to either hire qualified in-house staff or outside experts to do the work;
- Lack of good data; particularly up-to-date contour maps;
- Lack of coordination of surface water management between jurisdictions (i.e. drainage)
- Difficult to say "no" to development which would expand a municipality's tax base; it's also difficult to say "no" to proposals which are being presented by friends and neighbours.

With regard to the latter point, one Reeve explained that it can be particularly challenging to say "no" if the likely consequence of doing so might be not getting elected next time around. Another noted that budget constraints make it challenging for municipalities to designate public reserves for which they then need to set aside adequate funds for proper maintenance of the lands.

Only one of the municipalities around Lake Manitoba indicated that when processing applications for new buildings, as a rule they required lot grading and building grade elevations as recommended by Water Stewardship, together with a survey grade level. None indicated that they undertook inspections to ensure that proposed buildings/developments were built according to plans as approved (note: one noted however that they did ensure that building code requirements had been met). Generally speaking, the underlying reasons for this situation relate to a municipality not having adequate staff to administer the approval process and to perform inspections, and/or wanting to avoid being perceived as putting too many roadblocks in the way of new development.

One community leader in the Red River Valley interviewed through this study noted that even when a municipality in Manitoba feels compelled to hold a violator accountable, it is relatively expensive and time consuming to do so as the only recourse currently available is to take that violator to court. He referred to the contrasting situation in British Columbia where municipalities have the power to levy fines which can be registered on the title to the property, and when done so, has proven to be very effective at achieving compliance. Representatives of municipalities around Lake Manitoba generally indicated that they would be unlikely to enforce regulations on their ratepayers in this way.

Most municipal leaders recognized the need to develop more restrictive guidelines or regulations for development in flood prone areas – including (some reluctantly) the establishment of "designated flood areas". However, all generally want to be part of a process that would enable them to have input into developing these more restrictive regulations, including input into where the boundaries for any "designated flood areas" would be drawn.

Manitoba's Development Standards and Interim Guidelines

Policy

As noted earlier in this report, Provincial policy in Manitoba requires that new buildings (or additions to existing buildings) being planned for flood prone areas, be constructed to standards which will ensure that the structures will be protected from damage from water levels equivalent to those experienced to the higher of:

- a 1 in 100-year flood, or
- the worst flood on record of the adjoining water body or water course.

The majority of municipal leaders who were interviewed through this study stated that they felt that "the worst flood on record" should serve as the standard for Manitoba explaining that:

- given the magnitude of compensation costs following a flood, how could the government do anything but design regulations to accommodate the worst flood; and
- the reality is that governments cannot knowingly put people at risk; people need to know that that they simply cannot build in a flood zone.

"The new "normal" is what we experienced last year. We can't erase peoples' memories and need to consider this when we talk about building standards."

- Reeve Don Walsh, RM of Woodlands

Interim Guidelines

Following the 2011 flood, the Manitoba Government introduced "interim" Flood Protection Levels to be used in assessing flood hazards such that permanent structures constructed upon lands around Lake Manitoba would be protected from flooding up to and including that which was experienced in 2011. Detailed calculations were produced to establish "Flood Protection Levels" which are defined as the corresponding design flood level plus freeboard to allow for wind setup and wave effects. It

should be noted that flood protection requirements for permanent structures near or adjacent to major lakes, such as Lake Manitoba, are determined on a site specific basis.

Those interviewed for this study were asked to describe, with specific examples where possible, what adhering to these interim levels has meant (or will mean) to their respective municipalities or planning districts.

Most respondents expressed frustration with the guidelines and commented on how the very "interim" nature of them is problematic in that they leave everyone in a state of limbo. Some noted problems or challenges encountered in trying to interpret and enforce the guidelines. The following are some of the specific comments which were made:

- Interim guidelines seem to have been put in place overnight through somewhat of a rash decision. When the lake goes back to 810 ½', people will complain about having had to build their properties too high.
- We have no option but to treat these "interim" guidelines as permanent. Once we tell homeowners to say build/re-build their properties to a higher level, once the work has been done, it's "permanent" and not "interim".
- Because the province looks at each property and determines the building height for that property, the resulting numbers for a small community or "neighbourhood" can have quite a range. It is confusing and results in some neighbouring properties having different requirements which are not easily understood (e.g. why should I have to build 3" higher than my neighbor?). It would be better to keep it simple; i.e. require all properties in a particular area to be built to the same elevation.
- Some lots simply are not large enough to enable their owners to have their properties/buildings raised to meet the guidelines (i.e. there is insufficient distance from neighbouring lots).
- Having to raise municipal roads to accommodate and service building lots with these new elevation levels will be extremely costly.
- Some development unfortunately has proceeded without permits as it has been difficult for the applicant to get clear answers and approval from the government.
- Some RM's are reluctant to give out permits based on the "interim" guidelines - a final decision is required as all involved need something more concrete to work with.
- What will happen to existing properties as some owners have decided to raise their property while others have decided not to?
- People are no longer interested in buying lakefront properties. Property values are down considerably as a result of the flood and its impact on land (including farm land) and buildings.
- Some individuals simply do not have the resources to raise their properties to meet the guidelines. As a result, while neighbouring lots are raised, those that aren't will become more susceptible to flooding/run-off water.
- Given the guidelines, much of the land around the lakes will no longer be developable.

> *"We've already lost one third of our land in St. Laurent. If the water levels go any higher we'll be toast. Over 50% of our income comes from cottage development."*
>
> *- Reeve Earl Zotter, RM of St. Laurent*

- Most RMs have fire-fighting equipment which may not be able to handle 2- story buildings which have been forced to be elevated to a higher level as a result of these guidelines. If we now have to turn down approval for the construction of new 2-story buildings we'll essentially be losing much-needed tax revenue.
- After all this time, much of our agricultural land is still flooded. The guidelines are generally irrelevant to our municipality which relies mostly on monies from agriculture as its source of revenue. The Manitoba Government seems only concerned with cottages with little or no consideration for the farm land and the future of agriculture in the area.
- Municipalities need more development and growth to be sustainable. We need to know what the level of the lake is going to be and what factors are being considered in setting elevations. If municipalities knew for sure what they had to do, we could then start to work on it and develop a plan to encourage development in more appropriate areas.

3. First Nations: Viewpoints

The timing of this study unfortunately took place while many of the residents of the reserves around Lake Manitoba and Lake St. Martin were displaced as a result of the 2011 flooding, and still living outside of their communities. As such, active participation by First Nations' representatives was relatively limited. Similarly, the study coincided with summer vacations and meetings with officials from Aboriginal Affairs and Northern Development Canada (AANDC) proved not to be possible.

> *"Some of our sacred lands have been lost in the flood. We use to have our pow wow and other ceremonies by the lake but haven't been able to do this since the flooding."*
>
> *- Chief Eugene Eastman, O-Chi-Chak-Ko-Sipi First Nation*

All of the First Nations leaders who did participate in this study indicated that there was a need for a collaborative approach to better coordinate land use planning between reserves and neighbouring municipalities. They also indicated that there was a need for a better communications system to be set up during floods so that everyone affected could receive the same information in a more timely manner. Finally, all expressed concerns about the quality of the water on the lakes, the impact on the fishery and the erosion of the lake shore.

Representatives of the Sandy Bay First Nation explained that water or flooding from the land is more of a problem for them than is water from Lake Manitoba (i.e. drainage issues are the biggest source of flooding). Similarly they see a need to develop a better system to coordinate the maintenance and joint use of local roads with residents of neighbouring municipalities.

Generally speaking, all of the challenges (e.g. limited budgets/resources available to hire qualified staff) faced by municipalities in trying to administer and enforce adequate land use policies and/or regulations when it comes to trying to limit potential damage due to floods, are shared by First Nations. None of the First Nations that participated in this study had any land use policies nor plans in place. At present there are no legal nor institutional tools in place to encourage cooperation and coordination of land use plans and policies between reserves and their neighbouring municipalities. First Nations also have a unique direct relationship with the federal government through Aboriginal Affairs and Northern Development Canada (AANDC).

Administration Building in Sandy Bay First Nation

5. Role of the Federal Government

United States of America

Land use planning and flood management systems in the U.S.A. are far from perfect. In fact they generally are seen to have resulted in increased flood losses, to have created a false sense of security that building in a flood plain is okay, and to have disconnected citizens and local governments from the financial consequences of developing in hazard areas. However, lessons learned because of these outcomes have led to significant changes in the approach now being taken in the United States. Of note in this regard is the Disaster Mitigation Act of 2000, which requires more intergovernmental cooperation and the development of detailed local land use and flood mitigation plans. Perhaps more importantly, this Act makes federal funding available for pre-disaster mitigation planning as well as post-disaster mitigation works.

State flood plain managers in the U.S.A., have also learned from past mistakes and currently are pushing a new approach: “No Adverse Impact” – which calls for the actions of one property owner to have no adverse effect on the rights of other property owners, either upstream or downstream. Under this concept, the adverse effects or impacts can be measured in terms of increased flood peaks, increased flood stages, higher flood velocities, increased erosion and sedimentation, or other impacts the community considers important (a summary paper on the “No Adverse Impact” approach is included in the Appendix).

Canada

Since the early 1990's, the Government of Canada, through disaster assistance funding, has been willing to pay hundreds of millions of dollars "picking up the pieces" after a flood, but essentially, unlike its American counterpart, has not been significantly engaged at the front-end in working toward mitigating potential damage due to floods.

Geo Tube at Twin Beaches

However, the current Canadian Government has come to the conclusion that "an ounce of prevention is worth a pound of cure" with its recent announcement of the *Financial Support to Provinces and Territories for 2011 Flood Mitigation Investments*, through which it is anticipated that Manitoba alone will be provided with federal funds in the range of $300 - $400 million to help offset the roughly $1 billion cost to the province of fighting last year's flood. Consideration is being given to making this initiative a permanent national program. While eligible costs to date have been limited to approved permanent flood protection measures (e.g. such as permanent dikes), a case should be made for federal contributions to go toward assisting provincial and local authorities (including First Nations) to undertake land use planning along watersheds in a more effective and coordinated manner and to hire staff with the requisite expertise to ensure that regulations are in fact enforced.

Damage due to Flooding at Big Point near Langruth

IV. Conclusions and Recommendations

Designated Flood Areas

Just as those living in the Red River Valley over time have come to recognize that certain areas are more prone to flooding than others, so too residents around Lake Manitoba and Lake St. Martin have come to appreciate, particularly given what was experienced in 2011, that certain lands should be avoided when it comes to new development. However, this study found that for a variety of reasons, local authorities generally find it difficult to "say no" to new development.

Most Manitobans, including those living around the lakes, recognize that the flooding that occurred in 2011 cannot be ignored, and exceptional actions are now required to better ensure that the kind of devastation which was experienced on the ground in 2011 is not repeated for future generations. In this regard the time has come for "Designated Flood Areas" to be established. However, in delineating these areas it is important that the Government of Manitoba consult with representatives of local authorities before finalizing them.

It is recommended that as soon as possible, a process be initiated to engage representatives of local authorities around Lake Manitoba, Lake St. Martin and other areas of the province as may be required, in establishing Designated Flood Areas through regulations under the *Water Resources Administration Act*.

Development Guidelines/Standards

Whatever guidelines or standards the Manitoba Government finally adopts for new construction in flood prone areas, they should be transparent, clearly communicated, be such that outcomes flowing from them generally will be predictable, equitable, consistent in their application, and enforceable.

It is recommended that a uniform standard flood protection level be developed and applied throughout the province. Such a standard should strike a balance between the province's public safety interests, the impact on individuals (including their personal security and peace of mind) and economic development. However, when considering such guidelines, one needs to consider what neighbouring jurisdictions, like the Province of Saskatchewan, have done in this regard.

Pilot Project

A fundamental conclusion of this study is that natural boundaries (i.e. watersheds) are more relevant than the boundaries of existing political or local jurisdictions when dealing with land use planning and floods. At present there is a disconnect between how water impacts the land and human settlements and how planning and the enforcement of policies and regulations are undertaken.

There is a need for an entity or agency to be given the authority for dealing with two basic flood-related issues: 1. regulating any new development in flood-prone areas; and 2. surface water management (including wetlands and the installation of drainage ditches). Such an agency's geographic area of operations needs to be topographically defined based on the natural flow of water within it. Depending upon the degree of interest and commitment to the concept by existing regulatory authorities, the exact boundaries ultimately could include a watershed or a number of watersheds, the entire area of the Lake Manitoba Basin, or even all of Manitoba. It should be noted that the concept envisaged here crosses departmental lines and, if implemented, would require the coordination of activities by Manitoba Local Government, Infrastructure and Transportation, Water Stewardship, and Agricultural, Food and Rural Initiatives.

> *"The 2011 flood caused significant damage to Riparian Zones along the Lake Manitoba and Lake St. Martin shorelines… An assessment of the extent of this damage needs to be undertaken."*
>
> *- Jim Birrell, EDO, RM of Grahamdale*

When interviewed through this study, all Rural Municipalities and First Nations consulted around Lake Manitoba said "yes" to the following question:

> *Assuming that adequate resources would be made available to do it properly, would your community be open to participating in a Pilot Project/planning process involving neighbouring municipalities and others to establish a "Special Planning Area" or authority to develop and enforce an Integrated Watershed Management Plan?*

It is recommended that the Government of Canada and the Government of Manitoba establish a 5-year pilot project together with Planning Districts, Municipalities, Conservation Districts, and First Nations. Through this pilot, an authority or agency would be established (or the mandate of an existing entity (or entities) would be expanded) and be provided with adequate resources to effectively plan and enforce land use policies and regulations relating to flood control/mitigation. Among other things, this entity would:

- have natural watershed boundaries as its area of jurisdiction;
- hire qualified staff to prepare a development plan for the area and develop and enforce appropriate regulations;
- acquire contour maps (e.g. LIDAR) and other data needed to do a proper job (e.g. including a comprehensive shoreline assessment);
- work with the Government of Manitoba to define Designated Flood Areas around the lakes/water ways;

- compare the costs of avoidance (i.e. non-development within a hazard or designated flood area), or opportunity costs with potential costs which would be incurred as a result of flood related damages;
- develop incentives to encourage landowners to take positive action to protect shorelines and re-introduce wetlands; and
- determine/administer appropriate flood mitigation efforts in the area following the "No Adverse Impact" managing principle

Recognizing the challenges inherent in establishing new institutions, as a starting point, consideration should be given to expanding the mandate of an existing institution(s). This could include reconfiguring planning districts or expanding the make-up and mandate of an existing agency such as the Manitoba Water Council. Should such a course of action prove impractical for whatever reason(s), then serious consideration should be given to establishing a new entity with authority to plan and enforce land use policies and regulations relating to water and flooding. The point to note here is that when it comes to land use planning and flooding, the current situation or status quo simply is not working effectively, and a fundamental change is needed.

Municipal Planning

- There will be a need to revisit current development plans to ensure they are consistent with Manitoba's new flood protection requirements (once they are finalized). It is recommended that this be undertaken as soon as possible.
- A review needs to be conducted to ensure that municipalities and landowners are not disconnected from their decisions. For example, in light of the 2011 experience and future risks going forward, consideration should be given to increasing a municipality's maximum contribution, which currently stands at $5.00 per capita, toward the costs of "fighting floods" under the Disaster Financial Assistance (DFA) program. Similarly, consideration should be given to introducing legislation to enable local authorities (particularly planning districts) to impose fines on violators who choose to ignore relevant land use policies and regulations.

Planning with First Nations

- There is a need to facilitate the development of a collaborative approach to planning between First Nations and municipalities.

Inter-Provincial and Cross-border Cooperation

Improved dialogue needs to be encouraged and regional watershed management needs to be better coordinated through, either:

- expanding the membership (to include local officials) and the mandate of an existing entity such as the Prairie Provinces Water Board or
- Canada, with the 3 prairie provinces and USA (North Dakota) establishing an authority similar to the Red River Basin Commission to help in the coordination of land use planning efforts relating to flooding within Manitoba.

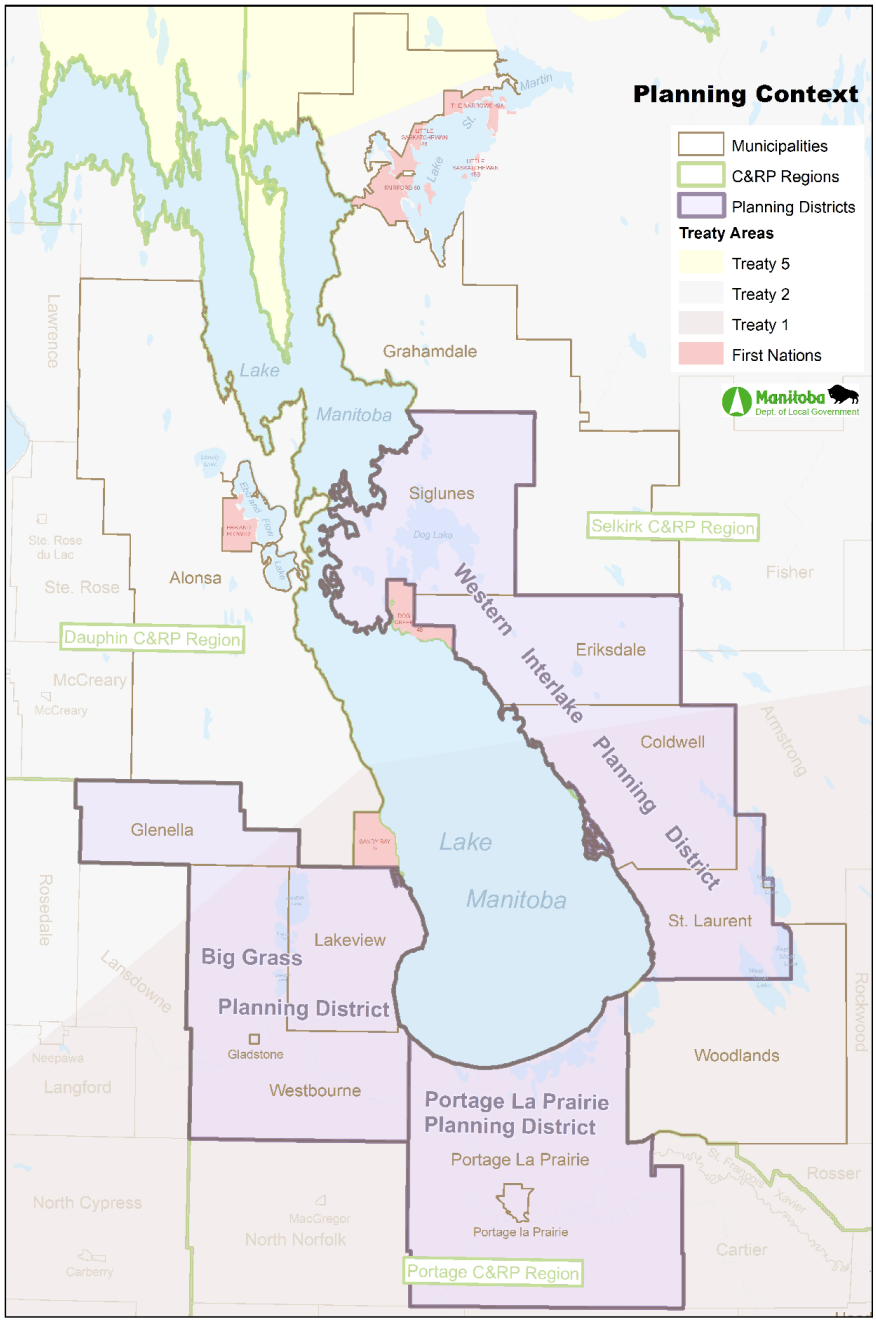
V. Appendices

Appendix A:

LAKE MANITOBA • LAKE ST. MARTIN

REGULATION REVIEW

LAKE MANITOBA PLANNING AUTHORITIES



Local Planning Authority
Local planning is administered by three planning districts and three single municipalities around Lake Manitoba and Lake St. Martin.

The Big Grass Planning District is comprised of the Town of Gladstone and the Rural Municipalities of Glenella, Lakeview and Westbourne.

The Portage La Prairie Planning District is comprised of the City of Portage La Prairie and the Rural Municipality of Portage La Prairie.

The Western Interlake Planning District is comprised of the Rural Municipalities of Coldwell, Eriksdale, St. Laurent and Siglunes.

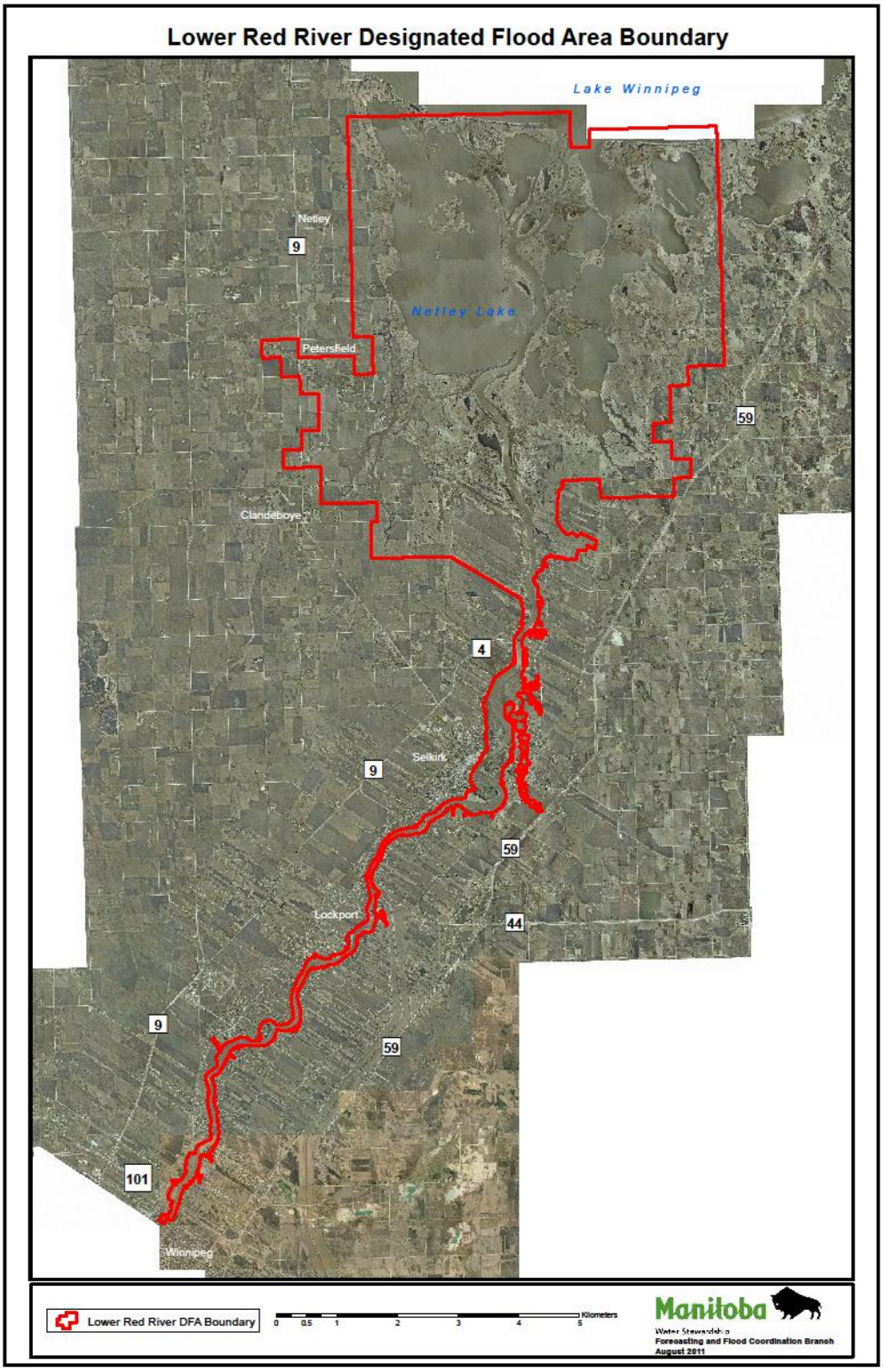
The Rural Municipalities of Alonsa, Grahamdale and Woodlands are not part of a planning district.

All of these local planning authorities have development plans with the exception of Alonsa which is in the process of preparing their first development plan.

Provincial Planning Authority
Manitoba Local Government is the provincial department responsible for coordinating land use planning.

The area around Lake Manitoba and Lake St. Martin is served by the Dauphin, Portage and Selkirk Community & Regional Planning offices.

Appendix B:


Lower Red River Designated Flood Area Boundary
Lake Winnipeg
Netley
9
Netley Lake
Petersfield
59
Clandeboye
4
Selkirk
9
59
Lockport
44
9
59
101
Winnipeg
Lower Red River DFA Boundary
0 0.5 1 2 3 4 5 Kilometers
Manitoba
Water Stewardship
Forecasting and Flood Coordination Branch
August 2011

Appendix C:

Members of the Steering Committee
for the Study on Land Use Policies and Regulations
for the Lake Manitoba and Lake St. Martin Regulation Review Committee

Emery Stagg – LM/LSM RRC (Member of Dauphin River First Nation)
Norman Traverse – LM/LSM RRC (Member of Lake St. Martin First Nation)
Harold Westdal – Chair, Lake Manitoba and Lake St. Martin Regulation Review Committee
Louis Allain, Flood Review Task Force
Reeve Don Walsh, LM/LSM RRC (RM of Woodlands)
Cheryl Smith, LM/LSM RRC (Lake Manitoba Stakeholders/St. Laurent resident)
Lana D. Cowling-Mason, CEDO, RM of Woodlands
Ottilie Murray, MB Local Government
Garry McLean – LM/LSM RRC (Member of Lake Manitoba First Nation)
Virginia Lukianchuk, Sandy Bay First Nation (Health)
Reeve Brian Sigfusson, RM of Coldwell
Deputy Reeve Amanda Stevenson, RM of Coldwell
Reeve Philip Thordarson, RM of Lakeview
Reeve Earl Zotter, RM of St. Laurent

<u>Alternate:</u>
Grant Melnychuk, MB Local Government (on behalf of Ottilie Murray)

<u>McKay Finnigan & Associates (Consultants):</u>
Harry Finnigan, Project Manager
Elise Finnigan
Brian Henderson
Greg Merner

MINUTES
Lake Manitoba and Lake St. Martin
Regulation Review Committee
Planning Session for First Nation input on the draft terms of reference for the study of applicable land use policies etc.
Tuesday, June 12, 2012 (Canad Inn, 2100 McPhillips Street)

Attendees:
Emery Stagg – Lake Manitoba and Lake St. Martin Review Committee representative
Norman Traverse – Lake Manitoba and Lake St. Martin Review Committee representative
Garry McLean – Lake Manitoba and Lake St. Martin Review Committee representative
Chief Eugene Eastman – O-Chi-Chak-Ko-Sipi (Crane River) First Nation
Councillor Lance Roulette - Sandy Bay First Nation
Councillor Standford Roulette - Sandy Bay First Nation
CEO Denis McIvor – Sandy Bay First Nation
Harold Westdal – Chair, Lake Manitoba and Lake St. Martin Regulation Review Committee

Consultants:
Harry Finnigan – McKay Finnigan & Associates
Elise Finnigan – McKay Finnigan & Associates
Brian Henderson – Associate, McKay Finnigan & Associates

Regrets:
Chief Gerald Anderson – Little Saskatchewan First Nation
Chief Garnet Woodhouse – Pinaymootang First Nation
Chief Nelson Houle – Ebb & Flow First Nation
Chief Adrian Sinclair – Lake St. Martin First Nation
Chief John Stagg – Dauphin River First Nation

Opening Prayer – Elder Norman Traverse **Introductions & Overview of meeting objectives –** Brian Henderson
Overview of Mandate of Review Committee - Harold Westdal Mandate: To investigate how Lake Manitoba and Lake St. Martin should be regulated and the factors to consider when determining this. The committee comprises individuals from outside government. The committee is using a number of methods to gather information including: 1. Technical hydrological study 2. Planning and land use study

3. Public consultation via series of meetings held around lakes, website with the capacity for leaving comments, and open houses

Purpose of Study and Review of Draft Terms of Reference – Harry Finnigan

- Full proposal was circulated prior to meeting
- Purpose of Study: to identify what has worked, what hasn't and what can be improved upon in relation to planning and land use policies in the areas around Lake Manitoba and Lake St. Martin.
- Representatives of Manitoba's Local Government Department identified 5 strategies for managing growth and development in flood prone areas. The study will look at what is happening in these 5 areas in each community - what's working and what's not.
- Would like to get volunteer(s) from today's meeting to serve on the Steering Committee for the Study.
- Intent is to create a readable report – using graphics, etc. as much as possible
- Looking at what is best approach for determining what the process needs to be and that it is coordinated.
- A half day workshop is being planned to learn from what other communities are doing around the world (with a focus on North America) from a land use planning perspective.
- The proposed study includes visits to each of the affected First Nations to interview the Chiefs and Councils (these interviews to take place following the workshop – i.e. to be scheduled for July/August).
- For purposes of the study the list of affected First Nations includes the following communities:
    - Dauphin River First Nation
    - Ebb & Flow First Nation
    - Lake Manitoba First Nation
    - Lake St Martin First Nation
    - Little Saskatchewan First Nation
    - O-Chi-Chak-Ko-Sipi (Crane River) First Nation
    - Pinaymootang First Nation
    - Sandy Bay First Nation
- Deadline for the completion of the study is the end of September.

DISCUSSION

It was suggested that the treaty map be referenced in the study.

Clarification about where the mandate for the review committee stems from was asked for. It was clarified that the mandate comes directly from Steve Ashton, Minister of Infrastructure and Transportation.

A number of concerns were raised about jurisdictional issues. The following examples of how jurisdictional issues have increased flood vulnerability were given by those in attendance:

- Roads falling outside jurisdiction of First Nation not maintained properly

by the municipality and resulting in drainage/access problems for members of the First Nation.
- First Nations generally maintain that their land rights extend to the land under the water.

It was suggested that if First Nation lands are used for flood easements some form of restitution should be extended to the First Nation.

Concern was raised about the fact that flooding is resulting in a loss of land for the First Nation; however, their populations are growing. It was also mentioned that in some areas sacred land is no longer accessible due to flooding.

Concern about the impact flooding has had on the local economy of the First Nations was raised.

It was suggested that the channel to Lake Winnipeg be dredged to help facilitate the flow of water.

It was suggested that some First Nations, including Pine Creek and Skownan, who were indirectly affected by the flooding should be consulted as part of the study.

It was suggested that each affected First Nation should access AANDC funding to do their own studies.

It was suggested that First Nations should be informed (via bulletins) of RM land use planning initiatives and flood announcements from the Province. It was also suggested that in addition to meeting one-on-one with each First Nation that a meeting be coordinated between the First Nations and the Rural Municipalities.

Brian reminded everyone that the focus of the study is on planning and land use. While some of the feedback/suggestions raised at the meeting may be more appropriate for the larger review they will, however, be noted.

AGREED ACTIONS

- Everyone will be invited to the half-day workshop.
- Norman Traverse, Garry McLean and Emery Stagg agreed to sit on the Steering Committee for the study.
- Sandy Bay First Nation will report back on its selection of a person to sit on the Steering Committee.
- Brian to contact all First Nations to arrange times for one-on-one meetings (meetings will be scheduled for July or August depending on the availability of First Nation leadership).
- Draft minutes to be circulated.

Closing Prayer – Elder Norman Traverse

MINUTES of the
Lake Manitoba and Lake St. Martin
Regulation Review Committee

Planning Session for input on the draft terms of reference for the study of applicable land use policies etc.

Tuesday, June 19, 2012 (St. Laurent Legion, Lot 487 Pth 6, St. Laurent)

Attendees

RM of Woodlands: Reeve Don Walsh; Councillor Trevor King; Councillor Doug Oliver; Councillor Garry Peltz; Councillor Carl Fleury; Councillor Ila Buchanan; Councillor Gavin Jones; CAO Lynn Kauppila; EDO Lana Cowling-Mason; Al Caron (Recovery Manager)
RM Grahamdale: EDO Jim Birrell
RM of Siglunes: Reeve Barry Zacharias and Councillor Dennis Skoropata
RM of Westbourne: Reeve David Single
RM of Coldwell: Reeve Brian Sigfusson; Dupty Reeve Amanda Stevenson; EDO Monique Holm
RM of Portage La Prairie: Reeve Kam Blight
RM of Lakeview: Reeve Philip Thordarson
RM of St. Laurent: Reeve Earl Zotter and Councillor Tom Johnson
RM of Alonsa: Councillor Lyle Finney
Harold Westdal - Chair, Lake Manitoba and Lake St Martin Regulation Review Committee
Ottilie Murray – Acting Regional Manager, Community and Regional Planning Branch, Department of Local Government
Cherie Millar – Manager, Western Interlake Planning District
Wayne Thorkelson – Western Interlake Planning District

Consultants:
Harry Finnigan - McKay Finnigan & Associates
Elise Finnigan - McKay Finnigan & Associates
Greg Merner - Associate, McKay Finnigan & Associates

Other Invitees/Regrets

RM of Portage La Prairie: CAO Daryl Hrehirchuk
RM of Alonsa: Reeve Stan Asham and CAO Pamela Sul
RM of Grahamdale: Reeve Diane Price and CAO Shelly Schwitek
RM of Siglunes: CAO Ian Philips
RM of Eriksdale: Reeve Arne Lindell and CAO Arlene Brandson Darknell
RM of Coldwell: CAO Nicole Christensen
RM of St. Laurent: CAO Diana Friesen

Introductions, Opening Remarks & Objectives – Harry Finnigan

- Purpose of the meeting is to get input into the draft terms of reference for the study and invite volunteers for the steering committee for the study.
- Reeve Philip Thordarson (Lakeview) respectfully asked to say a few words. In his speech he among other things referred to the operations/impact the Portage Diversion on Lake Manitoba and the need for an expanded outlet channel (readers are encouraged to review Reeve Thordarson's speech, a complete copy of which is attached to these minutes).

Overall Mandate of Review Committee - Harold Westdal

- Noted that the land use study is only one component of the work currently underway.
- Two committees have been established: 1. Lake Manitoba and Lake St. Martin Regulation Review Committee; and 2. Flood Review Task Force.
- The overall mandate of the Regulation Review Committee is to investigate how the lakes in question should be regulated and to advise the province on the appropriate interim regulatory ranges for the lakes and complimentary operating guidelines for the Fairford Water Control Structure and Lake St. Martin channel.
- There are 13 members on the committee.

Purpose of Study and Review of Draft Terms of Reference – Harry Finnigan

Harry, with reference to the full proposal which was circulated prior to meeting, gave a brief overview of the study noting the following in particular:

- Purpose of Study: to identify what has worked, what hasn't and what can be improved upon in relation to planning and land use policies in the areas around Lake Manitoba and Lake St. Martin.
- Representatives of Manitoba's Local Government Department identified 5 strategies for managing growth and development in flood prone areas. The study will look at what is happening in these 5 areas in each community - what's working and what's not.
- Intent is to create a readable report – using graphics, etc. as much as possible.
- The steps involved in the study were outlined.
- Looking at what is best approach for determining what the process needs to be and that it is coordinated.
- A half day workshop is being planned to learn what other communities are doing around the world (with a focus on North America) from a land use planning perspective.
- The proposed study includes visits to each of the affected RMs to conduct one-on-one interviews (these interviews to be scheduled in August).
- The client for the study is the Regulation Review Committee.
- Deadline for the completion of the study is the middle to end of September.
- Would like to get volunteer(s) from today's meeting to serve on the Steering Committee for the Study.

DISCUSSION

It was suggested that the root of the problem is poor water management and not planning and land use policies/regulations.

It was suggested that a recommendation needs to be made about what lake level or rather elevation will be the new flood building standard(s) before any planning recommendations can be made.

Concerns were raised about the impact of the Portage Diversion on flooding in the Lake Manitoba area. It was suggested that the flood was caused by artificial interventions and that comparisons can't be made with the flood of '97 in the Red River Valley.

The extent of the damage caused by the flood was outlined including:

- The loss of tax revenue to rural municipalities.
- Farms facing bankruptcy.
- Approximately one third of developable land lost in the RM of St. Laurent with a disproportionate impact on its tax base.
- Loss of population, as people move away permanently.

It was suggested that the Province failed to communicate properly during the flood and are continuing to fail to communicate what the plans are for the future.

Concerns were raised about the future of the cottage industry for the municipalities.

Many questions were raised about whether a study focusing on planning and land use is necessary at this time. In the end the general consensus was that a review of policies/regulations from time to time is a good thing and it was noted that the study as proposed could be beneficial in helping to document and communicate the magnitude of the situation to the government. Those in attendance indicated that they would agree to participate in the study.

A number of concerns were raised about the interim building guidelines:

- How can farmland comply with the guidelines?
- Isn't it too late for the study when many people are already building to the new standards?
- Some municipalities are reluctant to issue permits given the uncertainty of standards and future of the interim guidelines.
- Some municipalities are advising their constituents to wait until the provincial government makes a permanent decision.
- Who will compensate individuals if they build to the interim guidelines and then the standards are changed again?

It was noted that one needed to be cognizant of the potential impact of a change in land use policies/regulations on agricultural land. A question was raised as to whether farmers will be eligible for crop insurance.

A question was asked about what will happen to people who missed the November, 2011 deadline last year for claims. If municipalities advise applicants to hold off on building until the Province has made a final decision with regards to guidelines/standards, will they still be eligible for compensation/funds?

Concerns were raised about the situation of many of the First Nations and the lack of response which has been given to their particular circumstances and issues.

NEXT STEPS

- Everyone will be invited to the half-day workshop at the end of July.
- The following agreed to sit on the Steering Committee for the study:
    - Reeve Brian Sigfusson, RM of Coldwell
    - Deputy Reeve Amanda Stevenson, RM of Coldwell
    - Reeve Philip Thordarson, RM of Lakeview
    - Reeve Earl Zotter, RM of St. Laurent
- All the RMs will be contacted to arrange times for one-on-one meetings in August.
- Draft minutes of this meeting will be circulated.

June 19th, 2012 Speech by Reeve Philip Thordarson at St. Laurent

Having read through the information package provided in advance of this meeting I must say I am blown away by the credentials McKay, Finnigan and Associates bring to this study. Mr. Finnigan, your achievements in particular are amazing.

As reeve of the RM of Lakeview – a small municipality on the west side of Lake Manitoba, I can make no great claims to fame, but I have lived beside Lake Manitoba all my life.

My grandparents homesteaded in 1894 and our farm has been in continuous operation ever since. It is located 7 miles north and 3 ½ miles east of Langruth- about a third of a mile west of the Hollywood Marsh. The Hollywood Marsh is attached to Lake Manitoba.

For over a hundred years our family has made a good living beside Lake Manitoba. Our farm has been a mixed farm producing cattle and grain. Both my father and my grandfather were also fishermen.

My parents went through the flood of the 50's of which I don't remember much except that our cropland and pasture land north and east and south- east of us was flooded. Fishermen and duck hunters could launch their boats in the ditch in front of our house. When the wind blew from the north there were whitecaps on the waves north of our house.

The flood of the 50's was caused by very heavy precipitation in the Lake Manitoba area. It is understandable that up to now it has been called the flood of record.

The 2011 flood, which actually started in 2010 and is still ongoing, rose to greater heights and wreaked far more havoc than the 50's flood. There are farms and ranches that have existed for over 100 years that now face bankruptcy.

And what made Lake Manitoba water rise to such heights? I have seen no mention of the answer in any of the information we have received regarding these studies, so I may be dropping a bombshell here. Are you ready for it? I believe Lake Manitoba water levels rose to such great heights because of the operation of the PORTAGE DIVERSION!!!! The Portage Diversion has put Lake Manitoba on the receiving end of a watershed which extends across western Canada. Our lake is far too small to accept that much water and now we can be affected by weather events across western Canada and even the United States.

Before the flood of 2011 our communities were satisfied with lake levels of 810.5 to 812.5 feet above sea level. Some wanted a little lower and some

perhaps a little higher but there was no pressure for studies about land use policy and zoning, etc. Through long experience, the previously mentioned levels proved to work well for farmers, ranchers and cottage owners. New cottage developments around the lake gave municipalities new vitality and confidence. At higher levels the lake is too unpredictable and dangerous, and would negatively affect everyone involved. Why would we be looking for any difference from what we had?

The people living around Lake Manitoba are now unable to plan for the future because the Portage diversion can and will be operated any time that weather events and water levels threaten others. We are beginning to feel like second class citizens in our own province. Our people have contributed to the Manitoba economy for all these years. Does our province no longer need farmers and ranchers? And what about the people who were led to believe they could put up a cottage beside Lake Manitoba?

It is confusing to be asked for our opinions about lake levels, land use policies and zoning criteria after the man- made flood of 2011.

Were the residents around Lake Manitoba asked for their opinion when the Portage Diversion was constructed?

Were promises to build an outlet to match the input of the diversion kept?

Were residents consulted before the diversion was opened full blast into the lake last year?

Now, our government wants to hear our opinions about land use policies and planning around Lake Manitoba and Lake St. Martin.

How can we give an opinion on these topics when our government shows no inclination to inform us of their future plans for our lake?

Of course, Mr. Topping has declared last year's artificial flood to be the new flood of record and has requested that municipalities co-operate by requiring higher levels for cottage development. Perhaps **that** is a clue to our government's plans.

We are not stupid. The actions of our government speak louder than words. We have all seen the work that has been done this year to strengthen the dikes on top of the Portage diversion banks.

We will never forget the water flowing from the Assiniboine River, almost touching the bottom of the bridges on #1 Hwy.

We will also never forget how quickly the lake rose and the terrible damage it did.

The damage to our property and our livelihoods has been horrendous and the stress and heartbreak have been almost unbearable.

Now here's a question for you to ask us. I want to stress again that we are not stupid.

Why did the lake rise so quickly?

I would suggest it is because a much greater volume of water can enter through a large inlet (the Portage Diversion) than can go out of a small outlet (the Fairford Dam).

Here is a question we all know the answer to.

In a similar crisis would we see the diversion operated in the same way it was operated last year? Of course we would.

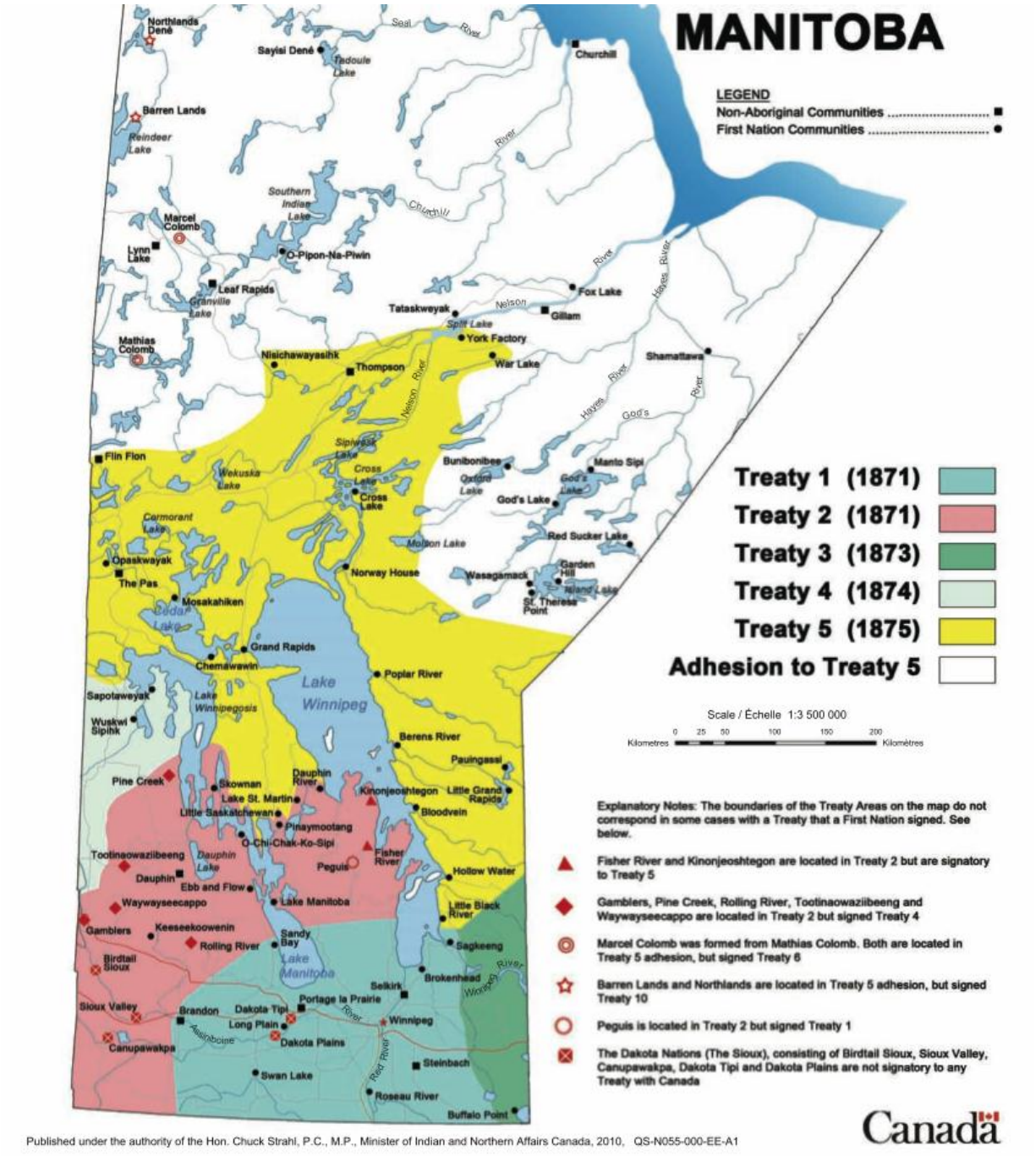
And would our lake levels rise as they did last year?

The answer goes back to the same point. Large inlet, small outlet.

And could we have a similar crisis in the near future?

Consider that the people of the Red River Valley have recently experienced two floods. The difference between their situation and our situation, besides the fact that we are NOT located on a flood plain, is that they have a floodway and we do not. The Red River Floodway may have cost a lot of money but it has saved billions of dollars. And I suppose that we should be proud that "our diversion" has helped protect a large part of our province. Is their livelihood considered more important than ours? The cost of the Lake Manitoba Flood of 2011 will soon add up to a billion dollars. This must never happen again. Use the Red River Floodway as an example, spend money to save money!

Once the floodway has been constructed come back and ask us about land use policies and zoning criteria, etc. You will then be talking to people who have confidence in the future and will be happy to answer your questions.



Published under the authority of the Hon. Chuck Strahl, P.C., M.P., Minister of Indian and Northern Affairs Canada, 2010, QS-N055-000-EE-A1

Appendix G: **Task 3: Background Research and "Best Practices"**

Date	***Mtg Location***	***Who***	***Position and/or Organization***
June 22	Langruth	Harold Westdal et al	Meeting of the Lake Manitoba/Lake St. Martin Regulation Review Committee
June 22	Winnipeg/ Langruth	Cheryl Smith	President, Association of Lake Manitoba Stakeholders
July 9	Winnipeg	Ralph Sanders	Former Interlake Planner (retired)
July 10	Winnipeg	Steve Topping	Executive Director, WS Regulatory & Operational Services
July 16	Selkirk	Lloyd Talbot	Manager, Selkirk & District Planning Area Board
		Don Forfar	Reeve, RM of St. Andrews
		Steve Strang	Reeve, RM of St. Clements
July 19	Winnipeg	Linda McFadyen	Deputy Minister, Manitoba Local Government
July 20	Selkirk	Ottillie Murray	Acting Regional Manager, Community and Regional Planning Manitoba Local Government
July 21	Winnipeg	Harold Westdal et al	Meeting of the Lake Manitoba/Lake St. Martin Regulation Review Committee
July 25	Winnipeg	Brad Allum	Development Review Officer, Water Control System Management, MIT
July 26	Gimli	Nancy Thom	Chief Administrative Officer/Development Officer, Eastern Interlake Planning District
		William (Bill) Barlow	Manitoba Water Council
		Harold Foster	Reeve, RM of Bifrost
		Danny Luprypa	Councillor and Public Works Chairman, RM of Gimli
		Ovide Ouellette	Public Works Foreman, RM of Gimli
		John W. Arthur	Arthur Consulting
		Sergio Botero	Syntex
August 2	Winnipeg	Lisette Ross	Senior Wetland/Upland Specialist, Native Plant Solutions, Ducks Unlimited Canada
August 2	Winnipeg	Eugene Kozera	Director, Water Control System Management, MIT
August 8	Winnipeg	Julie Turenne-Maynard	Executive Director, Rivers West Red River Corridor Inc.
August 8	Winnipeg	Michael Teillet	Manager, Sustainable Development Programs, Manitoba Pork (and Former MB Director of Community and Regional Planning Branch - retired)
August 15	Gimli	Peter Isaac	Isaac and Denchuk Surveyors
August 28	Winnipeg	Wayne Hildebrand	Manager, Watershed Planning and Programs Section, MCWS
	Winnipeg	William Weaver	Environmental Review Officer, Planning and Coordination,
September 19	Winnipeg	Wayne Hildebrand	Manager, Watershed Planning and Programs Section, MCWS
		Rhonda McDougal	Director, Planning and Coordination, MCWS

Appendix H:

LAKE MANITOBA AND LAKE ST.MARTIN REGULATION REVIEW COMMITTEE

Report on the Land Use and Flood Mitigation Workshop

Held on Monday, July 30, 2012 at the

Canad Inn, 2100 McPhillips Street, Winnipeg, Manitoba

McKAY FINNIGAN & ASSOCIATES

Table of Contents

I. Introduction

The Lake Manitoba and Lake St. Martin Regulation Review Committee commissioned McKay Finnigan and Associates to undertake a study to review land-use policies and zoning criteria relative to areas around the water bodies that are vulnerable to flooding. As part of this study, a half-day workshop was held in Winnipeg on Monday, July 30th, 2012. It was attended by members of the Steering Committee for the study, specialists in land use planning/regulations, representatives from the affected First Nations communities and rural municipalities, representatives of the Flood Review Task Force, and members of the Lake Manitoba and Lake St. Martin Regulation Review Committee (see Appendix A for the list of those who attended).

This report provides an overview of the workshop and its proceedings.

II. Objectives and Approach to Workshop

Referring to the agenda (a copy of which is included in Appendix B), Harry Finnigan of McKay Finnigan and Associates outlined the objectives of the workshop as follows:

- To review information gathered and lessons learned through the study to date.
- To learn from experience elsewhere – including "best practices" locally, nationally and internationally; and
- "To think outside the proverbial box".

He explained that all in attendance were given assigned seating so that they would be "outside of their general comfort zone" and more likely to meet other Manitobans and thus share a diversity of thoughts and opinions. He referred to the hand-out titled "The Debaters" (see Appendix E), noting that it had been prepared to guide small group discussions which would be taking place later in the workshop. Mr. Finnigan explained that it was intended to encourage everyone to be open to new ideas and to consciously think about the pros and cons of a particular issue or idea as it is presented through the workshop.

III. Background Information on Lake Manitoba and Lake St. Martin Regulation Review Committee

Harold Westdal, Chair of the Lake Manitoba and Lake St. Martin Regulation Review Committee, provided a brief explanation of the terms of reference of the committee and the reasons for the land use planning study. He also provided an overview of feedback received early on in the study from representatives of First Nations and rural municipalities.

IV. Manitoba/Canadian Experience and Context

Michael McCandless (of McCandless Tramley Municipal Lawyers) provided an overview of the provincial land use planning system and tools currently available to municipal governments in Manitoba when it comes to planning and flooding. He summarized the advantages and constraints of the current system and answered questions from the audience.

Ashlyn Haglund, a city planning student in the Faculty of Architecture at the University of Manitoba, then gave a presentation on the results of her research into how other provinces and the territory of Nunavut in Canada address land use planning and flooding.

A copy of their PowerPoint presentation is included in Appendix C.

V. Approach to the Study and Lessons Learned to Date

Mr. Finnigan provided a summary of the overall approach to the study. He discussed the feedback received during the two meetings held on June 12th with leaders of the affected First Nations communities, and on June 19th with leaders of the affected rural municipalities, as well as the individual meetings with representatives of RMs/Planning Districts in the Red River Valley/Lake Winnipeg area.

As part of the study's findings to date, when it comes to flood control/mitigation, communities typically use a mix of 5 strategies for managing growth and development in flood prone areas:

- Designating Hazard Lands;
- Dedicating Shoreline Reserves;
- Maintaining / Enhancing Shoreline Vegetation;
- Defining Flood Protection Levels; and
- Establishing Setbacks from Water Bodies

It was noted that all of the R.M.s in the Red River Valley/Lake Winnipeg area and Lake Manitoba/Lake St. Martin area address each of these 5 strategies to varying degrees in their respective development plans and zoning by-laws. It was noted that the consulting team was planning to meet with First Nations communities in the coming month and officials at AANDC toward the end of August.

Mr. Finnigan provided detail on lessons learned from the study to date, including various changes in policies/practices now being followed as a result of the 1997 "flood of the century" (including the introduction of "Designated Flood Areas"). He also outlined some of the on-going challenges being faced by municipalities and planning districts.

Among other things, he noted there seems to have been very few past initiatives taken to coordinate land use planning and development between adjacent rural municipalities and First Nations communities. Similarly, there seems to be little coordination taking place between neighbouring municipalities when it comes to drainage (e.g. large pipes terminate at their boundary with additional water simply spilling onto the neighbouring jurisdiction).

VI. Meeting the Flood Challenge in the U.S.A.

Christopher Duerksen, of Clarion Associates of Denver, gave a presentation on "New Directions in Floodplain Management Policy and Land Use Regulation" in the U.S.A. (see copy in Appendix D). He provided an overview of the nationwide impact of flooding and the lessons learned from the U.S. perspective. Mr. Duerksen described legislation introduced to try to address the various issues and outlined some of the challenges still being faced across the country. Finally, examples of best practices were described, including the "No Adverse Impact" approach currently being promoted by the Association of State Floodplain Managers.

In response to questions Mr. Duerksen noted that climate change as well as water control structures have had an impact on flooding in the U.S. – referring to communities around the Mississippi River as examples. He also noted that the Federal Emergency Management Agency (FEMA) is responsible for flood zone mapping and all municipalities base flood preparation and planning on this data which is provided to them at no cost. While all data and development controls to date have been based on the 1 in 100 year flood, consideration currently is being given to a different standard; such as 1 in 200 year flood.

VII. Small Group Discussions (the 'Debaters')

Participants were asked to stay in their assigned seats while combining tables to form three discussion groups. All were provided with a small group discussion form (see Appendix E) to assist them in considering any of the ideas/concepts which were presented at the workshop. All were encouraged to try to take an open-minded approach to discussing both why a particular idea/concept might work, and also why it might <u>not</u> work in Manitoba – i.e. to take a "debaters" approach to a topic/idea/concept.

Report Back: Group #1

Instead of listing 'pros', this group preferred the term 'desirable features' and listed them as follows:

- All municipalities will need to revisit their current development plans. Revisions should include flood mitigation.
- A holistic approach is needed when addressing planning and floods.

- Cross-compliance measures are needed – e.g. a development should meet guidelines in order to be eligible for Emergency Measures Organization (EMO) programs.
- Need for fair and equitable treatment (e.g. flooded agricultural lands should be considered).
- Multi-pronged approach needed as there is no single solution to the issue.
- Need to send right signals regarding what are 'right' versus 'wrong' land use practices (e.g. when it comes to wetlands/drainage).
- Convincing others there exists a collective responsibility through awareness and education.
- Need for greater level of social responsibility and a greater level of accountability at both the individual and jurisdictional levels.
- Conservation districts need to play a bigger role in Manitoba (e.g. developing and enforcing watershed plans).
- Conservation Districts and First Nations need to work closer together.
- Establish more protected areas.
- Need to provide incentives as a tool to reward landowners who maintain water retention areas.
- Distributive storage (i.e. everyone accepts responsibility).

The following are the 'cons' identified by the group:

- Need for a mechanism, or strategy, to better consult with First Nations.
- Planning policies need to be more specific to ensure implementation.
- Currently there is a lack of good data in place on which to base planning decisions.
- Involvement of federal government at the front-end is needed – e.g. in flood zone contour mapping.
- Limitations of cross-jurisdictional watershed planning.
- Limitations of Conservation Districts that do not have the authority to ensure plans are implemented.
- The Act regarding Conservation Districts needs to be rewritten to recognize formal engagement with First Nations and ensure the retention of wetlands.
- Institutional complexities. Need for greater integration between development plans and watershed management plans.

Report Back: Group #2

This group agreed with all the points mentioned by group #1. The following are additional listed 'cons' regarding the existing situation:

- Many variables resulting in confusion. Need to understand where to start in a productive way.
- Ensure all parties are involved in planning.
- Change existing political structures or boundaries for more effective land management based on watersheds.
- Need for greater resources to administer or enforce flood planning/regulations.

Report Back: Group #3

The following are ideas or concepts and include the associated 'pros' and 'cons':

1) The boundaries for planning districts should be based on natural watersheds.
   Pros:
   - Better able to consider factors like climate change
   - Planning boundaries then based on natural geographic boundaries and considerations can then be given to cumulative impacts.
   - Removal of political influence
   - Way of introducing more technical/professional resources

   Cons:
   - Lack of awareness of local conditions
   - Removes decision-making from elected officials at the municipal level.
   - Higher/additional costs likely.

2) Flood protection policies should reflect local landscape as "one size does not fit all".
   Pro – can better apply policies to local circumstances
   Pro – Recognizes the differences between environments (e.g. river valley is fundamentally different than a lake environment).

3) Single agency to map flood zones and adopt minimum standard and legislation.
   Pro – Ensures professionalism and consistency.
   Con – Accuracy can be difficult to achieve. Existing maps have not been adopted or used and there is a need for enforcement and financial resources.

4) Include all jurisdictions in developing and enforcing land use policies and develop a communication protocol that is automatic.
   Pro – Ensures all parties are at the table.

VIII. Concluding Remarks

Mr. Finnigan thanked all those who participated in the workshop and commented on how the issue as a whole is highly complex and challenging. He explained that a report from this workshop would be made available as part of the Final Report on the study. He noted that the next steps will involve meetings with First Nations and municipalities (scheduled to occur in August).

IX. Appendices

Appendix A – List of Attendees

LAKE MANITOBA / LAKE ST. MARTIN - LAND USE POLICIES AND ZONING CRITERIA STUDY
ATTENDANCE - JULY 30, 2012

NAME	ORGANIZATION
Louis Allain	CDEM
Brad Allum	Province of Manitoba, Infrasturcture and Transportation
Chief Gerald Anderson	Little Saskatchewan First Nation
John Arthur	Arthur Consulting
Jim Birrell	R.M. of Grahamdale
Greg Bruce	Ducks Unlimited
Lana Cowling-Mason	R.M. of Woodlands
Scott Forbes	Association of Lake Manitoba Stakeholders
Don Forfar	R.M. of St. Andrews
Harold Foster	R.M. of Bifrost
Kristin Hayward	Province of Manitoba, Conservation and Water Stewardship
Wayne Hilderbrand	Province of Mb. / Surface Water Management Strategy
Azharul Hogue	Province of Manitoba, Infrasturcture and Transportation
Peter Isaac	Isaac & Denchuk Manitoba Land Surveyors
Darryl Jackson	2011 Flood Review Task Force
Eugene Kozera	Province of Manitoba, Infrasturcture and Transportation
Virginia Lukiranchuk	Sandy Bay First Nation
Danny Luprypa	R.M. of Gimli
Garry McLean	Lake Manitoba / Lake St. Martin Regulation Review
Cherie Millan	West Interlake Planning District
Gary Morlock	Lake Manitoba / Lake St. Martin Regulation Review
Ottilie Murray	Province of Manitoba
David Neufeld	Province of Manitoba, Local Government
Lisette Ross	Ducks Unlimited
David Single	R.M. of Westbourne
Cheryl Smith	Lake Manitoba / Lake St. Martin Regulation Review
Emery Stagg	Lake Manitoba / Lake St. Martin Regulation Review
Erin Shay	Province of Manitoba, Conservation and Water Stewardship
Amanda Stevenson	R.M. of Coldwell
Lloyd Talbot	City of Selkirk, Planning
Mike Teillet	Manitoba Pork
Philip Thordarson	R.M. of Lakeview
Steve Topping	Province of Manitoba, Infrasturcture and Transportation
Fisaha Unduche	Province of Manitoba
Don Walsh	Lake Manitoba / Lake St. Martin Regulation Review
Harold Westdal	Lake Manitoba / Lake St. Martin Regulation Review
WORKSHOP TEAM MEMBERS	
Chris Duerksen	Clarion Associates
Harry Finnigan	McKay Finnigan and Associates
Shaun Finnigan	McKay Finnigan and Associates
Ashlyn Haglund	University of Manitoba
Brian Henderson	McKay Finnigan and Associates
Michael McCandless	McCandless Tramley

Appendix B – Workshop Agenda

LAKE MANITOBA AND LAKE ST. MARTIN REGULATION REVIEW COMMITTEE

Land Use Planning and Flood Mitigation Workshop

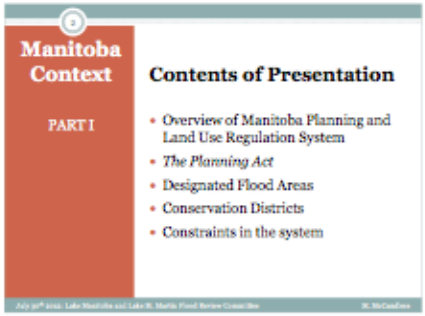
Monday, July 30, 2012

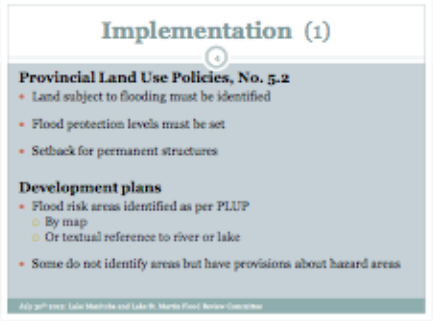
(Canad Inn, 2100 McPhillips Street)

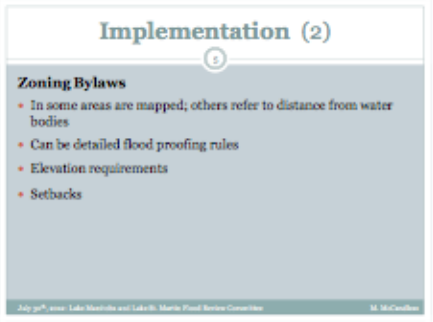
Agenda

	Time Guide
1. Registration and Refreshments	3:15 p.m.
2. Introductory Remarks, Background, Objectives and Approach to the Workshop Harry Finnigan, McKay Finnigan and Associates	3:30 p.m.
3. Background Information on Regulation Review Committee Harold Westdal, Chair, Lake Manitoba and Lake St. Martin Regulation Review Committee	3:45 p.m.
4. Approach to the Study and Lessons Learned to Date Harry Finnigan, McKay Finnigan and Associates	3:55 p.m.
Experience in Manitoba and Elsewhere	
5. Canadian/Manitoba Experience and Context Michael McCandless, McCandless Tramley and Ashlyn Haglund, University of Manitoba **Q&A** *4:50 – 5:00 p.m.*	4:15 p.m
6. New Directions in Floodplain Management Policy and Land Use Regulation in the U.S.A.: Christopher Duerksen, Clarion **Q&A** *5:20 – 5:30 p.m.*	4:45 p.m.
7. Dinner/Buffet	5:30 p.m.
8. Summary of Lessons Learned So Far Harry Finnigan, McKay Finnigan and Associates	5:55 p.m.
9. Small Group Discussions: "The Debaters" (Brainstorm – Issues, Challenges, and Opportunities)	6:05 p.m.
10. "The Debaters" Report Back (Alternative Approaches)	6:45 p.m.
11. Concluding Remarks (Next Steps in the Study) Harry Finnigan, McKay Finnigan and Associates	7:15 p.m.
12. Adjournment	7:30p.m.

Appendix C: Presentation by Michael McCandless, McCandless Tramley and Ashlyn Haglund, University of Manitoba







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Conservation Districts

Conservation Districts Act

18 in the Province, including West Interlake and East Interlake

Usually based on drainage basin or river watershed

Board of RM member appointed, plus provincial appointees

Develop Integrated Resource Management Plan

Implement schemes, construct works

No regulatory authority

8

Jurisdictional Complexity

Planning Districts and watersheds do not align

The legacy effects of lines created by the treaties also complicate collaborative planning.

Below the line
Treaty 1 Territory (1871)

Above the line
Treaty 2 Territory(1871)

Pale Green near top
Treaty 5 Territory
(1875)

Planning Act System - Advantages

9

- **Complete system**, implementing provincial policies on the ground, as adjusted to local conditions...
- Provides all the tools needed for planning and land use regulation for flood protection purposes

Planning Act System Comments and Constraints (1)

10

(1) Provincial interest in flood protection

- Protected indirectly, with local implementation and administration
- Requires monitoring, appeal of local zoning to Municipal Board, turning down subdivision applications approved by municipalities (or appealing to Municipal Board)
- Implementation is a slow process

(2) Capacity of municipalities and planning districts for planning, administration and enforcement

- Underfunded
- Trained and experienced people hard to find
- Hard to say no, hard to go after violators

Planning Act System Comments and Constraints (2)

11

(3) Regional planning

- Planning district boundaries are not related to logical areas for planning, especially for flood protection
- Regional planning is voluntary

(4) First Nations

- First Nations are underfunded and unable to participate in regional planning efforts
- Development on reserves can affect land outside, and vice versa
- No legal or institutional tools for cooperation and coordination

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Canadian Context

Part II

Contents

Strategies by Province

Authority and Tools

Creation of the World, Daphne Odjig (1972)
Manitoba Museum of Man and Nature Collection

British Columbia

Each year flooding causes approximately $10 million in damages

Significant community consultation lead to the BC Flood Hazard Area Land Use Management Act that informs local decisions

Move to Greater Local Authority

- Legislative changes to the Land Title Act, Local Government Act and other statutes in 2003/2004 granted local governments land use authority to manage land in flood hazard areas.
- Removed BC Ministry of Environment approval from subdivisions and floodplain bylaws within hazard areas.

Most Common Tools

Floodplain mapping - Official Community Plans
Zoning - Registration of Covenant

Alberta

Push to Regional Planning

"Balancing economic growth with social and environmental goals.."

The Land-use Framework Stewardship Act (2008):
7 strategies for improving land-use decision making.

1. **7 new land-use regions - 7 regional plans**
2. Create Land Use Secretariat and Regional Advisory Council for each region
3. "Cumulative Effects Management" will be used at the regional level to manage the impacts of development on land, water and air.
4. Develop a strategy for conservation and stewardship on private and public lands
5. Promote efficient use of land to reduce footprint of human activities
6. Establish an info/monitoring/knowledge system
7. Inclusion of Aboriginal People in land-use planning

Authority

RPs reviewed and approved by Cabinet; have force of law
Municipalities will be required to comply with regional plans in their decision-making.

Saskatchewan

Emphasis on Local Responsibility:

"Municipalities or landowners may also contract an engineering consultant to determine safe building elevations and building sites..."

The Planning and Development Act (2007) requires new official community plans to contain policies to address the management of lands subject to natural hazards, including flooding, slumping and slope instability.

- **Zoning bylaws** allow municipalities to limit development on potential hazard lands to minimize risks and protect the environmental integrity of the flood plain.
- A municipality without planning bylaws may consider adopting an **interim development** control bylaw to manage development in flood plain areas until an official community plan and zoning bylaw can be adopted.
- The **Saskatchewan Watershed Authority** (SWA) can provide municipalities and landowners with flood protection information and guidance on historical flood data as it relates to land development.
- **A very site specific approach**: inconsistent across the province...albeit there is greater accuracy where floodplain mapping and other technical data has been gathered.

Ontario

Dramatic changes due to the shifting balance between the provincial and municipal roles, the creation of **regionally based land use plans**, and growth plans to encourage urban intensification.

Authority

Conservations Authorities work with municipalities and can regulate where municipal plans have not been updated and where the municipal plan may allow the activity.

The Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (1997) intent was to "be consistent" across Ontario and "streamline approvals."

CAs can:

- Prohibit, regulate or provide permission for interfering in any way with the existing channel of a river, creek, stream, watercourse or wetland.
- Prohibit, regulate or provide permission for development if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be effected by the development.

New Brunswick

On Return Periods:

"If a 1 in 100 year flood level is reached, it does not mean that the same level should not be expected for another 100 years. It could happen again the next year."

A "Preventative Approach"

Authority

Local municipal councils are responsible under the New Brunswick Community Planning Act.

Flood Risk Mapping

Environment Canada and Environment NB have produced flood risk maps and technical data. They are responsible for managing and updating this public resource.

Tools

Zoning Bylaws, building codes and subdivision regulations are used to control and direct land use. A move towards public ownership and limitations that reserve new development to agricultural use, parks, recreation areas and parking lots are being implemented.

Nova Scotia

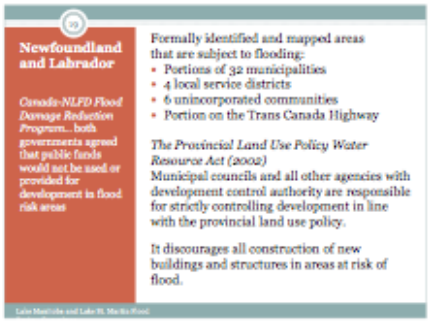
Five river floodplains have been identified as Flood Risk Areas under the Canada-Nova Scotia flood Damage Reduction Program.

Within the "Floodway"

- Development must be restricted to uses such as roads, open space, utility and service corridors, parking lots, and temporary uses
- The placement of off-site fill must be prohibited

Within the Floodway Fringe

- Development (flood proofed) may be permitted, except for residential institutions (hospitals, senior housing, etc.
- Expansion of existing uses must be balanced against impact upstream and downstream – and must not increase area of structure at or below flood proofing elevation
- Any use associated with warehousing or the production of hazardous materials
- Off-site fill limited to that required for flood proofing or flood risk management level


19
Newfoundland and Labrador
Canada-NLFD Flood Damage Reduction Program... both governments agreed that public funds would not be used or provided for development in flood risk areas
Formally identified and mapped areas that are subject to flooding:
• Portions of 32 municipalities
• 4 local service districts
• 6 unincorporated communities
• Portion on the Trans Canada Highway
The Provincial Land Use Policy Water Resource Act (2002)
Municipal councils and all other agencies with development control authority are responsible for strictly controlling development in line with the provincial land use policy.
It discourages all construction of new buildings and structures in areas at risk of flood.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Land Use Planning in Nunavut
New Land and Resource Management Institutions in the far North
The Nunavut Planning Commission (NPC) was Established under the Nunavut Land Claims Agreement (NLCA) to Develop land use plans for Nunavut, outside of municipal boundaries.
Authority: The NLUP must be approved by NTI, the Regional Inuit Associations, the GN, and the Government of Canada. Once approved, only activities that conform to the Plan may proceed.
• Taking into account the interests of all Canadians - NPC devotes special attention to protecting and promoting the existing and future well-being of Inuit and Inuit Owned Lands. NPC also gives great weight to the views and wishes of municipalities.
• NPC develops land use plans through years of consultation and research with communities, Government, Inuit organizations, industry, and non-government organizations.
• NPC has approved plans for only 2 of the 6 planning regions in Nunavut. This process is just beginning.

Appendix D: Presentation by Christopher Duerksen, Clarion

Meeting the Flood Challenge: New Directions In Floodplain Management Policy and Land Use Regulation

Presented By:
Christopher Duerksen
cduerksen@clarionassociates.com
303-830-2690
CLARION

Lake Manitoba and Lake Martin
Regulation Review Committee
July 31, 2012

Session Agenda

- Flood Hazard Land Use Planning and Regulations: USA Overview and Best Practices
  - Chris Duerksen, Senior Counsel, Clarion Associates

Flood Hazards: What, Me Worry??

- 10 million homes in USA at risk from flooding and 2 million from coastal storm surges.
- USA National Flood Hazard Policy
  - 44 years experience with comprehensive national system
  - Cautionary Tale: Mistakes to avoid in land use planning and regulations to mitigate flood damage
- Good News: Local govts. in USA adopting innovative flood hazard best practices

Flood Hazards: Lessons Learned

- Ask casualty insurance companies what they would insure and at what cost.
- Avoid minimum nat/state floodplain regulatory standards from becoming default or maximums
- Do not allow local govts. and land owners to become financially disconnected from the consequences of their decisions to build in floodplain
- Compare costs of avoidance (e.g., non-development) with potential flood-related damages
- Keep regulatory systems simple in rural areas

The Challenges Of Flood Hazard Planning and Regulation

- Local flood hazard data wrong or inconclusive
- Potential climate change impacts—violent storms and increased flooding
- Differing community contexts and resources (urban, rural)
- Lack of political will power to restrain development in hazard areas
- Multiple local/state/federal agencies

The Legal Framework For Addressing Natural Hazards in the USA

- National Flood Insurance Act of 1968 (42 USC 4104c)
- Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.)
- Clean Water Act (33 USC 403; 1251)—Dredge and fill and storm water control

The Legal Framework For Addressing Flood Hazards

- National Flood Insurance Act of 1968 (42 USC 4104c)
  - Created National Flood Insurance Program. Federal govt. makes available flood insurance (prior to that, private insurers would not offer insurance for development in floodplain)
  - Floodplains mapped by FEMA/states
  - Communities adopt/enforce a floodplain management ordinance approved by FEMA.
  - Development typically allowed if elevated one foot above base flood elevation.

The Legal Framework For Addressing Flood Hazards

- Six-fold increase in annual flood damage from 1900 to 2007 despite billions spent on structural flood control
- Flood damage costs taxpayers $200 million annually and $38 billion in claims since 1978
- Coastal Barrier Resources Act precludes federal flood insurance for new/improved structures on barrier islands
- State Association of Floodplain Managers are advocated a significantly different approach: "no adverse impact"
- Some local jurisdictions taking steps to go beyond minimal standards of NFIP (more to come)

The Legal Framework For Addressing Climate Adaptation And Natural Hazards

- Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.)
  - State and local govts. required to develop hazard mitigation plans (Sec. 322) as condition for receiving non-emergency disaster assistance.
  - Risk-based approach to reducing natural hazards through mitigation planning
  - 44 CFR 201 sets out FEMA policies and procedures for mitigation planning. Must...
    - Incorporate open public process
    - Identify risks and vulnerabilities
    - Describe actions to mitigate hazards and risks
    - Establish implementation strategy and update process
  - Grants available for local plans

The Legal Framework For Addressing Climate Adaptation And Natural Hazards

- Section 404 of the Clean Water Act (33 USC 403)
  - Grants Corps of Engineers and US EPA authority to regulate dredging and filling associated with navigable waters and coastal zone.
  - Helps reduce loss of wetlands and dunes that buffer communities from storm surges and floods
- Clean Water Act (33 USC 1251)
  - Requires construction erosion and sediment control programs and post-construction runoff regulations. Helps reduce flooding.
  - Opportunities for use of "green" infrastructure and preservation of native vegetation

"No Adverse Impact"— Sample Best Practices At Local Level

- Ft. Collins, CO
  - Deadly floods in 1997 on Poudre River
  - No floodway rebuilding or alteration
  - 2-foot floodproofing freeboard
  - No variances in flood corridor; no residential additions to existing structures
  - Floodplain property acquisition by stormwater utility on willing seller basis; site revegetation
- Lake County, IL
  - Twice federal and six times state flood disaster area
  - 1.2/1.0 compensatory storage for any fill in floodplain
  - Adequate downstream capacity requirement
  - Two-foot floodproofing freeboard
  - Green infrastructure stormwater management (bioswales, etc.)

"No Adverse Impact"— Sample Best Practices At Local Level

- Village of South Holland, IL
  - Repeated slow rising and slow receding floods from Calumet River
  - Tree and vegetation protection
  - Financial cost sharing with homeowners to retrofit homes
  - Stone quarry adapted for flood water storage
- Town of South Shores, NC
  - Serious threat of coastal flooding from hurricanes
  - Comprehensive hazard identification and mapping
  - Two-foot freeboard required and no basements allowed in special flood hazard area
  - Dune and wetland protection regulations

Best Practices: National Climate Adaptation Handbook

U.S. EPA-Sponsored Project

- **Project Team:**
  - Kate Marshall, SRA Intl.
  - Chris Duerksen, Clarion
  - Link Walther, CSA Intl.
  - David Eisenberg, DCAT
- **Focus on pre-disaster hazard mitigation planning**

Getting Started: Vulnerability Planning Basics

- Scope possible hazard impacts
- Identify vulnerable areas and conduct vulnerability assessment
- Risk assessment
- Prioritize planning areas

Flood Hazard Planning: The Smart Growth Connection"

- Hazard mitigation and climate adaptation planning are a natural extension of sustainable/smart growth land use planning
- Focus on use of existing proven smart growth tools for hazard mitigation planning
- **Three primary categories of approaches:**
  - Protect vulnerable areas from development
  - Protect people and assets in vulnerable areas
  - Encourage sustainable development in appropriate, less-vulnerable areas

#1: Protect Vulnerable Areas From Development

Identify areas in the community that:

- Are undeveloped (e.g., floodplains, lake shorelands, wildlife habitats) and
- Have a higher vulnerability and risk due to predicted hazards (violent storms, flooding, lake-level rise)

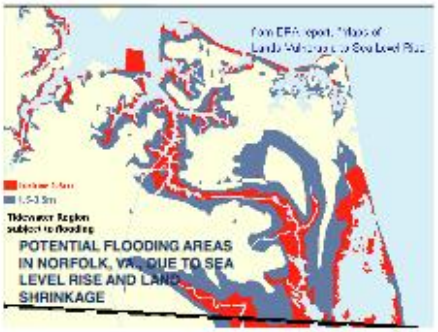
#1: Protect Vulnerable Areas From Development

Menu of local tools to protect vulnerable areas:

- Evaluate and adjust development incentives provided in vulnerable areas (sewer extensions, road construction, etc.)
- Purchase and transfer of development rights
- Establish fund to purchase/acquire land in vulnerable areas
- Adopt protective regulations for vulnerable areas (e.g., coastal and riparian setbacks)

#2: Protect People And Assets in Vulnerable Areas

- Identify vulnerable areas in the community
- Traditional approaches:
  - Engineered protective structures
  - Retrofitting buildings
  - Relocating people, infrastructure, buildings



#2: Protect People And Assets In Vulnerable Areas

Supplement with smart growth approaches:

- Adopt green stormwater management approaches (e.g., impervious surface reduction, rain gardens)
- Update zoning and building codes to address risks (e.g., increased riparian setbacks)

#2: Protect People And Assets In Vulnerable Areas

Smart growth approaches will supplement:

- Adopt new building code requirements (e.g., do not allow HVAC equipment in basements)
- Amend non-conforming use regs to allow safer, sustainable redevelopment in vulnerable areas
- Use non-structural flood mitigation measures for buildings in floodprone sites (e.g., parkland acquisition)

#3: Encourage Development In Appropriate, Less-Vulnerable Areas

- Identify areas in the community expected to be less vulnerable to climate change—compare with areas prioritized for future development
- Select most appropriate areas balancing vulnerability with economic and other factors--encourage development there.

#3: Encourage Development In Appropriate, Less-Vulnerable Areas

- Target transit-oriented development/infill areas
- Adopt tailored development standards for preferred development areas
- Upgrade building code requirements
  - Create incentive programs tied to voluntary higher standards
  - Consider adopting stretch codes (International Green Construction Code)
- Incorporate passive survivability into new projects (e.g., passive heating/ ventilation, water harvesting, solar)

Selected References

- National Flood Insurance Program: FEMA has many publications dealing with flood hazard planning and mitigation. See generally– http://www.fema.gov/business/nfip/
- Stafford Disaster Relief Act: For an overview of the basic of local hazard mitigation planning, http://www.fema.gov/library/viewRecord.do?id=1862 For an excellent guide to post-disaster planning, see "Post-Disaster Redevelopment Planning: A Guide for Florida Communities." (2010) http://www.floridadisaster.org/recovery/documents/Post%20Disaster%20Redevelopment%20Planning%20Guidebook%20Lo.pdf

Selected References

- U.S. EPA, "Sustainable Communities Climate Adaptation Guidebook." (Forthcoming Fall 2012)

Appendix E: Small Group Discussion Handout

Small Group Discussions: "The Debaters"

WHEREAS through this Workshop, we have been provided with an update on the land use planning study currently underway, given a presentation on the approach taken with regards to land use planning as it relates to flood mitigation in the United States, looked closely at how Manitoba addresses these issues, and had a glimpse of how other provinces deal with them,

THEREFORE be it resolved that . . . . . .

PRO	**CON**
. . . . . the following lessons learned are useful and could help improve land use planning/regulations in Manitoba for the future and here's why: (list policies/approaches that make sense and why they might work)	. . . . . the following lessons learned are not at all useful and here's why they will not work in Manitoba : (list policies/approaches and why they won't work)

NAI—No Adverse Impact Floodplain Management

Background

Flood damage in the United States continues to escalate. From the early 1900s to the year 2007, flood damage increased six-fold, and now averages over $6 billion annually, even when Hurricanes Katrina, Rita, and Wilma (2005) are not included. This has occurred despite the investment of billions of dollars in structural flood control and the application of many other structural and non-structural measures over these many decades. Even in the face of increasing flood losses, we continue to intensify development, and to do so in a manner in which flood-prone or marginally protected structures suddenly become susceptible to damage because the actions of others in and around the floodplain and watershed have worsened the flood hazard.

Current national standards for floodplain management allow development activity to divert flood waters onto other properties; to reduce the size of natural channel and overbank conveyance areas; to fill essential valley storage space; and to alter water velocities—all with little or no regard for how these changes affect other people and property in the floodplain or elsewhere in the watershed. The net result is that our own actions are intensifying the potential for flood damage. The current course is one that will result in continually rising costs over time, is not equitable to those whose property is affected, has been shown to be economically and environmentally unsustainable, and is a pattern of conduct generally not supported by the courts.

Over the past 50 years a system has developed through which local and individual accountability has been supplanted by federal programs for flood control, disaster assistance, and tax incentives that encourage and subsidize floodplain occupation and development. Although future funding for projects and programs of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, and other federal agencies will fluctuate, the general pattern of federal disaster response has become firmly entrenched and is not likely to change in the foreseeable future. At the same time, the minimum floodplain management standards of the National Flood Insurance Program have been accepted by many as the default standards for communities, even though they were designed for the purposes of an insurance program and not necessarily to control escalating flooding. In view of this nationwide system of federal programs, it is not surprising that many local governments assume that the minimum NFIP standards provide acceptable flood protection and also allow themselves to become financially disconnected from the consequences and impacts of their land use decisions. The result is that the burden of those impacts—increased flood damage and flood disasters—is transferred from those who make (and benefit from) the local decisions about land use to those who pay for the flood disaster—principally the federal taxpayers.

No Adverse Impact floodplain management offers local governments a way to prevent the worsening of flooding and other negative impacts on the community—right now. Although some state and local governments may have abandoned their responsibilities for protecting public health, safety, and welfare in the face of flood hazards, most simply have assumed that

the federal programs represent an acceptable standard of care. They perhaps do not realize that these very approaches can induce additional flooding and damage within their communities. No Adverse Impact principles give communities a way to promote *responsible* floodplain development through community-based decision making. With the No Adverse Impact approach, communities will be able to put federal and state programs to better use—enhancing their local initiatives to their communities' advantage. No Adverse Impact floodplain management empowers the community (and its citizens) to build better informed "wise development" stakeholders at the local level. It is a step towards individual accountability because it prevents increases in flood damage to other properties. No Adverse Impact floodplain management helps communities identify the potential impacts of development and implement action to mitigate them before the impacts occur.

No Adverse Impact Floodplain Management Defined

"No Adverse Impact Floodplain Management" is a managing principle that is easy to communicate and, from legal and policy perspectives, tough to challenge. In essence, ***No Adverse Impact floodplain management takes place when the actions of one property owner are not allowed to adversely affect the rights of other property owners.*** *The adverse effects or impacts can be measured in terms of increased flood peaks, increased flood stages, higher flood velocities, increased erosion and sedimentation, or other impacts the community considers important.* The No Adverse impact philosophy can shape the default management criteria: a community develops and adopts a comprehensive plan to manage development that identifies acceptable levels of impact, specifies appropriate measures to mitigate those adverse impacts, and establishes a plan for implementation. No Adverse Impact criteria can be extended to entire watersheds as a means to promote the use of regional retention/detention or other stormwater techniques to mitigate damage from increased runoff from urban areas.

The No Adverse Impact approach will result in reduced flood damage. However, its true strength is seen when proposed development actions that would affect local flooding or the property rights of others are permitted only when they are in accord with a locally adopted plan that identifies the negative impacts the community wishes to avoid and/or mitigate. The plan could be specific to flood damage or be quite robust, encompassing related objectives such as water quality protection, groundwater recharge, or the management of stormwater, wetlands, and riparian zones. Because it is a local initiative, an NAI-based plan removes the mentality that floodplain management is something imposed by the federal government. Instead, it promotes local accountability for developing and implementing a comprehensive strategy and plan. With the flexibility to adopt comprehensive, locally tailored management plans (which would be recognized by FEMA and other federal programs as the acceptable management approach in that community) the community gains control of its land use decision-making process and is supported in adopting innovative approaches it considers appropriate for its situation.

No Adverse Impact management makes sense, and it is the right and legally appropriate thing to do. Too often our discussions on development approaches turn into arguments over the range of application and the effect these approaches may have on those who choose to encroach upon the floodplain. To reduce future costs and inequities, we must change this perspective. We must take a management stance that prevents any development activity from imposing additional flood impacts on other properties and also frees communities to manage flood hazards and development through comprehensive local plans, thus protecting the property rights of the entire community.

Conclusion

This central message—that we are continuing to induce flood damage even while enforcing the minimum standards of the NFIP—has not been communicated effectively. The message has been lost in part because the floodplain management community has spent too much time debating individual issues instead of stepping back to evaluate the cumulative impact of all the management approaches being applied throughout the nation's watersheds. Current management systems to reduce flood losses are costly and often allow development that fails to evaluate or mitigate both current and future adverse impacts on other properties. The No Adverse Impact approach will lead to reduced flood losses throughout the nation while promoting and rewarding strong water stewardship and mitigation at the local level.

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For more information, the ASFPM can be contacted at (608) 274-0123. Full copies of the ASFPM documents on flood policy, including many published articles on No Adverse Impact, *NAI and the Courts: Protecting the Property Rights of All*, the *NAI Toolkit*, the *Coastal NAI Handbook,* and other publications, can be downloaded free of charge at http://www.floods.org.

Appendix J: Task 4: Meetings with First Nations, Planning Districts and Rural Municipalities

Date	*Mtg Location*	*Who*	*Position and/or Organization*
August 16	Sandy Bay	Sandy Bay First Nation	
		Irvin McIvor	Chief
		Stanford Roulette	Councillor
		Lance Roulette	Councillor
		Virginia Lukianchuk	EMO Team Health
		Josh Roulette	EMO Team Band
		Anthony Martin	Chairman Council of Elders
		Laurent Desmerais	Council of Elders
		Nick Lukianchuk	Public Works Supervisor
August 21	Portage la Prairie	RM of Portage la Prairie	
		Kam Blight, Reeve	Reeve, RM of Portage la Prairie
		Daryl Hrehirchuk, CAO	CAO, RM of Portage la Prairie
		Kinelm Brookes	Development Officer, RM of Portage la Prairie
August 21	Woodlands	RM of Woodlands	
		Donald Walsh	Reeve, RM of Woodlands
		Llynn Kauppila	CAO, RM of Woodlands
		Lana Cowling-Mason	Community Economic Dev Officer, RM of Woodlands
August 21	St. Laurent	Western Interlake Planning District	
		Cherie Millar	Office Administrator, Western Interlake Planning District
		Barry Zacharias	Reeve RM of Siglunes
		Brian Sigfusson	Reeve RM of Coldwell
		Derek Johnson	Councillor RM of St. Laurent
		Tom Johnson	Councillor RM of St. Laurent
		Harold Hallson	Councillor RM of Coldwell
		Gail Holmes	Counicllor RM of Eriksdale
		Dennis Skoropata	Councillor RM of Siglunes
August 22	Moosehorn	RM of Grahamdale	
		Diane Price	Reeve, RM of Grahamdale
		Shelly Schwitek	CAO, RM of Grahamdale
		Jim Birrell	Development Officer, RM of Grahamdale
August 24	Langruth	Big Grass Planning District	
		David Single	Reeve, RM of Westbourne
		Philip Thordarson	Reeve, RM of Lakeview

Appendix E: Public Engagement

E1. Meetings and Presentations

Meetings and Site Visits

Date	Description and/or Presenters	Location
Feb. 23	• Presentation by Director of Manitoba Infrastructure and Transportation	Canad Inns Polo Park, Winnipeg
Apr. 4	• Tour of affected properties	Twin Beaches
Apr. 4	• Land Use Planning Presentation by Manitoba Department of Local Government • Chief of Pinaymootang First Nation • Dauphin River Commercial Fisheries Federation	St. Laurent Legion, St. Laurent
Apr. 27	• Tour of affected properties in Langruth area, including Sandy Bay First Nation	Langruth area
Apr. 27	• Fisheries Presentation by Manitoba Conservation and Water Stewardship • Reeve of R.M. of Lakeview • Little Saskatchewan First Nation	Langruth Community Hall, Langruth
May 17	• Tour of affected properties and meetings with representatives of Dauphin River First Nation, Chief and Councillors for • Little Saskatchewan First Nation, Councillor for Pinaymootang First Nation • Presentation by Rick Bowering at Dauphin River First Nation	Dauphin River First Nation, Little Saskatchewan First Nation, and Pinaymootang First Nation
May 18	• Tour of affected properties and meeting with Chief and Councillors for Lake Manitoba First Nation	The Narrows area and Lake Manitoba First Nation
June 7	• Tour of affected properties	Eddystone area
June 7	• Agriculture Presentations by Manitoba Agriculture, Food and Rural Initiatives, Manitoba Beef Producers, Westlake Grazing Club, Arnthor Jonasson and Raymond Larson	Westlake Community Centre, Eddystone
June 12	• Land Use Policies and Zoning Criteria Study: meeting with First Nations	Canad Inns McPhillips, Winnipeg
June 19	• Land Use Policies and Zoning Criteria Study: meeting with Rural Municipalities	Legion, St. Laurent
June 22	• Presentations by Director of Manitoba Infrastructure and Transportation, Rick Bowering, Gordon Goldsborough and McKay Finnigan and Associates	Langruth Community Hall, Langruth

Date	Description and/or Presenters	Location
July 21	• Presentations by Association of Lake Manitoba Stakeholders, Lake Manitoba Flood Rehabilitation Committee, Aboriginal Affairs and Northern Development Canada and Ducks Unlimited	Canad Inns Polo Park, Winnipeg
July 30	• Land Use Policies and Zoning Criteria Study Presentations by Christopher Duerksen, Michael McCandless, and Ashlyn Haglund	Canad Inns McPhillips, Winnipeg
Aug. 30	• Climate Change and Land Use Planning Presentation by Stantec Engineering, Rick Bowering, and McKay Finnigan and Associates	Canad Inns Polo Park, Winnipeg
Sept. 26	• Presentations by Don Kuryk and Manitoba Agriculture, Food and Rural Initiatives	Canad Inns Polo Park, Winnipeg
Oct. 10	• Presentation by McKay Finnigan and Associates	Canad Inns Polo Park, Winnipeg

Open Houses

Date	Location	Attendance (number of people signed in)
Sept. 11	Recreation Centre, St. Laurent	72
Sept. 12	Pinaymootang Arena, Fairford	56
Sept. 13	Centennial Hall, Ashern	38
Sept. 18	PCU Centre, Portage La Prairie	85
Sept. 19	Community Hall, Langruth	38
Sept. 20	Community Hall, Toutes Aides	15
Sept. 26	Canad Inns Polo Park, Winnipeg	72

Appendix E2: What We Heard Report

Over the course of the public engagement period, the Committee heard from a large number of people with an interest in or knowledge of lake level regulation and related topics. The consultation process involved multiple components, including a web site, an online feedback form, a municipal survey, meetings, presentations and open houses. Input received ranged from technical presentations to personal experiences and was presented in various formats, including written presentations, comment forms and face-to-face conversations. Presentations made in writing were placed on the Committee's web site.

It was humbling to experience the knowledge, passion and effort that went into the presentations and comments received by the Committee.

The following is a detailed description of what was heard.

1 Sources of Input

1.1 Online Feedback Forms, Open House Feedback Forms and Municipal Government Survey

One of the Committee's key tools for public engagement was a web site (http://www.lakemanitobalakestmartinregulationreview.ca/). The site was launched in early June, 2012, and provided information on the Committee's mandate, members and process. Presentations received by the Committee were also uploaded to the site regularly, making them available for public review. Over the course of the public engagement period, 1,127 people visited the web site.

An important feature of the Committee's web site was an email sign-up tool, which enabled individuals to sign up to receive updates via email regarding the Committee's work. In total, approximately 180 people signed up, either manually through the web site or through open house comment forms, to receive email updates during the public engagement period. Several "email blasts" were sent out during the summer and early fall alerting recipients of, for example, new presentations posted to the web site or upcoming open houses.

LAKE MANITOBA • LAKE ST. MARTIN

REGULATION REVIEW COMMITTEE

Hello, the Lake Manitoba/Lake St. Martin Regulation Review Committee is pleased to announce that dates have been confirmed for several open houses to be held in September.

Open Houses Confirmed:

St. Laurent - Tuesday September 11
Portage la Prairie - Tuesday September 18
Langruth - Wednesday September 19
Winnipeg - Wednesday September 26

- Drop-in format - come and go at any point
- View materials about the Committee's work
- Talk with Committee members
- Provide your input and feedback

Additional information concerning locations and times will be made available and posted on our open house page as it is finalized.

Sample of a segment of a Committee "email blast"

Another significant feature of the web site was an online feedback form. The form contained several questions related to the Committee's terms of reference, as well as a space for general comments. From early June through early October, 121 completed forms were submitted. This provided the Committee with a large volume of information and insight to review and consider. However, it should be noted that, although the form posed questions regarding both Lake Manitoba and Lake St. Martin, the majority of responses were concerned only with Lake Manitoba, and few comments were submitted that were specific to Lake St. Martin. A complete report on the results of the online feedback form is presented in Appendix E4.

Another public engagement tool used by the Committee was an online survey which was distributed to officials from Rural Municipalities and First Nations surrounding Lake Manitoba and Lake St. Martin. As with the online feedback form, the survey contained a variety of questions relating to lake level regulation and land use planning and zoning. In total, 10 completed surveys were submitted, which was a 100 percent completion rate. Although this is a small sample size, the input gathered by the survey was important, as it provided the perspective

of the communities around Lake Manitoba and Lake St. Martin. A detailed report on this survey is presented in Appendix E3.

The other main tool used by the Committee for public engagement was the public open houses. The open houses, details of which are presented in Appendix E1, provided an opportunity for the Committee members to meet face-to-face with members of the public and receive their comments. All but one of the open houses were hosted jointly by the Committee and the 2011 Manitoba Flood Review Task Force, as the two groups coordinated their investigations and activities where possible. Open houses were advertised through a variety of media, including local newspapers, radio stations and web sites. An open house feedback form was distributed to attendees at the open houses. 91 forms were completed and submitted over the course of seven open houses.

Toutes Aides Community Centre: an open house venue

Example of an open house newspaper advertisement

1.2 Presentations & Meetings

From the spring through the fall the Committee held a number of meetings at which they received input via discussions and presentations. Some presentations were technical in nature and were provided by hydrologists, engineers and other researchers, while others were provided by stakeholder groups. These stakeholder groups represent a significant number of people with an interest in lake level regulation and land use planning and zoning around Lake Manitoba and Lake St. Martin, including residents of area municipalities and First Nations, fishers, ranchers, farmers, cottage and home owners, and others. Presentations were posted on the Committee web site when possible. A complete record of all meeting dates, locations, presentations and attendees is presented in Appendix E1.

Attendees at a Committee meeting

1.2.1 Technical Presentations

The Committee received technical presentations on a variety of topics, such as hydrology, land use policies and zoning, agriculture, fisheries, and water quality. The following is a list of the government departments, organizations and individuals that provided these presentations:

- Aboriginal Affairs and Northern Development Canada
- Clarion Associates
- Ducks Unlimited Canada
- Gordon Goldsborough, Professor of Biological Science, University of Manitoba
- Manitoba Agriculture, Food and Rural Initiatives
- Manitoba Conservation and Water Stewardship
- Manitoba Department of Local Government
- Manitoba Infrastructure and Transportation
- McCandless Tramley and the University of Manitoba Department of City Planning
- McKay Finnigan and Associates
- Rick Bowering, Retired Hydrological Engineer
- Stantec Engineering

1.2.2 Stakeholder Submissions

The stakeholder groups, municipalities and First Nations that provided presentations or submissions (i.e. letters) to the Committee during meetings represent a range of people and interests around Lake Manitoba and Lake St. Martin. The following is a list of the groups, communities and individuals that made submissions, including a brief description of the people represented by each.

Arnthor Jonasson of Vogar, MB

Mr. Arnthor Jonasson is a rancher west of Vogar, Manitoba, who was evacuated due to flooding. His presentation to the Committee was based on his personal experience with the 2011 flood, but also reflected the shared experiences of other ranchers in the area.

Association of Lake Manitoba Stakeholders (ALMS)

ALMS was founded in June, 2011 at a general meeting of associations of property owners affected by the flooding of Lake Manitoba. Property owner groups and associations represented by ALMS include Twin Lakes Beach, Delta Beach, Manipogo (St. Rose du Lac), Sugar Point / Lundar, Johnson Beach, Pioneer Beach, Laurentia Beach, Sandpiper Beach and the Manitoba Cottage Owners Association. ALMS membership includes approximately 1,500 property owners.

Dauphin River Commercial Fishers Association

The Dauphin River Commercial Fishers Association represents 65 licensed fishers and 100 hired hands. These fishers were prevented from accessing the fishery and fish processing facilities due to high water levels resulting from maximum outflows from Lake Manitoba. This led to significant income losses for many.

Concerned Land Owners of the Dog Lake area

Dog Lake is located east of the Lake Manitoba Narrows. There are multiple drains into the lake, but only one drainage system leads out of the lake. As a result, there are many ranchers located in the area surrounding Dog Lake who are affected by the water level on Lake Manitoba.

Lake Manitoba Flood Rehabilitation Committee (LMFRC)

LMFRC represents 11 municipalities surrounding Lake Manitoba. Members of LMFRC include representatives of the Rural Municipalities of Lakeview, Alonsa, Woodlands, Lawrence,

Grahamdale, Siglunes, Eriksdale, Coldwell, St. Laurent, Portage la Prairie and Westbourne. Other members represent the Northern Affairs Communities of Homebrook - Peonan Point, Crane River, Waterhen, Meadow Portage, Mallard and Spence Lake, Crane River First Nation, the Manitoba Association of Cottage Owners and Manitoba Beef Producers.

Manitoba Beef Producers (MBP)

MBP is a non-profit organization that represents approximately 8,000 individual cattle producers involved in various aspects of Manitoba's beef cattle industry.

Chief Garnet Woodhouse, Pinaymootang (Fairford) First Nation

Chief Woodhouse presented in lieu of then Grand Chief Morris Swan Shannacappo of the Southern Chiefs Organization (SCO). The mission of the SCO is to protect, preserve, promote and enhance First Nations peoples' inherent rights, languages, customs, and traditions[1]. It represents over 30 southern First Nations in Manitoba.

Rural Municipality of Grahamdale

The R.M. of Grahamdale is located in the interlake and borders both Lake Manitoba and Lake St. Martin. Its population is approximately 1,350 people.

Rural Municipality of Lakeview

The R.M. Of Lakeview is located on the southwest shore of Lake Manitoba. Approximately 300 people reside in the R.M.

Westlake Grazing Club

The Westlake Grazing Club is a group of rotational graziers who operate in the Westlake / Eddystone area and work together to improve the management of their pastures. Many of the members of this group operate ranches that were established over 100 years ago.

1.3 Third Party Results/Studies

An additional source of feedback was received by the Committee via a survey conducted by the Lake Manitoba Flood Rehabilitation Committee (LMFRC). The survey was regarding the most acceptable range of regulation for Lake Manitoba and Lake St. Martin and additional water

[1] "Southern Chiefs Organization Inc.: About." Southern Chiefs Organization Inc. 2012. Web. 7 Nov. 2012.

control structures for Lake Manitoba. Members of the LMFRC reached out to their local communities and to flood-related contacts in an attempt to contact potential survey respondents from all areas surrounding Lake Manitoba and Lake St. Martin. This resulted in 495 respondents completing the survey. Respondents included permanent residents, seasonal residents, business owners, farmers, ranchers and members of the First Nation communities around the lakes.

The LMFRC indicated they made a significant effort to reach people in the Lake St. Martin area; however 91 percent of respondents were from the Lake Manitoba area and only nine percent from the Lake St. Martin area. Similarly, 71 percent of respondents commented on Lake Manitoba only, 28 percent commented on both Lake Manitoba and Lake St. Martin, and one percent commented on Lake St. Martin only.

The survey questions included:

1. What is your preferred operating range for Lake Manitoba and/or Lake St. Martin?
2. Are you in favour or not in favour of an Emergency Drainage Channel from Lake Manitoba to Lake St. Martin?
3. Do you have additional comments or concerns?

The results of the survey, which are described in the following sections of this report, provided an interesting picture of the perspectives of the people of the Lake Manitoba and Lake St. Martin area. The LMFRC continues to seek more input from the Lake St. Martin area.

2 What We Heard

The Committee received a large amount of feedback concerning all aspects of its mandate, including recommended lake levels for Lake Manitoba and Lake St. Martin, the need for additional water control works or outlets, the environmental, economic and social impacts of water level regulation, and land use policies and zoning. The Committee had the opportunity to hear and consider the views of people with differing perspectives on its mandate, such as scientists and other experts, municipal and First Nations officials, and residents from around the lakes. All of the comments received have been categorized and are described below under the following four headings: Lake Levels, The Need for Additional Water Control Works, Environmental and Social Impacts of Water Level Regulation, and Land Use Policies and Zoning.

2.1 Lake Levels

Lake Manitoba

Discussion and presentations about lake levels typically use language that suggests that the "range of regulation" for Lake Manitoba is 810.5 to 812.5 feet above sea level (ft. asl). In fact the guidelines for the operation of the Fairford Control Structure do not use the term range of regulation but state that water levels should be permitted to fluctuate between 810.5 and 812.5 ft. asl, "with the expectation that water levels on the lake may rise to 813.0 ft. asl in some years". These complete guidelines have not often been fully communicated to the public. There is a concern that people commenting on the guidelines are not aware that the guidelines contemplate the lake rising above 812.5 ft. asl.

Online Feedback Forms, Open House Feedback Forms and Municipal Government Survey Results

Respondents to the online feedback form most commonly indicated that the lake should be regulated at pre-flood levels, which were described as either 810-812 or 810.5-812.5 ft. asl. Many reasons were provided in support of this range, including:

- This range allows the lake level to not be too high in some areas but not too low in others.
- This is the level that much of the cabins, homes and businesses around the lake were originally built to, and it worked for many years in the past.
- This level will allow the resumption of all previous activities – fishing, cottaging, camping, swimming, etc.
- Destructive wave action and flooding can be avoided.
- Cattail and/or weed growth and erosion can be prevented.

Several respondents felt that this range was only appropriate provided that the levels were at 811 by September 30, so that marshlands have a chance to be flushed out and emergency spring runoff can be accommodated. It was suggested that levels should follow the 10 year cycle suggested by the July 2003 study on Lake Manitoba regulation. In addition, it was proposed that output potential needs to equal input potential in order for a range to actually be adhered to; otherwise it is not actually regulation.

Some respondents felt that greater variation, such as 808-812, was necessary to accommodate marsh health but also protect property around the lake, while others suggested that levels should be just slightly lower than before the flood, with an upper limit of 811. One respondent commented that:

> "*The range of the lake must be lowered, primarily because the current infrastructure in place to reduce lake levels is not capable of keeping levels below the upper maximum level."*

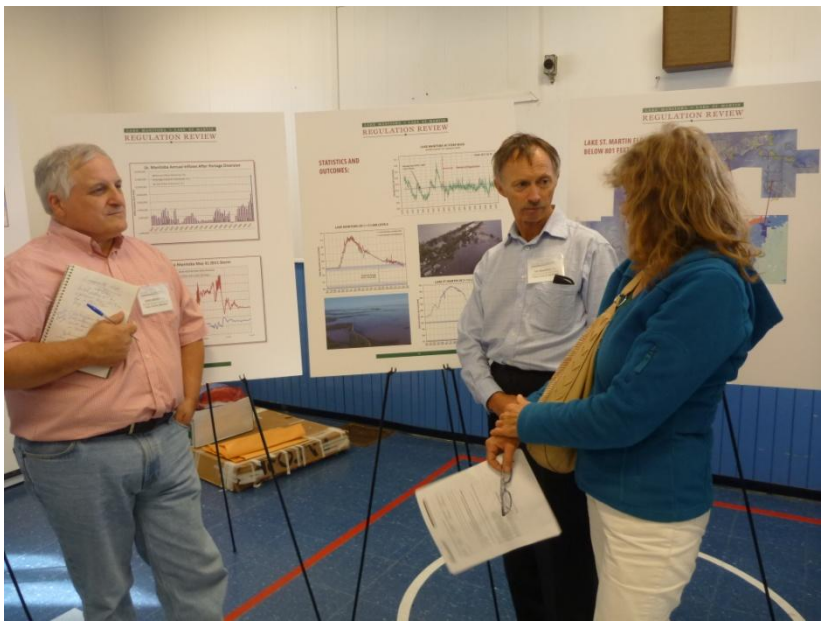
A few respondents suggested the lower limit should be 807 or 808, with only one in support of a very low range of 805-807. In contrast, a handful of people were in support of a higher upper limit, at 813 or 814.

Responses were split in terms of whether or not people were satisfied with the range of regulation for Lake Manitoba prior to the spring of 2011. Many respondents who indicated they were not satisfied felt that the lake had been kept at too high levels for many years. Some of the other reasons for dissatisfaction included that the lake should be allowed to fluctuate naturally, that drainage ditches became backed up during the summer as lake levels were increased, that higher ground water levels caused moisture problems under homes, that increasing lake levels created undue pressure on retaining walls, and that the capacity of pasture and hay land was reduced.

Some of the other points made regarding the regulation of Lake Manitoba included:

- Levels must be dropped in the fall.
- The previous levels worked for many years – however levels often seemed to be kept at the high end, which does not allow shoreline recovery.
- A constant level is responsible for severe erosion.
- Levels must actually be regulated.
- There is a need to consider homes and cottages as well as ecosystems; a hierarchy of priorities should be created.
- The Portage Diversion should only be operated for emergencies, not convenience.
- Lake Manitoba should have extra drains and a clear set of operating rules as Lake Winnipeg does.

Through the open house feedback forms, approximately 10 people commented on what they believe are the proper levels for Lake Manitoba. All but one of those people suggested the maximum level for the lake should be 812 or lower. One person, situated near the northern end of the lake, indicated that the maximum could be 813 or 814. The lowest minimum range suggested was 808, but most indicated a minimum of about 810. Several people noted their concern that the lake was (in September, 2012) still too high.



Open house attendees

Seven out of the 10 municipal government survey respondents indicated that the regulation of Lake Manitoba usually functioned in an acceptable manner up until 2011. The other three respondents indicated that regulation was acceptable some of the time. Related comments included that the lake was kept at higher levels for many years and that there were many occasions over the previous decade when wind storms affected the southern end of the lake. Another comment noted the importance of considering the effects of the Portage Diversion when determining the appropriate range of regulation for the lake.

All of the survey respondents felt that problems occur when lake levels are at the high end of the range, with two respondents believing that problems occur at the low end as well. One comment was made that, as Lake Manitoba has been "exceptionally high", wind events have become more frequent. Another respondent suggested that when the lake level is too high this causes erosion at Twin Beach, but when the level is too low it causes weeds to grow at other beaches. Most respondents felt that the lake should stay within the range of 810.5 to 812.5. One suggested the range should instead be 809 to 812.

Technical and Stakeholder Presentations

During discussions, it was noted that the various communities around Lake Manitoba will need to know what Manitoba's new standard is for acceptable lake levels, in order to move forward with their decision-making processes concerning future development. Concerns were repeatedly

expressed regarding a consistent pattern of a lack of consultation with First Nations communities in the management of water levels.

In most cases, the technical presentations did not focus on specific recommendations for Lake Manitoba's range of regulation. Rather, the emphasis tended to be on the concept that Lake Manitoba's coastal wetlands function best with fluctuating water levels, which help to maintain quality wildlife habitat and biodiversity, as well as reflect the natural wet and dry cycles of the area. It was recommended that the Committee take into account research and work from the previously active Lake Manitoba Regulation Review Advisory Committee.

Ducks Unlimited Canada provided several recommendations to the Committee regarding the regulation of Lake Manitoba. They noted that flooding and associated flood damage in the area is exacerbated by wetland drainage from surrounding lands. In their estimation, 250,000 acres of wetlands have been lost from south-western Manitoba over the last 40 to 60 years. This amount was said to be equivalent to approximately twice the flood storage capacity of the Shellmouth Reservoir. Through discussion, it was suggested that a combined approach of incentives and regulation is needed to ensure that illegal drainage does not continue to occur. Ducks Unlimited Canada's recommendation was for long-term water level fluctuations on Lake Manitoba to be restored to a range of 810 to 813 feet above sea level. In addition, they recommended that long-term studies on Lake Manitoba and its coastal wetlands, including ongoing monitoring of the impact of regulation, be continued and expanded.

Lake Manitoba and Lake St. Martin stakeholders that the Committee heard from had much to say regarding Lake Manitoba lake level regulation. Some of the comments or concerns expressed during discussions at early meetings in April included:

- The Province of Manitoba needs to assume responsibility for managing the flood and those affected need to be adequately compensated.
- The 2011 flood was a man-made disaster.
- The issue of water crosses jurisdictions and other governments are implicated.
- If communities bordering the lakes accept higher lake levels, the Province will be able to use the Portage Diversion without consultation and use Lake Manitoba as a storage basin.
- The Province will have the final say regardless of what input is provided.
- Water levels are influenced by Manitoba Hydro's desire to hold back water to ensure power station operation target levels are met.
- Higher flood levels will have a devastating impact on the communities around the lakes and impact the ability of R.M.s to plan effectively.
- Any future plans should treat all those affected in an equal manner.
- The range of regulation currently in place is acceptable.
- There exists a need for improvement in recognizing treaty agreements, in particular with respect to the management of the natural environment.

The R.M. of Lakeview provided a submission to the Committee through which it was noted that it is important that the government take recommendations seriously and act upon them. The R.M. Council questioned whether the recommendations would actually be important to the government, given that the R.M. had already received a letter from the Province declaring the 2011 flood to be the new "flood of record" and asking for cooperation in applying new, higher guidelines for protection of property around Lake Manitoba. They were also concerned to see work being done to strengthen the dikes on top of the banks of the Portage Diversion, and indicated that unpredictable operation of the Portage Diversion has several negative impacts, including causing hardship for people in the R.M., polluting Lake Manitoba, and making it difficult to plan for the future. These problems were illustrated by the Reeve of the R.M. in a speech he gave at a Committee meeting in St. Laurent, during which he said:

> "*The people living around Lake Manitoba are now unable to plan for the future because the Portage Diversion can and will be operated any time that weather events and water levels threaten others. We are beginning to feel like second class citizens in our own province*."

The R.M. indicated that, prior to 2011, its communities were satisfied with a lake level range of 810.5 to 812.5 ft. asl, and suggested that higher levels cause the lake to be unpredictable and dangerous.

Reeve of the R.M. of Lakeview attending an open house

The R.M. of Woodlands also indicated its support for Lake Manitoba levels remaining within a range of 810.5 to 812.5 ft. asl. This position was stated in a resolution that was forwarded to the Committee, further details of which can be found in Section 2.2.

Presentations were provided to the Committee by stakeholders involved with farming and ranching around Lake Manitoba. One such presentation was given by the Manitoba Beef Producers (MBP), which claimed that "no other industry in Manitoba is affected by the levels on

Lake Manitoba to the degree that Manitoba's beef producers are affected". MBP described how flooded land will take many years to rehabilitate and return to production. Investments in time, equipment and capital are needed for land rehabilitation, but these may not be made if producers do not receive assurance that changes will be made in order to prevent the 2011 flood from repeating. MBP explained that chronic high water levels from prior to 2011 caused significant production losses and drove up production costs for producers around the lake.

> "*Producers recognize that occasional spring loss of pasture and hayland will occur around the lakes. This is expected and is in fact healthy for some areas producing native hay / grass. The problem facing producers today is that high water levels are no longer only occasional; this has become a chronic condition faced by many producers.*"

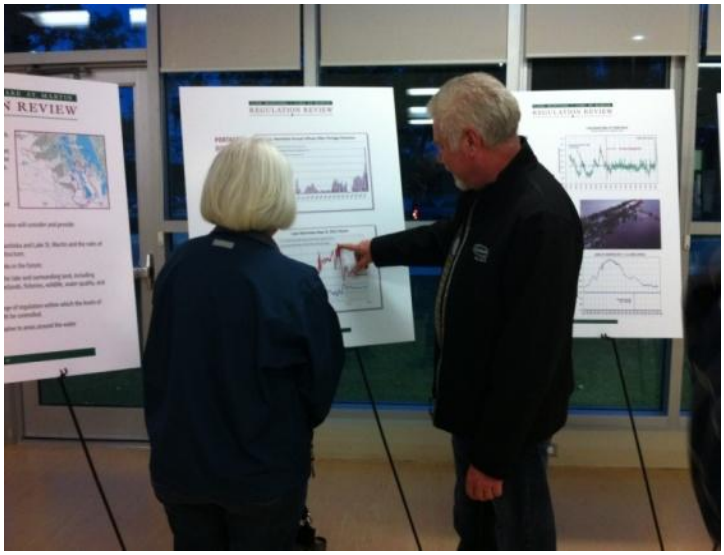
MBP indicated that predictable lake levels are a critical aspect of long and short-term planning for producers, and that it is very important for lake level targets to be met at the beginning of May and the end of June. They also believe that producers around the lakes should be given the same concern for protection of property and business as citizens are in other areas of the province. The recommendation of MBP is for Lake Manitoba to have a spring target level of 812 ft. asl, with levels not exceeding this height after the end of May each year, and a summer target level of 811 to 811.5 ft. asl, with levels not exceeding this height after the end of June. In addition, target levels for both spring and summer should be maintained below the long-term sustainable target levels for at least the next two years in order to facilitate vegetation regrowth and natural repair of shoreline and riparian areas.

Ranching interests were also represented by a presentation from the Westlake Grazing Club. The representative of this group recommended that the amount of water entering Lake Manitoba via the Portage Diversion should be reduced. However, it was suggested that, as the government sends as little water flow as possible downstream of the Portage Diversion, an increasing amount of siltation occurs on that part of the Assiniboine River, leading to a greater need to use the Diversion. The Westlake Grazing Club felt that a two-foot regulation range is too narrow, and recommended that the range be maintained between 809.5 to 812 ft. asl. In the near term, it was recommended that the lake be maintained at a lower level if possible, and that this time could be used to properly build a new outlet. The range of regulation could then be adjusted after the new outlet is complete. Numerous other stakeholders or presenters also stressed the need for a period of recovery after flooding, with the lake allowed to recede further in order to promote the reestablishment of marsh vegetation and beach ridges.

Another presentation on behalf of ranching interests came from Mr. Arnthor Jonasson, a rancher from west of Vogar, Manitoba. Mr. Jonasson's comments included that the Province should be obligated to ensure that any water that is moved not do any harm to those people who could

potentially be affected by it, and that man-made control methods impacting Lake Manitoba mean that there is currently no "natural water level" on the lake. Mr. Jonasson's recommendation was for the lake to be regulated between 809.5 and 812.5 ft. asl, although he indicated that there is no sense in recommending a range of regulation if there is no structure in place to accomplish it. In addition, Mr. Jonasson suggested that lake levels should be kept low for the next five years to ensure restoration of the bank, and that the Province should potentially commit to not allowing the lake to exceed 813.5 ft. asl.

The Concerned Land Owners of Dog Lake also presented on behalf of ranching interests. They explained that the lake level established for Lake Manitoba will directly affect the level of Dog Lake, which has numerous drainage systems entering it but only one exiting. This was described as inadequate for flood protection during years with excessive run off. It was indicated that the level of Dog Lake has been increasing over the past several years, and the surrounding hayland and pasture land has been flooded as a result. During 2011, the flooding of farm lands reduced the amount of useable land by 50 to 100 percent in some areas.



Open house attendees

Much input on Lake Manitoba lake level regulation was provided to the Committee by the Association of Lake Manitoba Stakeholders (ALMS). The ALMS is composed of representatives from cottage and property owner associations around Lake Manitoba with a membership of approximately 1,500 property owners. As was discussed in some of the other presentations, the ALMS explained how large natural lake level fluctuations in the past allowed Lake Manitoba to build up natural defences against flood years but that the small range of regulation used in recent years destroyed these defences. The situation was described as "playing Russian Roulette with water levels". They suggested that the continual maintenance of the lake at a high level with no draw down over the last few years led to the destruction of natural and artificial shoreline protection, and that when the draw down over the winter of 2010-11 did not occur, the lake entered spring 2011 with little to no capacity to handle a spring melt.

The ALMS also was of the shared opinion that the flood was a result of the operation of the Portage Diversion, and that the Diversion has a negative impact on Lake Manitoba water quality.

It is the belief of the ALMS that when the artificial inflow to Lake Manitoba exceeds the outflow capacity of the Fairford Control Structure, there is a conscious decision by the Province to use Lake Manitoba as a reservoir. As such it is the belief of the ALMS that the 2011 flood was a preventable disaster. In addition, the ALMS suggested that wind storms occur with sufficient frequency on Lake Manitoba and therefore should be expected. Finally, the ALMS expressed their belief that misinformation about the flood has damaged the public's understanding of the situation and caused additional exasperation for the people directly impacted by the flood.
The ALMS suggested that the current regulatory framework is insufficient and that this problem will not be solved until a new outlet from Lake Manitoba is created. They recommended that the Province follow a water management model developed by Association member Dr. Scott Forbes. This model requires that the lake's operating range is held between 810 and 812 ft. asl, with the lake fluctuating between these limits on an annual basis such that it approaches the upper limit during midsummer and reaches the lower limit over the winter. The model also requires an expanded outflow capacity from Lake Manitoba, with summer and winter outflow capacity increased by 6000 to 8000 cfs, and an expanded outflow capacity from Lake St. Martin to match the increased outflow capacity from Lake Manitoba. The ALMS advocated that this model would be beneficial for summer recreation opportunities, wildlife habitat management, and responding to late winter/spring water conditions.

The recommendations of the ALMS are to:

- increase the outflow capacity of Lake Manitoba by 6,000 to 12,000 cfs depending on the regulatory framework in place and in consideration of the impact on the people around Lake St. Martin
- provide a regulatory framework (i.e. a statute and regulatory board) to direct future generations on the transparent management of the lake, that includes:
    - providing rules for running the Portage Diversion
    - providing automatic clean up/restoration of the lakeshore following operation of the Diversion
    - providing rules for how to hand the spring melt buffer
    - providing rules for handling multiple high water years and multiple low water years
    - a communication framework for transparency
- allow a yearly fluctuation of the lake that would be within two feet if natural processes were allowed to occur, and would vary two feet between spring and fall.

The presentation by the ALMS included the following two Motions that were carried at an ALMS meeting in April 2012:

> "Motion: Be it resolved that the lake level be lowered to the low end of the operating range beginning in 2012 and continuing until man-influenced and natural shore-line restoration and clean-up is complete.

Motion: Be it resolved that the lake level be regulated and not be allowed to fall below 810.5 and not rise above 812 ASL for a period of time not greater than four months."

When asked for clarity on their recommendations for lake levels, ALMS passed the following additional motion in August:

"BE IT RESOLVED THAT the ALMS recommends and urges the Lake Manitoba/Lake St. Martin Regulatory Review Commission to advise the Province of Manitoba as follows:

AS the present "Guide lines" have resulted in Lake Manitoba being at or above the top of its operating range (812.5 asl) since at least October of 2010.

FURTHERMORE as Lake Manitoba has been at or above 812 ASL for most of the last 6 years, and this continuous high level has caused destruction of both the shoreline, as well as natural and human-made defenses,

AS SUCH it is ALMS' position that:

1) Additional Outflow capacity must be created to allow the Lake to handle both the natural inflows as well as the additional 32,000 cfs the Portage Diversion can add to the Lake. The current Fairford dam is insufficient. Current downstream capacity beyond Fairford is also insufficient.

2) Operating Range - Lake Manitoba must be maintained between 810.5 and 812 feet above sea level. Such range must fluctuate within a 12 month period (see below, "Prescribed Fluctuations")

3) Prescribed Fluctuations - The Lake must not be permitted to sit at or above the MAXIMUM range (812 feet ASL) for a period EXCEEDING 4 MONTHS within a 12 month period. Further the Lake must be regulated to vary 1.5 feet within the operating range within a 12 month period.

4) Legislation and supporting regulations are required to:

4a) Keep the Lake within its operating range and required fluctuation. Such legislation must enforce the requirement to maintain sufficient downstream

capacity to maintain the prescribed Lake Manitoba levels (i.e. Fairford and beyond);

4b) Set rules for operation of both the Outlet(s) (Fairford and whatever else is built) and Inflow(s) (the Portage Diversion); including the proactive risk sensitive management model developed by Dr. Scott Forbes.

4c) Such rules should prohibit the use of the Portage Diversion for use beyond that of Lake Manitoba regulation or flooding of the Assiniboine watershed;

4d) Clear rules for prescribed clean-up and repair of shoreline and properties around Lake Manitoba as a result of operation of the Portage Diversion and the debris and/or pollution it introduces;

4e) Clear requirements for future governments to uphold the legislation and regulations, including a requirement to maintain the Lake levels and the Lake's control structures, as well as legislated action or consequences for failure to comply with the legislation."

Additional discussion following the ALMS presentation and others from the same day that took place at a July meeting reiterated the need for consideration of the impacts of regulation on First Nations communities downstream of Lake Manitoba. It was also suggested that there is a need for input from Fisheries and Oceans Canada. It was agreed that government transparency is important, and that there could have been improved communication regarding the operational status of the Fairford Control Structure during the summer months.

Through the survey conducted by the Lake Manitoba Flood Rehabilitation Committee, 476 people commented on their preferred range of regulation for Lake Manitoba.

In response to the question "What is your preferred operating range for Lake Manitoba and/or Lake St. Martin?", responses given for preferred minimum level of Lake Manitoba ranged from 808 to 812 ft. asl, with 69 percent (324 out of 468 people) indicating their preferred lake level minimum for Lake Manitoba was 810 ft. asl. Preferred maximum levels for Lake Manitoba ranged from 810 to 813 ft. asl. 314 out of 476 people, or 66 percent, indicated their preferred maximum level was 812 ft. asl or lower, with 812.5 ft. asl being the second most frequently suggested maximum, by 130 people (see Figure E2.1).

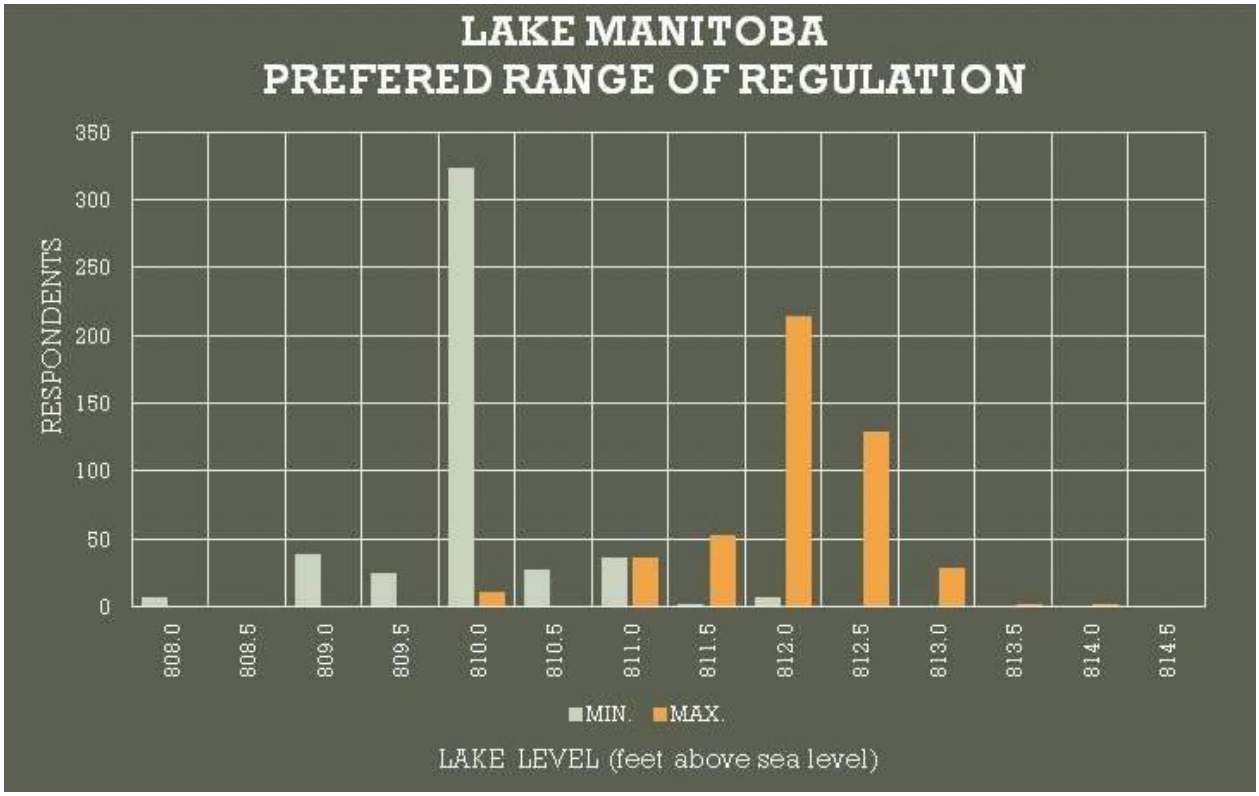


Figure E2.1: Lake Manitoba Preferred Range of Regulation (Source: Lake Manitoba Flood Rehabilitation Committee, July 2012)

Table E2.1: Summary of Comments - Lake Manitoba Levels

What we Heard		Feet above sea level
Committee Sources	Online Feedback Forms: (Committee website) - 117 Total Responses	Majority of Respondents: Pre-2011 levels, described as either 810-812 or 810.5-812.5
	Municipal Government Survey: 10 Total Responses	Majority of Respondents: 810.5 – 812.5
Technical Presentations	Manitoba Conservation and Water Stewardship	Fluctuating levels – range not specified
	Ducks Unlimited Canada	810-813
Stakeholder Presentations	R.M. of Lakeview	810.5 – 812.5
	R.M. of Woodlands	810.5 – 812.5
	Manitoba Beef Producers	Spring maximum: 812 Summer maximum: 811-811.5
	Westlake Grazing Club & other ranchers	809.5 – 812
	Association of Lake Manitoba Stakeholders	810.5-812
	Lake Manitoba Flood Rehabilitation Committee Survey: 495 Total Responses	Minimum Level: 810 (324/468 respondents= 69 %) Maximum Level: 812 or lower (314/476 respondents = 66 %)

Lake St. Martin

Online Feedback Forms, Open House Feedback Forms and Municipal Government Survey Results

Many people who responded to the online feedback form either did not comment on Lake St. Martin levels at all, or indicated that they were not familiar enough with the lake to provide comment. Of those who did comment on Lake St. Martin levels, some of the suggestions included:

- There should be regulation concerning what is built around the lake so that past problems are not repeated.
- Properties/structures around the lake should be raised so that the maximum level can be increased.
- The current range should be maintained but not at the expense of Lake Manitoba; Lake St. Martin must be able to drain enough to enable effective Lake Manitoba drainage.
- The level should be kept closer to 797 or within a range that does not cause damage on the lake.

- 800 feet should be the minimum in order to mitigate future flooding; the community should be settled on higher ground.
- Regulation must not have been working properly before as the outflow through the Fairford dam was reduced to zero over the winter of 2010/11.
- The range should be maintained in conjunction with the regulation of Lake Manitoba and the operation of other control structures.
- The lake should be kept at its natural levels.
- Outflow improvements to Lake Manitoba should not adversely impact Lake St. Martin residents.

Open house attendees

People who filled out open house feedback forms did not comment on recommended levels for Lake St. Martin.

The views of the municipal survey respondents were mixed regarding the question "Until 2011 was regulation of Lake St. Martin working in an acceptable manner?", with one person selecting "usually", three people selecting "some of the time", and two people selecting "not often". Some respondents indicated they did not have enough knowledge about Lake St. Martin to provide comment. Other comments included that flooding has to be expected when living on the water's edge, that intermittent flooding in First Nations communities along the lake is due more to infrastructure and poor drainage than to lake levels, and that there was too much water going into the lake and not enough going out.

Respondents generally did not know whether Lake St. Martin should be maintained at the current range of 797 to 800 ft. asl, with only two answering "yes" to the question, and none answering "no".

Technical and Stakeholder Presentations

The technical information presented to the Committee did not point to specified recommendations for Lake St. Martin water levels. However, something that was regularly mentioned during presentations and meetings was the lack of consideration of the effects of the Fairford Control Structure on the water bodies and communities downstream. It was suggested that this was particularly the case from the opening of the Fairford Control Structure in the early 1960s through to the early 1970s.

While the Committee made significant efforts to obtain input regarding lake levels for both Lake Manitoba and Lake St. Martin, considerably less feedback was received for Lake St. Martin than for Lake Manitoba in terms of recommended lake levels. Stakeholders that did speak of Lake St. Martin lake levels referred primarily to the need to study the effects of Lake Manitoba water control structures on downstream First Nations communities, as well as the need to consult with those communities. However, considerable input was provided regarding the impacts of water level regulation on the people around the lake. For more information, see Section 2.3 of this report.

Through the survey conducted by the Lake Manitoba Flood Rehabilitation Committee (LMFRC), 139 people commented on their preferred range of regulation for Lake St. Martin. However, the majority of these people were not from the Lake St. Martin area, and it is possible that many were not actually familiar with Lake St. Martin water levels, or were answering this question from the perspective of a Lake Manitoba resident. Responses given for the preferred minimum level of Lake St. Martin ranged from 795.5 to 800 ft. asl, with 51 percent of the 139 respondents indicating a preference of 798 ft. asl. Responses given for the preferred maximum level of Lake St. Martin ranged from 799 to 802 ft. asl, with a significant majority, 80 percent, indicating a preferred maximum level of 802 ft. asl.

Given the fact the large majority of respondents to the LMFRC survey were from the Lake Manitoba area, the responses given to this question by people from the Lake St. Martin area were also considered separately. 27 of the 139 people who commented on preferred lake levels for Lake St. Martin were from the Lake St. Martin area. Their preferred minimum level for the lake ranged from 796 to 799 ft. asl, with 62 percent indicating 799 ft. asl was their preference. This is one foot higher than the preferred level most frequently suggested by all respondents to this question. The preferred maximum level of Lake St. Martin area respondents ranged from 799 to 802 ft. asl, with 52 percent indicating 802 ft. asl was their preference. This result was the same as that generated from the analysis of all comments on Lake St. Martin.

2.2 The Need for Additional Water Control Works or Outlets

Online Feedback Forms, Open House Feedback Forms and Municipal Government Survey Results

A large majority of respondents to the online feedback form felt that the emergency channel from Lake St. Martin to Lake Winnipeg should be made permanent. Some of the reasons given in support of this position included that the Portage Diversion is permanent, that outflow must be able to equal inflow and that it would be a waste of money and effort to close it. Those who felt it should not be made permanent indicated that it is not adequate, that it was ill conceived, and that it does not help Lake Manitoba and only alleviated flood issues east of Highway 6. One

respondent suggested that the Province should instead spend the money working on the banks of the Assiniboine River and completing the Shellmouth Dam.

The majority of respondents were also in favour of the construction of a new channel from Lake Manitoba to Lake St. Martin. The most important point or factor for many people was that drainage from Lake Manitoba must be improved. Some of the related comments included:

- It would cost less for a secondary channel to be built than for everyone to raise their land and buildings.
- The second channel should come from Watchhorn Bay.
- Given that flooding of higher intensity and frequency is anticipated due to climate change, this channel is essential.
- The Fairford River must have more capacity.

It was also noted that water retention upstream of the Portage Diversion should be improved, through the use of dams, reservoirs and/or incentive programs to encourage landowners to store water on their property.

Open house attendees

Approximately 30 people who filled out an open house feedback form indicated in some way that the existing water control structures for Lake Manitoba are inadequate. Of these, roughly half specifically noted that outflows from the lake must be able to match inflows. Half also suggested that a new channel or outlet is needed. A handful of people felt that the Fairford Control Structure should be opened up to its full capacity, and some suggested that the emergency channel should be kept open. Other comments received relating to water control or management included:

- There is a need for better management upstream; the Assiniboine River should be dredged and the issue of wetland drainage should be addressed.
- Lake Manitoba should not be used as a reservoir.
- The Portage Diversion is over-used.
- The 2011 flood was intentional.

A few people noted that they understand that there is a need to use the Portage Diversion to prevent damage to urban centres, but felt that as a result the Province should accept its associated responsibility to develop a proper outlet for Lake Manitoba regardless of cost. Several indicated

that there is a need for the government to take action as soon as possible, either to build a new outlet or increase the capacity of the Fairford Control Structure. It was suggested that the economies of communities on Highway 6 are dependent on the Lake Manitoba economy, and as such it is imperative for those communities that necessary outlets be put in place.

All 10 of the municipal government survey respondents felt that the emergency channel from Lake St. Martin to Lake Winnipeg should be made a permanent control structure. Seven also indicated that there is a need for a new channel between Lake Manitoba and Lake St. Martin. One respondent noted that a secondary channel was recommended at the time that the Portage Diversion was constructed, to enable outflow to increase in order to match the increased inflow. It was suggested that it was negligent to not complete that project at that time. Other respondents also suggested that an additional channel was necessary in order to increase outflow from Lake Manitoba, with one also asserting that it would be less costly to build another outlet than to "create a myriad of permanent dykes and [raise] properties". A specific suggestion was to develop a control structure on a channel leading from Watchorn Bay to Lake St. Martin. In general, the key point for several respondents was that there should be an outlet at the north end of Lake Manitoba that would enable outflow to equal any potential inflow. This is related to the most critical concern of one respondent, that an "outlet be constructed as soon as possible so that the people around the lake will have a stable future."

Technical and Stakeholder Presentations

Many stakeholders in attendance at Committee meetings commented on the need for additional water control works or outlets. In most cases, these stakeholders were in favour of developing a new outlet. However, during the discussion following presentations by Pinaymootang First Nation and the Dauphin River Commercial Fishers Association, a concern was voiced that new drainage structures on Lake Manitoba and Lake St. Martin may have an adverse effect on the downstream fishery.

The R.M. of Lakeview was in favour of a new outlet, in order to better maintain Lake Manitoba water levels. It was suggested that the lake is too small to accept all of the water it is currently receiving from western Canada and that, although construction of a new outlet will cost money, in the long run such an outlet will save money. The R.M. indicated that it will not have confidence in planning for the future until this outlet has been constructed.

The Lake Manitoba Flood Rehabilitation Committee (LMFRC) noted that the emergency drain built in response to the 2011 flood takes water directly from Lake St. Martin, and as such there is currently no immediate capacity for emergency drainage or increased outflow from Lake Manitoba. The LMFRC was also one of several stakeholders that suggested that an outlet to drain Lake Manitoba was recommended for construction at the time the Portage Diversion was

built, but this was never completed. It was suggested that an outlet channel should be constructed from Watchorn Bay on Lake Manitoba to Birch Creek on Lake St. Martin.

The R.M. of Woodlands was also in favour of the construction of a new channel from Watchorn Bay to Lake St. Martin. The following resolution was passed in May, 2012 and later forwarded to the Committee:

> "WHEREAS a drain from Watchorn Bay to Birch Bay/Lake St. Martin through the Birch Lake Drain is the only acceptable flood protection for properties along Lake Manitoba; and
> WHEREAS the 2011 flood was a man made flood not natural; and
> WHEREAS the use of 2011 flood levels as the standard reference point for levels for the future management of Lake Manitoba is not acceptable;
> THEREFORE BE IT RESOLVED THAT the Rural Municipality of Woodlands supports the Rural Municipality of Coldwell's request that AMM lobby the government to ensure that the drain be created and the reference levels for Lake Manitoba remain the same at 810.5 feet to 812.5 feet."

Manitoba Beef Producers (MBP) was in favour of a new controlled drain from Lake Manitoba, construction of which it was suggested should have begun in summer 2012. MBP suggested that flood conditions are unnecessarily created and preserved due to the inability of existing infrastructure and control structures to appropriately manage water. The Fairford Control Structure is seen as insufficient for controlling and managing the water level of Lake Manitoba and without a new drain MBP feels that it will not be possible to maintain target lake levels. In addition, MBP recommended that the Province, working with governments in other jurisdictions, develop a comprehensive water management plan, including an examination of the drainage system that has gradually developed in Manitoba over many years. In its submission, MBP noted that:

> "*it is imperative that governments make a budgetary commitment to responsible drainage and water management, such as the creation of new drains, maintenance of existing drains, and new long-term flood mitigation efforts.*"

MBP suggested that, when creating outflows or increasing water capacity, Manitoba's entire water structure should be reviewed. Any impacts or unintended consequences of such actions or structures, such as those associated with the Portage Diversion, must also be considered before new permanent structures or dikes are developed. MBP also noted that outflows and inflows should be taken into account when the Shellmouth Dam is opened or closed, and that operational timing, including the communication of such timing to landowners, should be improved.

Like the LMFRC, the Westlake Grazing Club was in favour of the creation of a channel or outlet from Watchorn Bay to Birch Creek on Lake St. Martin. However, the club noted that it is important that such a channel is developed properly, and that the problems currently affecting people around Lake Manitoba are not just passed on to people downstream. It was suggested that the people of the Lake St. Martin area must be part of discussion and planning concerning this new outlet. The club also noted that it appears that existing water management structures, including the emergency channel, the Portage Diversion, and others, were built either to address emergencies or satisfy local concerns. As such, these were seen as piecemeal solutions lacking coordination, intended solely to protect the City of Winnipeg. It is the hope of the Westlake Grazing Club that

> "*with a new channel out of Lake Manitoba properly integrated with existing structures, improved forecasting, and local knowledge we can do a better job of protecting all Manitobans from floods in the future*."

Mr. Arnthor Jonasson of Vogar suggested that a new water management structure must be created in order to prevent the destruction of Lake Manitoba, Pinemuta Marsh, Lake St. Martin, and the Dauphin River, as well as the communities along these waterways. Mr. Jonasson also suggested that the operation of the Fairford Control Structure and any others must be linked to the operation of the Portage Diversion, in order for inputs to equal outputs. He indicated that a new channel is necessary for relieving the bottleneck that occurs at the Fairford River.

The Concerned Land Owners of the Dog Lake area did not specifically request a new outlet from Lake Manitoba. However, they did explain their concerns with the culverts at the Dog Lake Drain crossing, which are collapsing and restricting the outflow of water from Dog Lake. They requested that a study be conducted to determine the capacity of Dog Lake's existing drainage system, and to determine if the expansion of this system or the addition of a second drain is necessary.

In addition to its detailed recommendations regarding the range of regulation for Lake Manitoba, the Association of Lake Manitoba Stakeholders (ALMS) also made several recommendations regarding water control infrastructure and/or management. These recommendations include:

- building a new emergency channel, including
    - a program of channel maintenance
    - creation of a permanent control structure
    - increased channel capacity
- flood mitigation on the Assiniboine River, including
    - dike restoration to increase downstream capacity
    - restoration of wetlands capacity
    - increased upstream storage capacity

- restoration of the channel capacity of the Assiniboine River, to the 1976 capacity of 24,000 cfs

The Lake Manitoba Flood Rehabilitation Committee survey posed the question "Are you in favour or not in favour of an Emergency Drainage Channel from Lake Manitoba to Lake St. Martin?". The vast majority of the approximately 500 respondents to this question, 97 percent, indicated that they were in favour of additional water control structures. 100 percent of the respondents from the Lake Manitoba area were in favour, while 77 percent from the Lake St. Martin area were in favour. The remainder of the respondents from the Lake St. Martin area, or 23 percent, were not in favour of additional water control structures. It is important to note that only 43 of the 489 survey respondents were from the Lake St. Martin area (see Figure E2.2). The LMFRC is continuing to seek additional respondents from the LSM area in order to obtain more conclusive information.

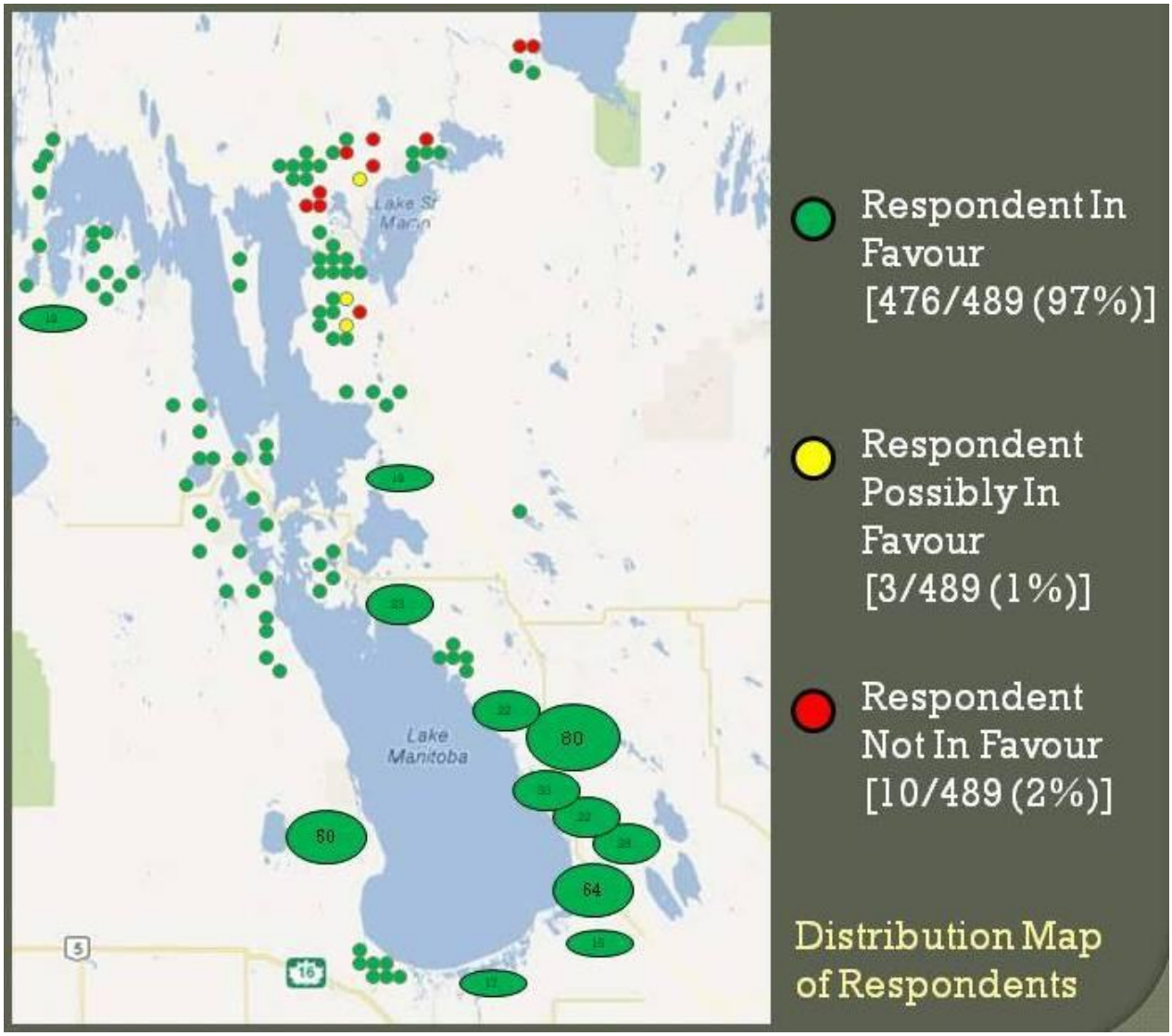


Figure E2.2: Distribution of LMFRC Survey Respondents In Favour or Against Additional Water Control Structures for Lake Manitoba
(Source: Lake Manitoba Flood Rehabilitation Committee, July 2012)

Based on these results and given that all of those against additional water control structures were from the Lake St. Martin and Dauphin River areas, it is possible that the percentage of total respondents not in favour may have been greater had more people from the Lake St. Martin area responded to the survey. In their analysis of the survey results, the LMFRC surmised that the concerns of people from this area were based on their belief that another control structure might cause them to be impacted by additional water flow that the area cannot handle. According to the LMFRC, "many respondents indicated that they would be in favour of additional control structures if the Reach 3 Channel was operational. They also indicated that Reach 1 and Reach

3 would have to accommodate any additional water from Lake Manitoba."[2] As one survey respondent put it,

> *"I am in favour of additional control structures but not the proposed channels near the Fairford dam. There would be a great impact on the fish habitat."*

The survey results were presented to the Committee and others in attendance at a meeting in July. During the following discussion, it was suggested that there may be a need for a system of dams on the Assiniboine River upstream from the Portage Diversion. However, in response it was explained that this type of system would need to be very well managed in order to mitigate negative impacts to other areas of the province, and that predicting the long-term effectiveness of such as system would be difficult. In addition, it was indicated that people from the Twin Lakes area do not support solutions that will negatively impact other communities, and that there is a need for an inter-provincial solution.

Table E2.2: Summary of Comments - The Need for a New Outlet/Channel

What we Heard		**In favour or against**
Committee Sources	Online Feedback Forms: 117 Total Responses	Majority of Respondents: In favour
	Survey: 10 Total Responses	All Respondents: In favour
Stakeholder Presentations	R.M. of Lakeview	In favour
	Lake Manitoba Flood Rehabilitation Committee	In favour – Watchorn Bay to Birch Creek
	R.M. of Woodlands	In favour – Watchorn Bay to Birch Creek
	MB Beef Producers	In favour
	Westlake Grazing Club & other ranchers	In favour – Watchorn Bay to Birch Creek
	Association of Lake Manitoba Stakeholders	In favour
	Lake Manitoba Flood Rehabilitation Committee Survey: 495 Responses	Lake Manitoba area residents: In favour - 446/446 respondents (100 %) Lake St. Martin area residents: In favour - 33/43 respondents (77 %) Not in Favour - 10/43 respondents (23 %)

[2] The Lake Manitoba Flood Rehabilitation Committee, in its presentation to the Committee, July 2012.

2.3 Environmental and Social Impacts of Water Level Regulation

Online Feedback Forms, Open House Feedback Forms and Municipal Government Survey Results

Through the online feedback form, many people expressed their views on the impacts of water level regulation and of the 2011 flood. Many respondents described the financial and emotional hardship they continue to experience as a result of the flood. People noted lost livelihoods from farms and businesses and the deterioration of land values, as well as the loss of dream homes that they had waited years to obtain or build. People noted the loss of recreation opportunities as well as the many hours spent put toward flood recovery.

> "*My wife and I have been working since the second week in February (on the weekends) to cut trees falling on the cottage, remove sand bags, clean debris, raise work sheds, dispose of damaged property, aid in raising the cottage, redo plumbing, electrical, rebuild deck stairs and landings. We are far from finished*."

In addition, some mentioned their frustration at having to pay taxes and utilities for properties that they could not use. It was also suggested that there was a lack of flood-related agricultural resources and advice. Some noted that people have lost confidence in the Province's ability to manage water levels, and as a result investment around the lake has been affected.

In some cases, respondents indicated that they were able to accept the sacrifice of their property for the good of the communities downstream, but felt that the Province should accept some of the responsibility for the flood; particularly in terms of the use of the Portage Diversion. It was suggested that property owners around the lake should receive improved compensation for their perceived sacrifice.

> "*The insulting fact that the government has never admitted it sacrificed these residents to save people downstream of Portage ... is unacceptable. Lake residents could have accepted damage to their property more easily - even willingly - if public relations had been truthful. The pace and degree of compensation have also been unacceptable*."

Many people described their frustration with the pace of the compensation process as well as the officials administering related programs. Many respondents indicated that it was unfair for cottage owners to be treated differently from home owners. It was suggested that no such distinction should be made in terms of providing compensation for damage. People also noted their disappointment in what they felt were inaccurate or misleading comments made by officials

that served to increase confusion and frustration. In addition, there was concern that the Province will not listen to the public feedback received through this review process.

Regarding environmental impacts of the flood and water level regulation, concerns were expressed about the need to protect Delta Marsh and facilitate the restoration of shoreline vegetation. In addition, concerns were noted about the pollution of Lake Manitoba caused by water entering the lake from the Portage Diversion.

Input received through the open house feedback forms was similar to that received through the online feedback form. Through the open house feedback form, many people described the degree to which they were impacted by the 2011 flood. It was made clear that the flood caused devastation for many of those who filled out the form, and various hardships for others. Many people noted the stress they have been under as a result of dealing with the aftermath of the flood, as well as the amount of time and work that has gone into restoring properties. A handful of people, including several who indicated they are municipal employees or elected officials, suggested that individuals and municipalities were not properly prepared for the flood. People felt that they needed more warning that such an event was coming and should have been better informed.

Many ranchers or farmers submitted open house feedback forms. They noted a number of issues related to the flood, including lost production, insufficient compensation, and high salinity levels in fields. It was noted that hay and forage lands will take years to recover. One person indicated that ranchers feel as though they were "thrown under the bus".

Open house attendees

Approximately 30 people indicated that they had, and continue to have, significant difficulties with the provincial compensation program. Issues noted included:

- not understanding why the Province will not cover or compensate all flood-related costs
- too many government agencies involved, and a lack of coordination between them
- a lack of knowledge or training on the part of the employees or officials carrying out the program
- the government wasting money by being inefficient with this process
- the process taking far too long, with many still waiting to receive compensation
- difficulty finding contractors or other such businesses to carry out needed work

- neighbours being turned against each other as a result of receiving differing levels of compensation
- cottagers feeling like they have been treated like second class citizens
- permanent residents with nowhere else to go not being dealt with as soon as possible
- people feeling like they are being penalized, in terms of the amount of compensation they are eligible for, as a result of taking pre-emptive action and building dikes or other such protective structures in advance of the flood

Several people indicated their concern with the environmental impacts of the 2011 flood. A wide range of concerns were noted, including:

- environmental impacts related to the potentially improper disposal of mouldy furniture as well as refrigerators and other appliances
- the presence of debris in Lake Manitoba that arrived via the Portage Diversion
- the need for the beach to be "kept natural"
- the loss of countless numbers of trees and world-class marshland
- pollution and siltation caused by the Portage Diversion affecting natural filtration processes in Lake Manitoba

In response to the question "Do you consider shoreline reserves (public reserves, Crown Reserves) an effective method in protecting shorelines from erosion, maintaining public access to the lake, and protecting water quality?", five respondents to the municipal government survey answered "yes" and three answered "no". Related comments included that high lake levels have reduced the effectiveness of public reserves and that shoreline reserves are not used enough so their effectiveness is difficult to determine.

Several options were suggested as methods that should be considered to protect shorelines. These included:

- a fluctuating lake level, targeting for 811 for a few years to allow for deposits rather than erosion
- updated assessment of riparian zones and erosion protection
- maintenance of lower lake levels
- funding for municipalities to protect their shorelines
- control of flooding

Survey respondents also suggested a number of information/research/mapping tools that would be useful for municipalities in proactively managing and protecting shoreline development. These included LiDAR mapping with accurate elevations, information on shoreline erosion management methods, up to date aerial or satellite imagery, information on water levels and the potential effects of provincial flood protection procedures, modeling of lake levels and inundation information, and GIS mapping with access to all information pertaining to shoreline elevations.

One survey respondent noted that the present range of regulation is not allowing the marsh to function properly, and has prevented farmers from haying Crown lands. It was also suggested that inflow from the Portage Diversion, particularly during flooding, is harmful to Lake Manitoba and other downstream waterways and the concern was raised that Lake Manitoba will soon have problems with algal blooms.

Technical and Stakeholder Presentations

Much of the information the Committee received through technical presentations was focussed on the environmental, economic and social impacts of water level regulation. Manitoba Conservation and Water Stewardship indicated that water level management plans should reflect the natural wet and dry cycles of Manitoba's Prairie and Boreal Plains Eco-zones. These cycles result in fluctuating water levels which are best for maintaining quality wildlife habitat and biodiversity. It was suggested that the maintenance of water levels at the average elevation of the lake eliminated the natural wet and dry cycles, which has had a negative impact on coastal marshes and other areas of critical wildlife habitat such as islands, beaches and wet meadows. In particular, it was noted that long-term regulation of Lake Manitoba at 812 ft. asl resulted in the exclusion of the endangered piping plover from most areas of its beach ridge habitat around Lake Manitoba. In general, species diversity has declined across Delta Marsh. Stable water levels have also eliminated much of the vegetation needed to stabilize islands and shorelines, leading to accelerated erosion rates. However, it was suggested that vegetation can recover and wildlife will respond if water levels are allowed to drop and then return to a pattern of fluctuation.

Big Point

Manitoba Conservation and Water Stewardship recommended that lake level fluctuation be permitted within a range that effectively reflects the natural wet and dry cycles of the prairie. It

was also recommended that Lake Manitoba be allowed to rest at low levels for one or more growing seasons in order to promote the growth of riparian and aquatic vegetation that is necessary for supporting a healthy wildlife population. This would also enable beach ridges to recover. It was generally agreed by fisheries and ranching interests in attendance for this presentation by Conservation and Water Stewardship that maintaining a sustained lower level for a minimum of one growing season would be needed to ensure that fields and marshes in the area can drain and be rejuvenated.

Another issue was raised regarding the effectiveness of the fish ladder at the Fairford Control Structure. Many participants in attendance at one Committee meeting expressed the opinion that the fish ladder was of little effectiveness. However, Manitoba Conservation and Water Stewardship noted that conclusions regarding the effects of the ladder on fish populations were difficult to determine, and additional studies on the effectiveness of the ladder have been commissioned. In addition, one participant noted that large numbers of dead fish had been observed floating down the emergency channel. However, it was suspected that this was due to winterkill.

Regarding water quality, Manitoba Conservation and Water Stewardship noted that, while water levels do not appear to be a major driver of water quality, increases in phosphorus and chlorophyll and decreases in conductivity have been observed in Lake Manitoba. The Portage Diversion appears to be a contributing factor to water quality in the south basin, as the main source for higher than acceptable phosphorus levels entering the lake. Recommendations were made to restore wetlands in the Assiniboine watershed in order to reduce use of the Portage Diversion, and also to restore wetlands around Lake Manitoba in order to filter nutrients and contaminants from non-point sources.

The Committee received presentations from Manitoba Agriculture, Food and Rural Initiatives (MAFRI) through which information was provided regarding the impacts of flooding on producers and on soil and forages. In total, 350 producers with 180,000 acres of hay were located in the 2011 flood zone. Hay yield was reduced, feed inventories were damaged and many acres could not be harvested. In addition, there were 275 producers with 180,000 pasture acres located within the flood zone. It was estimated that these producers care for approximately 30,000 beef cows. 55 producers caring for 15,000 cows had to find alternative housing sites due to normal cattle wintering areas being flooded out. As a result, producers were required to access infrastructure and feed. In addition, hundreds of producers suffered damage to fences and structures such as barns or sheds, and the accumulation of debris on productive acres.

The presentations from MAFRI suggested that it may take up to five to seven years for forages around Lake Manitoba to return to normal production. The prolonged period of inundation of the soil has resulted in high soil salinity levels, the build up of detritus and damage to

infrastructure. It is expected that yields will be lower until salts drop in the soil profile. However, it was noted that, based on trends in how plant communities regenerate following flooding, halting all flooding would be detrimental to riparian areas that are valuable to the livestock industry. It was indicated that clear solutions to resolve the negative impacts of prolonged soil inundation are lacking, as the rarity and nature of the 2011 flood has meant that there is little previous scientific and local knowledge to consult. The main option now is to wait for forages to recover.

The information presented through stakeholder presentations to the Committee illustrated the significant impacts that the 2011 flood and lake level regulation have had on the people and communities around Lake Manitoba and Lake St. Martin.

Dauphin River First Nation

During the presentation from Pinaymootang First Nation, it was noted that the construction of channels around Lake St. Martin has had a devastating effect on whitefish spawning. Similarly, the Dauphin River Commercial Fishers Association reported that their fishery was devastated by the 2011 flood. The Dauphin River Waterway is the outlet for water reaching Lake Winnipeg, and all water on the way to that lake must pass through the community of Dauphin River. As a result, the community has been isolated since November 2010 when frazil ice jammed on the river and flooded highway 513. Since then the community was evacuated twice and many remained evacuated at the time that the Fishers Association made its presentation in April, 2012. Provincial efforts to lower the level of Lake Manitoba during the winter of 2010-11 resulted in the Dauphin River road access being kept under water and requiring people to travel a long distance by boat in order to reach the community. When the emergency channel was then opened in November, 2011, the community was told the water would not arrive for five to ten days; however, it took less than 30 hours. As noted in the Fishers Association submission,

"*Buffalo Creek went from being 30 feet wide to a roaring 300 foot wide waterway spewing huge amounts of debris, trees and silt into the Dauphin River and the Sturgeon Bay fishing grounds*."

Overall, the impact to the Dauphin River fishers has been severe. It was reported that fishers had been without their livelihood for four seasons, with their industry left in ruins. Equipment and infrastructure were lost but, at the time of the presentation, fishers had been told they could not receive Disaster Financial Assistance for the cost of the recovery of these items. Fishers were also concerned for their safety and the potential for further damage to equipment as a result of the amount of flood debris left in the fishing grounds and floating below the surface. In addition, the Dauphin River fishers were concerned by the environmental impacts of the flood and the channels built through fish spawning grounds. It was indicated that thousands of fish were left behind by receding flood waters and that, as the emergency channel was opened at the peak of the whitefish spawning season, millions of eggs were washed away and buried in the silt. The building of Reach 3 also led to the destruction of wilderness and of trapping and hunting areas used by local people. It was felt that meetings between officials and the community were simply informational rather than involving consultation, and that no attention was paid to what community members had to say.

The Dauphin River Commercial Fishers Association recommended that water quality be tested, that fish be tested for mercury, and that silt and sediments be tested for toxicity. It was also suggested that the fish hatchery should be re-started to ensure a strong fish stock. Other recommended actions included conducting debris clean-up, providing adequate compensation to those affected, and removing certain sections of dikes. During the group discussion that followed this presentation, it was also noted that there is a need to clean outlets to the marshes around Lake Manitoba and Lake St. Martin in order to restore the proper functioning of the marshes and reduce overland flooding.

Multiple impacts of flooding were also reported during the presentation by the R.M. of Lakeview. The importance of ranching, farming and fishing, plus associated spinoffs, to the Manitoba economy was noted. It was also suggested that the cottage development that was devastated by the flood was initially encouraged by the Province. In a speech at a meeting in St. Laurent on June 19, the Reeve of Lakeview illustrated the degree to which people were impacted in stating:

"*The damage to our property and our livelihoods has been horrendous and the stress and heartbreak have been almost unbearable*."

In its presentation to the Committee, the R.M. of Grahamdale indicated that it would like an assessment to be conducted of the shoreline and riparian zone damage that resulted from the

2011 flood. It was felt that the information provided through such an assessment would be important for any flood mitigation studies concerning the Lake Manitoba watershed. The R.M. informed the Committee that it was in contact with the Lake Winnipeg Shoreline Erosion Technical Committee regarding the possibility of initiating an assessment along the shorelines of Lake Manitoba and Lake St. Martin, and requested that the Lake Manitoba/Lake St. Martin Regulation Review Committee add this assessment to its work plan.

Several presentations focussed on the impacts of the 2011 flood on ranchers. It was indicated by the Manitoba Beef Producers that chronically high lake levels and lake level uncertainty have had an impact on the commercial value of beef production operations and their land base. Producers have also been impacted by the damage to shoreline and riparian areas caused by the flood and persistent high water levels. It was suggested that the natural repair of these areas is required in order for producers to return to predictable business operations. During the subsequent discussions among meeting participants, it was noted that the damage caused by the 2011 flood has made it more challenging to recruit the next generation of farmers.

The Manitoba Beef Producers made several recommendations or suggestions related to the compensation process. It was felt that compensation payments from the Province and the federal government to producers, including cow/calf operations as well as feedlot operators, should be expedited, as the length of the wait for compensation was cited as causing undue hardship and having the potential to drive some operations into insolvency. In addition, it was suggested that transportation and forage shortfall programs should be developed to assist those still dealing with the effects of the flood. It was also recommended that a mechanism for machinery purchase and the management of specialized equipment be made available in order to assist farms with re-establishing forages on flooded land. Further, it was suggested that Manitoba implement a zero-till program to assist with land rehabilitation and supplement the forage restoration program that was announced in June 2011. It was noted that damaged infrastructure was still causing transportation problems and that the Province was responsible for restoring many of these highways. Finally, it was recommended that Manitoba and Canada revise and modernize the Disaster Financial Assistance program, including the removal of eligibility restrictions based on a producer's revenues and potential artificial geographic restrictions.

Other presentations on behalf of ranching interests also noted the impacts of the 2011 flood on Lake Manitoba area ranchers. The Westlake Grazing Club noted that many of their group had to either reduce their cattle herds to fractions of their original size, if not completely sell them off. While some may be able to sell their cattle, they feel that there will be no interest in their land until permanent flood mitigation measures are put in place. The Club also put forth the opinion that regulation between 1961 and 2005 was likely too controlled. As a result, it was felt that the adjoining marshes were not able to fluctuate properly which in turn impacted fisheries, wildlife, water quality and the harvest of native hay. In addition, the Club noted its concerns with the

possibility that the Fairford dam obstructs fish passage and that the Portage Diversion may introduce undesirable species to Lake Manitoba.

Mr. Jonasson of Vogar also commented on the economic losses and social and environmental impacts of the flood. Some of the impacts he noted included the destruction of perennial grasslands that had been important for carbon sequestration, bluffs of oak trees that are now dead standing, lake banks being eroded by wave action as a result of lost vegetative cover, and reduced wildlife habitat. In particular, he has noticed wildlife gone from the area:

> "*We have an island just out from our place that we call Bird Island. We used to go out there in the spring to observe all the nesting birds. There were seagulls, terns, geese, cormorants and pelicans. We took a trip out there this spring. There are no nests and there is no vegetation at all. Just sand and rocks. It will take years for this to repair itself*."

The Association of Lake Manitoba Stakeholders (ALMS) presented to the Committee information that was gathered during an ALMS open house held in March, 2012, which was attended by over 400 citizens of the Lake Manitoba area. The results of that open house indicated that the primary concerns of those in attendance who were affected by the 2011 flood involve the social, economic and environmental impacts of the flood. The top three concerns were reported as being:

> 1. Equitable and timely treatment, compensation and or assistance of all affected property and business owners and farmers.
> 2. Regulation and legislation of lake levels of Lake Manitoba.
> 3. Water quality and affected marshland, shores/beaches, recreational and industries and long-term environmental impact.

A variety of environmental concerns were raised by some of the respondents to the Lake Manitoba Flood Rehabilitation Committee survey. Respondents from both the Lake Manitoba and the Lake St. Martin areas commented on potential or actual environmental impacts related to water management. Examples of some of these concerns are illustrated by the following quotes:

> "*Trapping is in jeopardy. Water wells are contaminated*."

> "*Additional control structures are an immediate option to prevent flooding but [do] nothing to prevent long term pollution of Lake Manitoba via the Portage Diversion."*

2.4 Land Use Policies and Zoning

Online Feedback Forms, Open House Feedback Forms and Municipal Government Survey Results

Respondents to the online feedback form provided mixed responses regarding the adequacy of existing land use policies and zoning regulations. A few people who felt policies were inadequate suggested that related processes were confusing or developed without planning, and that guidance and direction from all levels of government was lacking. Some felt that municipal officials or people hired for related jobs did not have adequate knowledge or training to make decisions regarding water level and land use regulations. One person commented that it is difficult for local authorities to carry out land use planning when they do not control use of the Floodway. It was also suggested that permitted road and building elevations were too low in certain areas and that development should not have been allowed to take place in the Assiniboine River area without adequate flood protection measures also being put in place. Other comments included that existing policies have not been updated in too long and do not reflect current conditions, and that there is currently too much unregulated wetland drainage occurring.

Comments made by those in support of existing policies included that policies are adequate as long as water levels are managed within the proper range, and that it is important that policies, such as those regarding drainage, are used and enforced. It was also suggested that there is no need for the 820 ft. asl building level for cottages if Lake Manitoba is kept within the 810-812 foot range. Similarly, comments were made indicating that the issue is not land use policies; rather, it is water management.

Several people provided comments in response to a question which asked what new zoning or land development guidelines should be like. Some of these included:

- The range of lake level regulation needs to be determined first (before policies can be developed).
- The best agricultural land should be identified and zoned as such, specific areas should be designated for settlement, and some allowance should be included for a future manufacturing/industrial base in the area.
- The area zoning and planning needs to be established to clearly define acceptable farming, ranching, residential, seasonal and commercial/industrial areas so anyone interested in occupying the area can do so with some confidence.
- Guidelines should be liberal and provide flexibility so that people are able to manage their own property.
- Municipalities should have uniform sea walls, gabions, rock use, etc.
- Cement walls on lakefront property should not be allowed and artificial marinas need to be diked and closed in flood situations.

- If the emergency channel is made permanent and a secondary channel is built, asking people to build to 822 is overkill – 819 seems reasonable.
- How are people supposed to enter their homes if they have to be raised by five to seven feet?
- Raising homes by seven feet will lead to erosion from storms and wave action underneath.
- You cannot pick a number that is obviously safe but not realistic in terms of the scope of existing developments.
- All land subject to flooding should have restrictions put on it – build at your own risk.
- Adequate riparian vegetation (to prevent erosion) must be maintained and standards enforced for environmental protection – i.e. regarding septic tanks, use of herbicides, etc.
- There should be a moratorium on wetland/slough drainage and wetlands restored to hold water.
- Water tables, water quality, sewage treatment, habitat protection and healthy aquatic environments should all be considered.
- Zoning and land development regulations are not the right tool – the issue is lake management at the provincial and Hydro level, and using the lake as a water storage area.
- Changes are not necessary but permanent diking around the Assiniboine River should be improved.

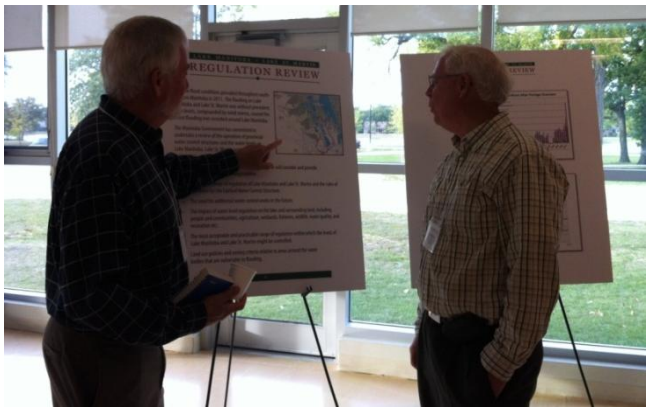
Respondents were asked to comment on the impact of the policy requiring new construction to be based on the "flood of record" plus wind effects. The responses illustrated that many people will be significantly impacted by this policy. Many respondents indicated that following this policy has or will come at a great personal financial cost. This was difficult for many to accept, considering factors such as significant declines in the re-sale values of properties, the fact that this policy protects infrastructure but not pasture or farm land, the requirement of people to adhere to this policy even in areas which were not affected by the flood (or were adequately protected by dikes), and the belief that future flooding can be avoided if Lake Manitoba outputs are able to equal inputs. Respondents noted that the funding offered by the government is insufficient to cover all costs, and were also concerned with their ability to access their homes and garages once raised. This was particularly noted as an issue by those respondents who had planned to use their affected properties as retirement homes. People are also concerned by the thought that this policy creates the impression that the Province may be willing to allow a repeat of the 2011 flood to occur. In addition, the suggestion was made that there is little point in raising properties if the roads are not also raised. It was also noted by several respondents that even if properties are raised, erosion underneath will still cause problems. It was suggested that the Province should coordinate construction efforts, as the existing system of leaving the process up to individual property owners is resulting in conflicts, misinformation and confusion.

> "*I lived in my dream home that I worked hard for 32 years to get for seven months before someone's decision impacted my life forever. Financially, I cannot afford the 16 percent they are expecting me to pay to lift a home that I am not convinced is liftable nor required if they were to manage the lake levels*."

"*I do not wish to see friends, neighbours and farmers devastated by policy that does not take into account the full facts - most notably, that the 2011 flood was largely artificial on Lake Manitoba*."

"*A land use policy change would also significantly reduce the value of our land, reducing [the] financial strength of our operation. Personally, land use policy changes would deter me from moving back to the farm, since it would be obvious that flooding will be a normal occurrence in the area*."

Few comments were made on the open house feedback forms related to land use planning and zoning policies. However, it was noted by one person that people do not want to rebuild their homes or cottages until they know what water level control system is going to be put in place. Several people also commented on the government policy requiring them to raise their homes, cottages or other such structures. Many issues were noted with this requirement, such as people not knowing how they are to go about doing this, not having the necessary information, and finding out about the requirement from neighbours. People also indicated that they cannot afford the upfront costs needed to comply with the requirement and are having difficulty finding contractors to do the work. A few people asked questions regarding what, if any, new land use and/or zoning plans the government is putting in place.



Open house attendees

The municipal government survey posed the question "Do municipalities have adequate planning and regulatory tools available to manage shoreline development considerations such as restricting building locations, setting standards for development and maintaining riparian vegetation?". For both restricting building locations and setting standards for development, seven respondents indicated planning and regulatory tools were good, and one responded that they were fair. For maintaining riparian vegetation, seven respondents again indicated planning and regulatory tools were good, and one felt that they were poor.

Multiple respondents indicated that the issue is not with planning and regulation standards, acts or policies, but with water management policies. It was suggested that planning tools have been effective and can continue to be so if lake levels are properly maintained and can be anticipated. It was also pointed out that, while municipalities have the ability to manage land use policies and

other such standards, it is the province that controls lake levels and associated impacts. One respondent suggested that it is irresponsible to require cottages, homes and other structures to be raised to meet "pie in the sky levels"; rather, the solution should be based on lake level controls.

Technical and Stakeholder Presentations

The Committee received technical presentations from Manitoba's Department of Local Government during which information was provided on topics including strategies for managing growth and development in flood prone areas. During the subsequent discussion, it was noted that the change to the province's required building heights, made in order to accommodate high water levels, will require R.M.s to invest in new fire protection equipment.

Manitoba Infrastructure and Transportation (MIT) presented on flood protection levels. It was explained that the flood protection levels being utilized for Lake Manitoba and Lake St. Martin are considered interim flood protection levels, as this was determined to be the most cost-effective solution which could be completed within a reasonable amount of time, and also enabled the optimum use of material available via the removal of temporary dikes. In addition, it was explained that it had not yet been possible to reach a final decision on permanent flood protection levels, as there was ongoing uncertainty related to the temporary nature of the emergency outlet channel and to several significant long-term planning studies which are underway (including the work of the Committee). MIT also provided an explanation of how the 2011 flood protection levels for the Lake Manitoba South and North Pools, as well as for Lake St. Martin, were calculated, involving Wind Effect Eliminated Levels, wind setup and wave effects. MIT recommended that the Committee adopts Manitoba's current interim flood protection levels as permanent, and that the Committee recommends the "designated flood area" policy as part of its final report.

Raising permanent dwelling to higher elevation

During the discussion following the MIT presentation, it was indicated that confusion amongst home and cottage owners who have applied for compensation has resulted in few of them understanding whether or not it is necessary for them to raise their residences and what the long-term consequences of doing so will be. As a result, few have signed related agreements with the province. It was also noted that the practice of R.M.s sending out inspectors to seek out homes to be built to the "flood of record" has been inconsistent. Questions were also asked regarding the process for calculating flood protection levels and the "flood of record" level. It was suggested that there is a need for greater communication with stakeholders regarding how these calculations are made. There was also seen to be a need to determine a recognized acceptable base lake level prior to effective land use planning being possible.

In general, conflicting viewpoints were presented regarding needed land use and planning policies, with some feeling there is a need for land use planning policies that are adapted to the impacts on agriculture and communities that have resulted from the 2011 flood, and others suggesting that there exists no need for land use and planning policy revisions as the source of high water was the human-controlled Portage Diversion.

The discussions that resulted from presentations and meetings indicated that many municipalities are concerned by the Province's new flood levels and related policies and regulations. It was suggested that there has been a lack of communication on the part of the Province and, in turn, a lack of understanding of the new flood levels on the part of the R.M.s. As a result, it is difficult for the R.M.s to plan appropriately. Consistency is also needed in terms of the implementation and enforcement of permits of subdivisions. Concerns were expressed regarding the standard for required building heights along the shoreline. It was felt that this places too great of expectations on communities to alter existing development in response to an introduced water level that is unnecessarily high. In addition, there was concern about the cost to R.M.s of acquiring the new fire equipment that is needed in order to adequately address raised building heights.

Many comments were made related to the Province's requirement to build all new structures to the elevation set by the "flood of record". This was seen as imposing unacceptable costs on the residents and municipalities bordering the lakes. It was suggested that this is in effect a transfer of costs from the Province to municipalities. It was felt that, by requiring people to build to the "flood of record", the Province is creating an effective licence to flood to that level at any time in the future. It was also indicated that the new elevation standards have created an uncertain future for many municipalities, with uncertainty surrounding what the standards might mean for future development, the municipal tax base and servicing. In a resolution passed in May, 2012 (see Section 2.2), the R.M. of Woodlands formally noted its objection to the use of 2011 flood levels as the standard reference point for levels for the future management of Lake Manitoba.

Many other stakeholders were of the opinion that land use policies should not be changed solely because of the 2011 flood, as flooding in the area is seen as unlikely provided that water levels are properly managed and outputs from Lake Manitoba can equal inputs. A comparative example was provided of development that has occurred in areas that were previously vulnerable to flooding but are now protected by the Portage Diversion (e.g. La Salle and Headingley). It was suggested by the Westlake Grazing Club that responsible recreational use of Lake Manitoba should continue to be allowed. In addition, the club felt that the policy of building to the height of 820 ft. asl would be ineffective for future floods, as buildings may be protected but the land would still be flooded and rendered unproductive.

Aboriginal Affairs and Northern Development Canada (AANDC) suggested that the established 1 in 100 year measure for flood mitigation be reconsidered. It was indicated that factors to be considered in relation to this issue are climate change and the relation between flood control infrastructure and the risk to existing and future development. During the discussion following the AANDC presentation, it was suggested that First Nation communities were experiencing difficulties accessing AANDC programs. However, it was noted that a formal agreement between the Federal Government and First Nations was in the process of being negotiated but that the Government of Canada cannot plan for financial investment in affected First Nation communities until revised regulated lake levels are officially communicated by the Province of Manitoba. During separate discussions, the importance of recognizing treaty agreements in any planning initiatives was noted, as well as the issue that many First Nation communities do not have adequate planning tools.

Appendix E3: Municipal Survey Report

The Lake Manitoba/Lake St. Martin Regulation Review Committee distributed a survey to municipalities and First Nations located around Lake Manitoba and Lake St. Martin in order to elicit feedback related to the Committee's terms of reference. In total, officials from 10 communities completed and returned the survey (although in some cases not all questions were answered). Although this is a small sample size, the responses provided the Committee with valuable information to consider. This report captures all of the input that was received through the survey responses, with responses recorded verbatim. Some of this information has also been incorporated into the Committee's Main Report and in Appendix E2.

Section 1: Lake Manitoba

Question: Until 2011 was regulation of Lake Manitoba working in an acceptable manner?

Usually	70.0% (7)
Some of the time	30.0% (3)
Not often	0.0% (0)

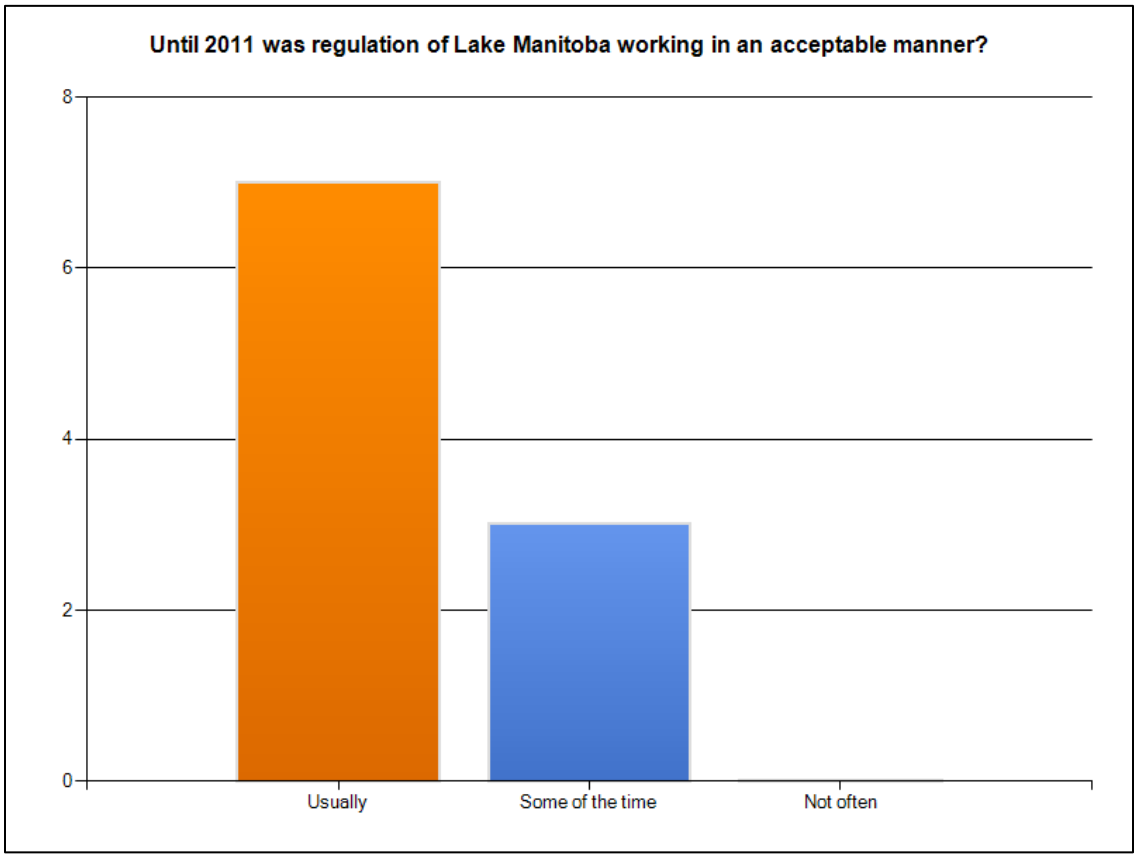


Figure E3.1: "Until 2011 was regulation of Lake Manitoba working in an acceptable manner?"

Do you have examples or comments?

1) Seem to have had no [previous] problems until now.
2) The study needs to involve the effects of the Portage Diversion. Without that variable, unfortunately this is a waste of time
3) Wind storms affected the southern end especially St. Laurent's Twin Beach area many time over the last decade
4) no
5) lake was kept at the higher end of regulation for many years
6) The lake was not allowed to drop enough each year so that Crown Lands could not be hayed.

Question: Are most problems at the high end of the range or the low end?

High end	80.0% (8)
Low end	0.0% (0)
Both ends of the range	20.0% (2)

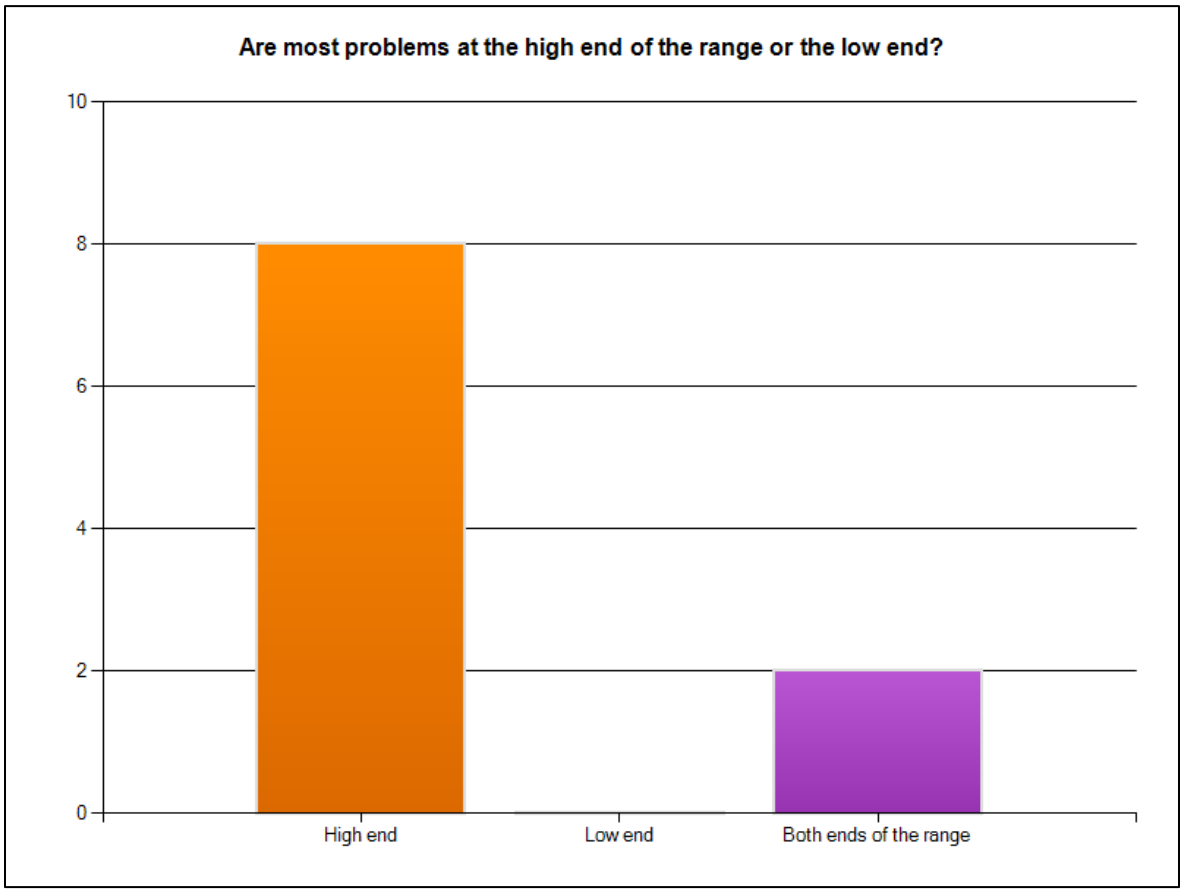


Figure E3.2: "Are most problems at the high end of the range or the low end?"

Do you have examples or comments?

1) I can only comment on the moment not the past.
2) wind blown and wave set-up at high water huge issue
3) Too high causes erosion at Twin Beach, too low causes weeds to grow at other Beaches
4) Flooding takes place also as we know at the Lake St Martin and Dauphin River ends
5) Lake mb has been exceptionally high and the wind events are becoming more frequent.
6) damage from flooding
7) Massive flooding
8) Flooding and destroying livelihoods of families along the lake.

Question: Should the current range of 810.5 feet to 812.5 feet be maintained?

Yes	77.8% (7)
No	11.1% (1)
Don't know	11.1% (1)

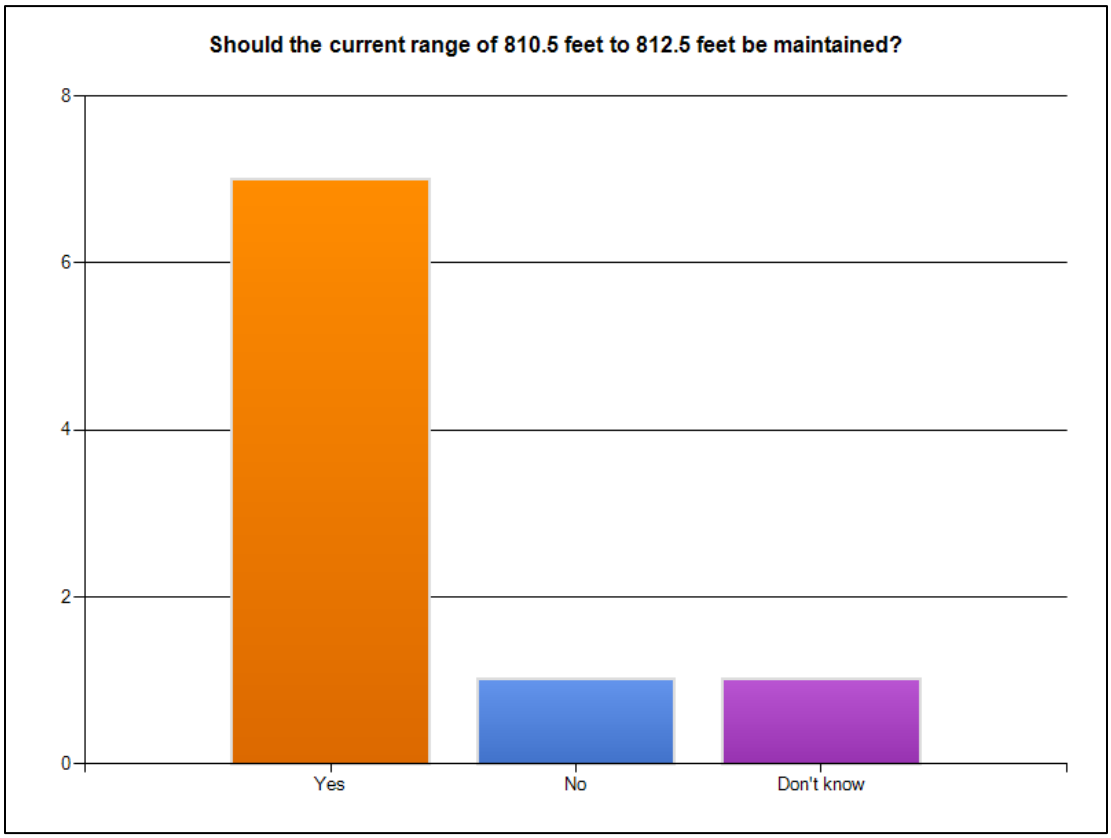


Figure E3.3: "Should the current range of 810.5 feet to 812.5 feet be maintained?"

If the answer to the above question is no - what should the range be? (note: this survey format accepts whole numbers only):

High:	812.00 (1)
Low:	809.00 (1)

Question: Should the emergency channel (Lake St. Martin to Lake Winnipeg) be made a permanent control structure?

Yes	100.0% (10)
No	0.0% (0)
Don't know	0.0% (0)

Question: Do you have other comments or concerns about the range of regulation of Lake Manitoba?

1) At the time of Portage diversion construction, the secondary channel was recommended to increase the outflow to that of the increased inflow. Gov. decided not to complete the project. Poor advisement did not complete the project. 3x the water in & 1x the water out has proven how negligent their choices were.

2) Lake level controls is the only true solution and this business of raising cottages, homes and structures to meet the pie in the sky levels well to say it politely that is totally irresponsible governing.

3) An additional channel for Lake Manitoba has to be built. There is life outside of the perimeter highway

4) The inputs into Lake Manitoba has been considerably increased, logic would suggest that outputs should be correspondingly increased. The alternative is flooding Lake Manitoba every time the input is needed. Further, it is likely less expensive to build the outlet then create a myriad of permanent dykes and raising properties.

5) The present range isn't allowing the marsh to operate as it should. Farmers cannot hay their Crownland in the present situation.

Section 2: Lake St. Martin

Question: Until 2011 was regulation of Lake St. Martin working in an acceptable manner?

Usually	16.7% (1)
Some of the time	50.0% (3)
Not often	33.3% (2)

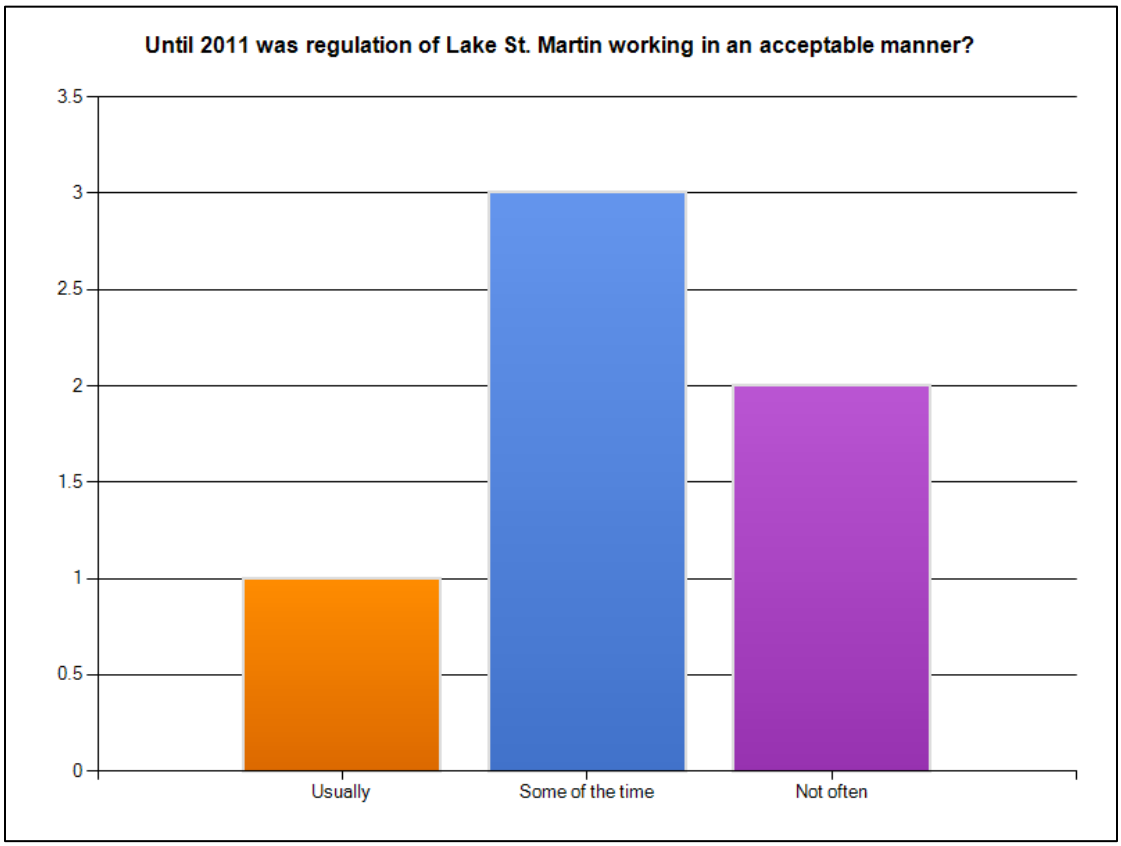


Figure E3.4: "Until 2011 was regulation of Lake St. Martin working in an acceptable manner?"

Do you have examples or comments about regulation of Lake St. Martin?

1) Flooding has always been a concern and has happened. BUT, you cannot live on the waters edge & not expect that.
2) Not 100% confident in my answers about Lake St. Martin because my knowledge is hearsay
3) The intermittent (termed regular) flooding in First Nations Communities along the lake is due more to infrastructure (poor drainage in spring) than from lake levels.
4) Too much in, not enough out!
5) I don't know the history of Lake St. Martin beyond last year.

Question: Are most problems in Lake St. Martin at the high end or the low end of the desirable operating range?

High end	66.7% (4)
Low end	0.0% (0)
Both ends of the range	33.3% (2)

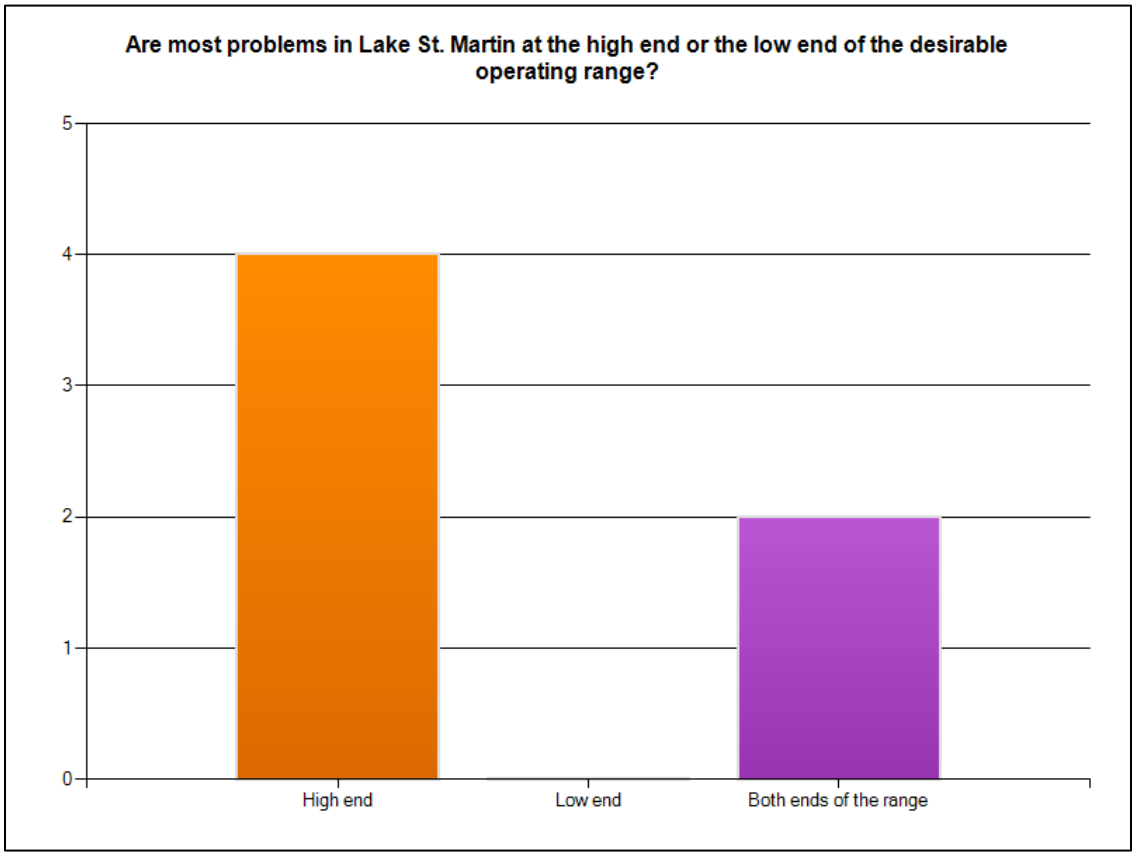


Figure E3.5: "Are most problems in Lake St. Martin at the high end or the low end of the desirable operating range?"

Do you have examples of problems at the high or low end of the range on Lake St. Martin?

1) Not really.
2) Apart from 2011 levels, see [previous] comments
3) Flooding.

Question: Should the current range of 797 feet to 800 feet be maintained?

Yes	33.3% (2)
No	0.0% (0)
Don't know	66.7% (4)

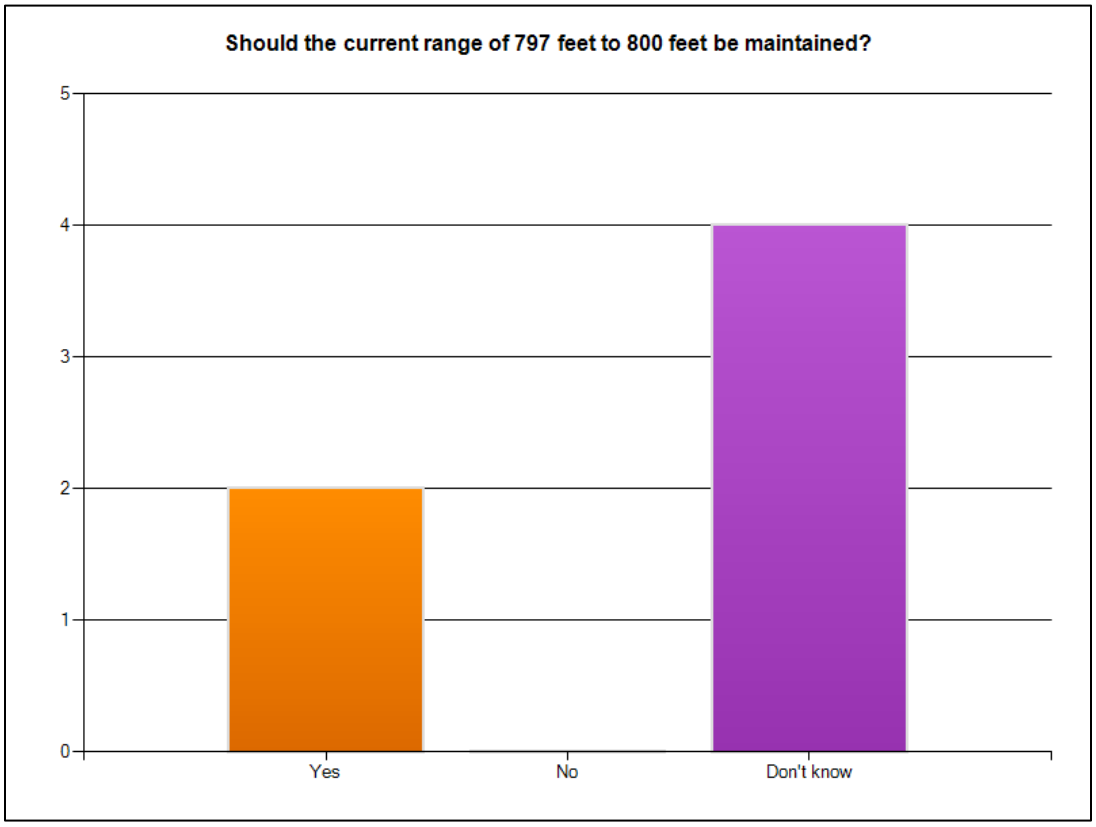


Figure E3.6: "Should the current range of 797 feet to 800 feet be maintained?"

Should the emergency channel (Lake St. Martin to Lake Winnipeg) be made a permanent control structure?

Yes	100.0% (7)
No	0.0% (0)
Don't know	0.0% (0)

Is there a need for a new channel between Lake Manitoba and Lake St. Martin?

Yes	100.0% (7)
No	0.0% (0)
Don't know	0.0% (0)

Question: Do you have other comments or concerns?

1) We send billions of dollars away to other countries, but we can use our own tax dollars to fix our problems at home. Charity begins at home.

2) I don't think an 18 month study is required to know what the results are going to be, although probably required for environmental reasons

3) Require a control structure on a channel leading from Watchorn Bay to Lake St. Martin

4) Current inflows far exceed output potential putting all in danger.

5) The most important thing is that we need an outlet at the north end of the lake that would equal the maximum inflow from the Portage diversion.

Question: What is your most critical concern?

1) The gov't will choose to do it's own thing, as always [regardless] of the party in power.

2) a repeat of 2011

3) The outflow through this channel should match all the POTENTIAL inflow (potential being the key word. All potential flows, man made or natural. Any flows from the Portage Diversion, especially from flood waters are harmful for Lake MB and down stream. It is only a matter of time until Lake MB starts with algae blooms.

4) future flooding and no controls plus the raising of structures which is totally unnecessary if lake level controls put in place

5) second channel (from Watchorn Bay) would reduce concern of continued high end operation of the Portage Diversion

6) Making sure the output capacity is improved to match the inflows.

7) The most critical concern is this outlet be constructed as soon as possible so that the people around the lake will have a stable future.

Section 3: Land Use Planning and Zoning

Question: Do municipalities have adequate planning and regulatory tools available to manage shoreline development considerations such as:

	Good	Fair	Poor
Restricting building locations	87.5% (7)	12.5% (1)	0.0% (0)
Setting standards for development	87.5% (7)	12.5% (1)	0.0% (0)
Maintaining riparian vegetation	87.5% (7)	0.0% (0)	12.5% (1)

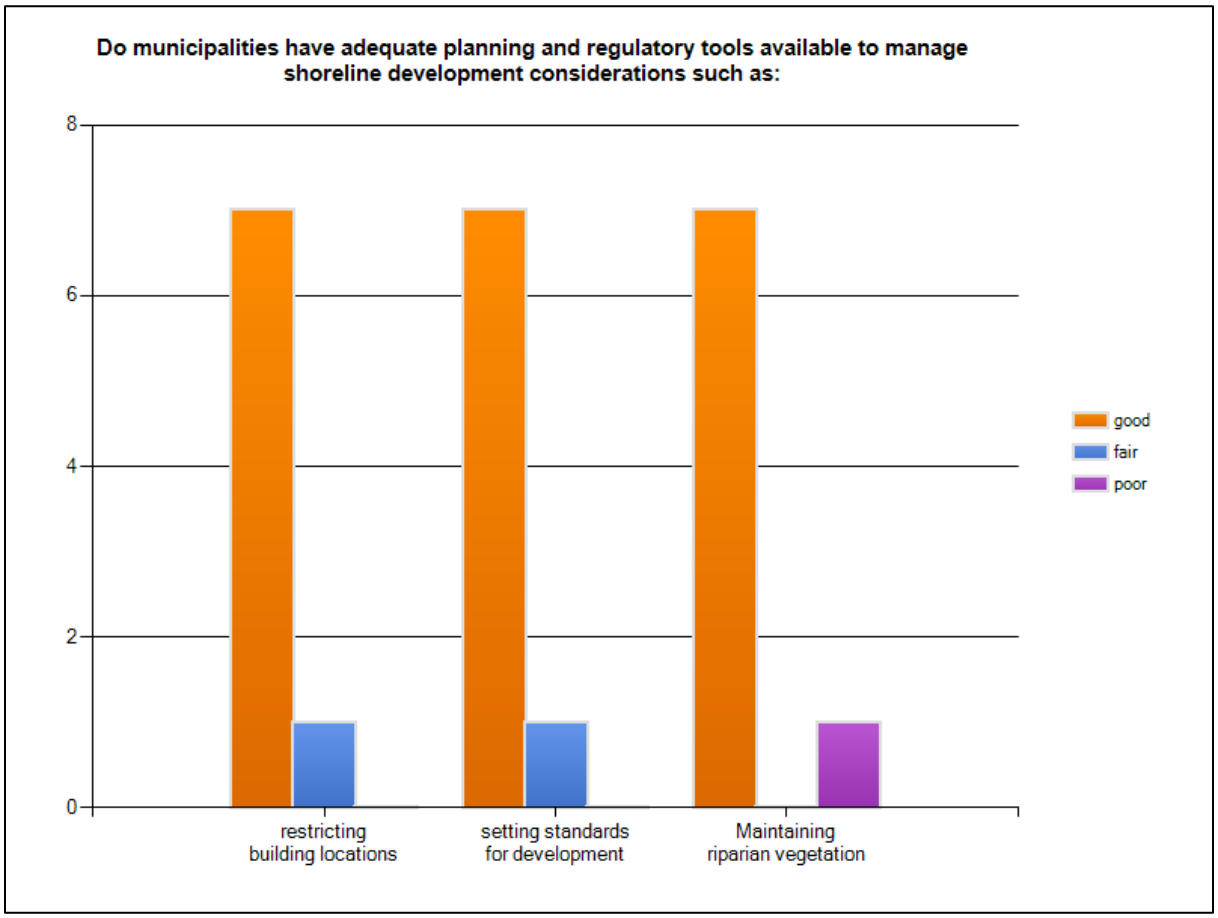


Figure E3.7: "Do municipalities have adequate planning and regulatory tools available to manage shoreline development considerations such as restricting building locations, setting standards for development, and maintaining riparian vegetation?"

Comments or suggestions:

1) conservation & planning board regulations in place

2) We have good standards for planning and regulation. The problem is not the municipalities but the province that wants to dump uncontrolled amounts of water into Lake Manitoba to protect Portage, Winnipeg and the areas in between. Don't change the planning act, change the water management policies of the province.

3) Restricting building locations is not required any more than before the flood. We have had and will have not issues in the RM of St. Laurent if proper lake levels are maintained.

4) Tools were effective, but we are now in a position where we cannot anticipate levels. We need new average and hi /lo operating levels

5) While we have capacity to manage our land use policy, we do not have the control on the lake levels and resulting impacts.

Question: Do you consider shoreline reserves (public reserves, Crown Reserves) an effective method in protecting shorelines from erosion, maintaining public access to the lake, and protecting water quality?

Yes 62.5% (5)
No 37.5% (3)

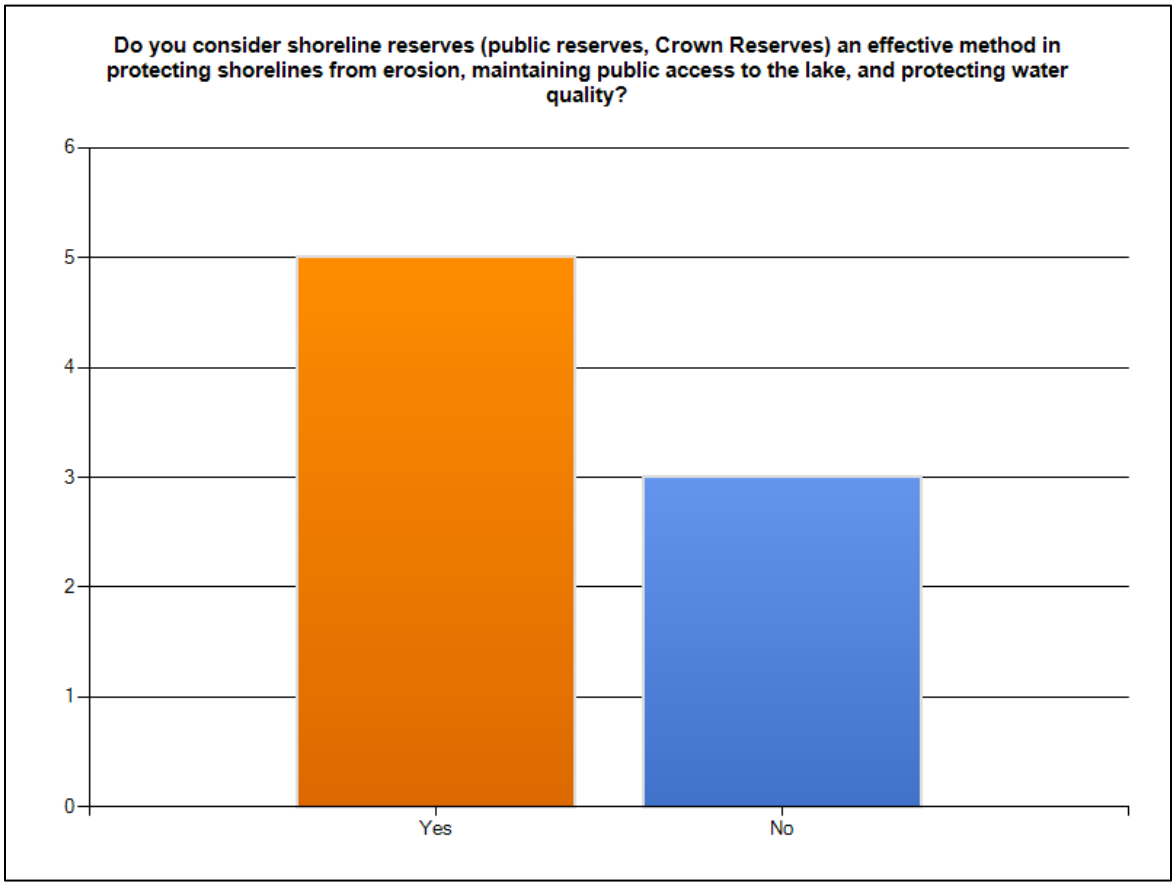


Figure E3.8: "Do you consider shoreline reserves (public reserves, Crown Reserves) an effective method in protecting shorelines from erosion, maintaining public access to the lake, and protecting water quality?"

Comments or suggestions:

1) Maintaining the Lake Level is the best solution to all these problems.
2) Again, new (high) levels have reduced the effectiveness of PRs
3) Shoreline reserves are not used enough, if there were many more, they may or may not be effective.
4) Except in times of extreme flooding.

Question: What other methods should be considered to protect shorelines?

1) A fluctuating lake level, targeting for 811 for a few years to allow for deposits rather than erosion.

2) Updated assessment of riparian zones and erosion protection.

3) Maintenance of lower lake levels will best protect our shoreline.

4) Funding for municipalities to protect their shorelines.

5) Control of flooding would be the best protection.

Question: What information/ research/ mapping do municipalities need to help proactively manage and protect shoreline development?

1) Leider mapping, shoreline erosion management methods - current or new - all need to be reviewed after this past flooding.

2) More up to date aerial or satellite imagery.

3) Lidar (sic) with accurate elevations would help.

4) No comments.

5) We need updated info on water levels and how Assiniboine River and Winnipeg flood protection procedures will effect Lake Manitoba.

6) Modeling of various lake levels and inundation information.

7) GIS mapping. Access to all information pertaining to shoreline elevations.

Appendix E4: Online Feedback Form Report

One of the key components of the Lake Manitoba / Lake St. Martin Regulation Review Committee's public engagement strategy was an online feedback form. This form was available through the Committee's web site. Through advertisements and email notices, members of the public and other flood-affected stakeholders were invited to complete the online feedback form and respond to questions related to the Committee's terms of reference. The form was available from early June 2012 through early October 2012. In total, 121 completed forms were submitted during that time period.

The feedback received via the online form is presented in the following report, which has been organized based on the 10 questions that were asked in the form. A summary of this information is also presented in the Committee's Main Report and in Appendix E2. It is important to note that, although the online form posed questions regarding both Lake Manitoba and Lake St. Martin, the vast majority of responses received were related to Lake Manitoba only. Few comments were received that were specific to Lake St. Martin.

Question 1:

On May 1 of 2012, Lake Manitoba was about 813.25 feet above sea level. What do you think the range of lake levels for Lake Manitoba should be? And why?

The most common response to this question was that the lake should be regulated at pre-flood levels, described as either 810-812 or 810.5-812.5 ft. asl, with nearly half of respondents answering this way. Reasons given included:

- output potential needs to equal input potential in order to allow a range to actually be adhered to – i.e. it is not regulation if the upper limit is not an actual limit (e.g. 2011)
- this range allows the lake level to be not too high in some areas but not too low in others
- this is the level that much of the cabins, homes and businesses around the lake were originally built to
- this level will allow the resumption of all previous activities – fishing, cottaging, camping, swimming, etc.
- to avoid destructive wave action and associated flooding
- to prevent cattail and/or weed growth and erosion
- to maintain well levels
- this is the level that provides the greatest benefit to North Basin stakeholders
- this range worked for many years in the past

Several respondents felt that this range was only appropriate provided that the levels were at 811 ft. asl by September 30, so that marshlands have a chance to be flushed out and emergency spring runoff can be accommodated. It was suggested that levels should follow the 10 year cycle

that was suggested in the July 2003study on Lake Manitoba regulation. 811 ft. asl was suggested as a lower limit that would enable the prevention of weed growth.

Some respondents felt that greater variation, such as 808-812 ft. asl, was necessary to accommodate marsh health but also protect property around the lake.

Several respondents suggested that levels should be just slightly lower than before the flood, with an upper limit of 811 ft. asl. Reasons given included:

- this would allow berms to rebuild – natural fluctuation up to 812 could be allowed after that
- levels have purposely been kept at the maximum in the past and there has been no accounting for storm events
- too much erosion was caused by pre-flood storm events; the lake can handle weather events without damage at this level

A few respondents suggested the lower limit should be 807 or 808 ft. asl, with only one in support of a very low range of 805-807 ft. asl, which was felt necessary to avoid flooding. A handful of respondents were in support of a higher upper limit, at 813 or 814 ft. asl. In two cases it was noted that a max of 813.5 ft. asl was in accordance with a caveat title on the respondents' property.

Key points noted included:

- levels must be dropped in the fall
- the previous levels worked for many years – however levels often seemed to be kept at the high end, which does not allow shoreline recovery
- a constant level is responsible for severe erosion
- levels must actually be regulated
- there is a need to consider homes and cottages as well as ecosystems; a hierarchy of priorities should be created

> *"The range of the lake must be lowered, primarily because the current infrastructure in place to reduce lake levels is not capable of keeping levels below the upper maximum level."*

Question 2:

Until the spring of 2011 were you satisfied with the range of regulation?

Respondents were split on this question, with nearly half answering "no" and nearly half answering "yes". Many who answered "not satisfied" felt that the lake had been kept at too high levels for many years. Some of the other reasons for not being satisfied included:

- lakes should be allowed to fluctuate naturally so that berms, sand dunes and wetlands can rebuild and/or renew
- the outlet designed in the 1970s should have been completed at that time
- as lake levels were brought up drainage ditches became backed up with stagnant water during the summer
- higher ground water levels caused moisture problems under homes
- increasing lake levels created undue pressure on manmade retaining walls in front of properties, causing them to fail several times
- the lake was often raised artificially in the summer months, leading to damage due to fall storms
- it used to be possible to walk to the end of Twin Lakes Beach Road, now it is not due to years of erosion
- the capacity of pasture and hay land was reduced, leading to a reduction in income and financial stability, as well as a loss of access to some agricultural land
- the level was kept too low at times

Some who were satisfied with the past range of regulation indicated that, even though it was satisfactory, there were still issues such as:

- shoreline exposure when the levels were too low
- levels being maintained too much on the high end at times
- the Portage Diversion being used too frequently, causing the lake level to increase steadily

Other points noted included:

- The Portage Diversion should only be operated for emergencies, not for convenience
- Lake Manitoba should have extra drains and a clear set of operating rules as Lake Winnipeg does

Questions 3 & 6*:

Should the emergency channel (Lake St. Martin to Lake Winnipeg) be made permanent?

**Questions 3 and 6 were the same, asked once for the Lake Manitoba section, and once for the Lake St. Martin section. Most respondents did not answer Question 6, or repeated their response to Question 3. Responses to both questions are combined here.*

A large majority of respondents answered "yes" to this question. Reasons given included:

- because the Portage Diversion is permanent
- outflow must be able to equal inflow
- it will allow the lake to be better positioned for heavy spring runoffs
- this will help bring back confidence in investment in the area
- that was the plan when the Portage Diversion was built
- it would be a waste of money and effort to close it

Those who answered "no" gave reasons including:

- it is not adequate; outflow from Lake Manitoba and/or the channel at Fairford needs to be increased
- the emergency channel was ill conceived
- it does not help Lake Manitoba and only alleviated flood issues east of Highway 6
- the Province should spend the money working on the banks of the Assiniboine River and completing the Shellmouth Dam instead

Many who responded "yes" indicated that a channel from Lake Manitoba to Lake St. Martin is necessary in addition to the emergency channel, in order to drain the water coming into Lake Manitoba via the Portage Diversion. Related and other comments included:

- twinning of the Fairford drain from Lake Manitoba to Lake St. Martin is needed
- it would cost less for a secondary channel to be built than for everyone to raise their land and buildings
- the Fairford River must have more capacity
- the Fairford Control Structure needs to be upgraded
- the emergency channel would not have stopped the flood as the flood water did not accumulate in Lake Manitoba until the spring thaw and summer rains, when the Fairford Control Structure was already at full capacity
- the second channel should be built at Watchhorn Bay
- given that flooding of higher intensity and frequency is anticipated due to climate change, an additional channel is essential
- the emergency channel and the Portage Diversion should only be used for emergencies and Lake Manitoba should not be used as a reservoir for the Assiniboine River

Question 4:

Lake St. Martin has a desirable operating range of 797 to 800 feet above sea level. (On May 1 of 2012, Lake St. Martin was about 801 feet above sea level). Until the spring of 2011, was the regulation of Lake St. Martin working in an acceptable manner? Should the acceptable range be maintained at 797 to 800 feet?

Many respondents did not answer this question, or indicated that they were not familiar enough with Lake St. Martin to provide comment. Approximately 10 people indicated that the regulation of the lake had been acceptable, and a similar number indicated that it had not. In some cases it was clear that respondents were answering the question based on their perception of how the regulation of Lake St. Martin might have an impact on Lake Manitoba. Some of the comments made included:

- the lake should be kept at its natural levels
- the level should be kept closer to 797
- the top end should be lowered
- 800 feet should be the minimum in order to mitigate future flooding (on Lake Manitoba)
- there should be regulation concerning what is built around the lake so that past problems are not repeated; the community should be settled on higher ground and/or properties and structures around the lake should be raised so that the maximum level can be increased
- the new channel should be used to help regulate the lake level
- this range should be maintained but not at the expense of Lake Manitoba; Lake St. Martin must be able to drain enough to enable effective Lake Manitoba drainage
- the level should be kept within a range that does not cause damage on the lake; if they were persistently being flooded at that level then it is not acceptable
- the range must not have been working properly before as the outflow through the Fairford dam was reduced to zero over the winter of 2010/11
- outflow improvements to Lake Manitoba should not adversely impact Lake St. Martin residents
- the range should be maintained in conjunction with the regulation of Lake Manitoba and the operation of other control structures

Question 5:

Prior to spring 2011, if you had problems with the lake level of Lake St. Martin was it at the high end of the range or the low end?

As with the previous question, most respondents could not comment on this question. A handful of people did respond (approximately 15), with most indicating problems with the lake level were at the high end of the range. Specifically, one responded the high end was the problem if that is what prevents the Fairford Control Structure from running over the winter. Two people

commented that Lake St. Martin can present problems at both ends of the range depending on what is expected from the lake, or on weather and wind conditions. A couple of respondents indicated they did not have a problem with Lake St. Martin prior to 2011.

Question 7:

Do you think that, in general, local authorities have in place adequate land use policies and zoning regulations?

Responses to this question were mixed, with many respondents answering "no" and many answering "yes". Several also indicated that they were not familiar with the existing policies and regulations. Comments from those who answered "no" included:

- the issues exposed by the flood of 2011 and before that have created even more confusion
- the process seems to be ad hoc and there is no planning or vision; there is a lack of guidance and direction from all levels of government
- most municipal officials do not have the knowledge, skill or ability to make educated water level decisions and land use regulations – there needs to be input and advice from those trained to do so; some of the people hired for these jobs are not qualified
- there are some areas that should have been built higher in the first place – areas below 817 feet or so seem to have been prone to flooding during extreme wind events at levels above 812
- there were cottages and homes that were too low all along – i.e. in Woodlands and North Twin Lakes Beach; road elevations and building permit elevations are too low
- development has been allowed in the Assiniboine River area without adequate flood protection being put in place
- policies should ensure that properties are "flood proofed"
- policies have not been updated for ages and do not reflect current conditions
- there is too much unregulated wetland drainage that directly impacts the amount of runoff running into the lake; a strict land drainage policy is needed, in coordination with other jurisdictions, to prevent artificial drainage; some land needs to be left wet
- Ducks Unlimited has caused a problem east of the RM of Coldwell that must be addressed

Comments from those who answered "yes" to this question included:

- policies are adequate as long as water levels are managed within the range
- policies need to be used and enforced – water needs to be stored on land and slowly released to the drainage system to ease flooding events
- there is no need for the 820 building level for cottages if the lake is kept within the 810-812 range

Other comments included:

- it is difficult for local authorities to do land use planning when they do not control use of the floodway
- the issue is not land use policies (i.e. it is water management)

Question 8:

In your opinion what should new zoning/land development guidelines look like?

Many respondents indicated they did not know enough about this topic to provide comment. Several people indicated guidelines should remain as they were before the flood, provided that the various outlets commented on above are operational. Others who responded to this question made a wide range of comments. These included:

- the range of lake level regulation needs to be determined first (before land use guidelines are developed)
- the best agricultural land should be identified and zoned as such, specific areas should be designated for settlement, and some allowance should be included for a future manufacturing/industrial base in the area
- new development below 817 is not a good idea
- if the emergency channel is made permanent and a secondary channel is built, asking people to build to 822 is overkill – 819 seems reasonable
- the government should not pick a number (i.e. a building height) that is obviously safe but not realistic in terms of the scope of existing developments
- raising homes by seven feet will lead to erosion from storms and wave action underneath
- there should be more protection for homeowners, with structures built at higher levels
- new buildings should be built to flood plain levels
- all land subject to flooding should have restrictions put on it – "build at your own risk"
- adequate riparian vegetation (to prevent erosion) must be maintained and standards enforced for environmental protection – i.e. regarding septic tanks, use of herbicides, etc.
- there should be a moratorium on wetland/slough drainage and wetlands should be restored to hold water
- water tables, water quality, sewage treatment, habitat protection and healthy aquatic environments should all be considered
- municipalities should have uniform sea walls, gabions, rock use, etc.
- cement walls on lakefront property should not be allowed
- culverts and ditches are needed for drainage
- artificial marinas need to be diked and closed in flood situations

- changes are not necessary but permanent diking around the Assiniboine River should be improved
- there needs to be better control over permanent versus temporary structures
- guidelines should be transparent, evidence-based and reviewed every two years and upon request
- guidelines should be liberal and provide flexibility so that people are able to manage their own property
- zoning and land development regulations are not the right tool – the issue is lake management by the government and Manitoba Hydro, and using the lake as a water storage area

Question 9:

What is the impact to you personally of the policy requiring new construction to be based on the "flood of record" plus wind effects? Please be as specific as possible.

Approximately half of the respondents to the online form indicated that they will be, or are already, affected by the above policy. Many of these impacts are significant, with consequences ranging from the financial to the physical and/or psychological. Among a variety of comments, the following impacts or concerns were noted:

- people cannot afford the cost of raising their infrastructure, and financial assistance from the government, if available, is not enough to cover it
- people do not want to spend more money on their properties when the re-sale value has already decreased significantly
- if agricultural lands and roads remain unprotected, there is little point in raising infrastructure
- raising structures will require additional modifications to plumbing and hydro connections
- people will have difficulty accessing their homes if a seven-foot staircase to the door is required; this is particularly a concern for senior residents, many of whom had intended for their properties around Lake Manitoba to be their retirement homes
- raising structures will not prevent the foundations and land underneath from eroding
- the policy is too restrictive and unrealistic and will cause land values to be reduced

Many respondents found the "flood of record" policy difficult to accept, for the above reasons as well as the fact that there were no problems with many existing structures for decades before 2011. A large number of people also suggested that future flooding can be avoided if Lake Manitoba outputs are able to equal inputs, so raising infrastructure is unnecessary. In addition, people felt it does not make sense for the policy to be applied to areas which were not affected

by the flood or were adequately protected by dikes. It was also suggested that the policy creates the impression that the Province may be willing to allow a repeat of the 2011 flood to occur.

Question 10:

Please provide any additional feedback you have regarding the regulation of Lake Manitoba and Lake St. Martin, and/or related land use policies and zoning.

Respondents used this space on the feedback form to comment on a wide range of issues related to the 2011 flood and to the regulation of Lake Manitoba. It was made clear that many people have been significantly impacted by flooding around Lake Manitoba and Lake St. Martin, and continue to experience financial and emotional hardship.

Issues commented on included:

- lost livelihoods of farmers, ranchers, commercial fishers and business owners
- unusable pasture and hayland
- the reduction in land values
- lost "dream" and/or retirement homes
- lost recreation opportunities
- countless hours spent toward flood recovery
- lost confidence in the Province's ability to manage water levels and an associated reduction in investment opportunities around Lake Manitoba
- the requirement to pay taxes and utility bills for properties that have not been usable or habitable
- frustration and anger at the lack of acknowledgement of a perceived sacrifice for communities downstream, and the belief that the Province has not accepted responsibility for the perceived impact of the use of the Portage Diversion
- frustration with the pace of the compensation process, as well as with compensation amounts and with the people administering related programs
- differences in the treatment of home and cottage owners
- a lack of advice along with confusing or misleading information from officials
- environmental concerns including the need to protect Delta Marsh and restore shoreline vegetation, as well as the pollution of Lake Manitoba caused by water entering the lake from the Portage Diversion
- concern that the Province will not consider the public feedback received through this review process

Appendix F: 1994 Red River Floodway Program of Operations

Portage Diversion Operation Rules

RED RIVER FLOODWAY

PROGRAM OF OPERATION

October, 1984
Winnipeg, Manitoba

Prepared by:
Flood Damage Reduction Section
Water Management Service

PORTAGE DIVERSION OPERATION RULES

The Portage Diversion has a capacity of 25,000 cfs (708 m^3/s) at full supply level of 769.0 feet (234.39 m) However, there is a failsafe section which will breach at 15,000 cfs (425 m^3/s).

Operation Objectives

The Portage Diversion will be operated to meet these objectives:

1. To provide maximum benefits to the City of Winnipeg and areas along the Assiniboine River downstream of Portage la Prairie
2. To minimize ice jams forming along the Assiniboine River.
3. Not to increase the water level in Lake Manitoba beyond the maximum regulated level of 812.87 feet (247.76 m), if possible.
4. Prevent overtopping of the failsafe section in the Portage Diversion, if possible.

Emergency Operation

The Assiniboine River dykes between Portage la Prairie and Headingley have a capacity of about 20,000 cfs (566 m^3/s). Therefore, an emergency situation exists when the inflow into the reservoir is 45,000 cfs (1274 m^3/s). When the inflow exceeds 45,000 cfs (1274 m^3/s), it is the policy to maintain 25,000 cfs (708 m^3/s) in the Portage Diversion with the remainder allowed into the Assiniboine River downstream. When the Assiniboine River dykes are overtopped, adjustments must be made

to the computed natural flow in Winnipeg. This is discussed under the section Assiniboine River Dykes Overtopped.

Operation Rules

1. Except as provided for under Rule 8, the Portage Diversion shall be utilized to its maximum capability to keep water levels in Winnipeg below 17.0 feet (5.2 m), City Datum.
2. The flow in the Diversion shall not be allowed to exceed 25,000 cfs (708 m^3/s).
3. If flow forecasts indicate that the peak inflow into the reservoir to be 20,000 cfs (566 m^3/s) or more, the Diversion will be put into use as soon as possible to flush out snow blockages and insitu ice.
4. During the period that there is ice on the reservoir, the water level of the reservoir will not be allowed to exceed 865.0 feet (263.65 m) to provide room for releases from breaching of upstream ice jams.
5. The conduits of the Spillway Structure shall be closed while there is water going over the bascule gates.
6. While there is ice on the Assiniboine River downstream of Portage la Prairie it is desirable to limit flows to approximately 5,000 cfs (142 m^3/s) in the River if possible. Flows of this magnitude appear to be optimum flows required to assist in flushing the ice down river without causing major ice jams or flooding to adjacent farm lands through local drainage inlets. This procedure provides additional

capacity, if required, on the River downstream of Portage la Prairie when the second peak arrives. The level of Lake Manitoba should not be taken into account while there is ice on the Assiniboine River, as the period during which there is ice on the River during the spring runoff is only a few days, and diverted flows for this short a period of time have a negligible effect on the level of Lake Manitoba.

7. After the ice has gone from the Assiniboine River downstream of Portage la Prairie, it is desirable to maintain flows less than 10,000 cfs (283 m^3/s) in the River if possible. Flows greater than 10,000 cfs (283 m^3/s) are above the natural bank stage of the River, and backup of local streams which outlet into the Assiniboine may occur at this level. There also may be seepage problems through the dyke, leakage under the dyke through gated culverts and flooding of cultivated land between the dykes.

8. For flows of up to 30,000 cfs (850 m^3/s) under open water conditions, the failsafe section of the west dyke of the Portage Diversion should not be breached if the peak stage in Winnipeg will not exceed 18.0 feet (5.5 m).