

MIT Technical Submission

How many kilometers of provincial waterways are located in this watershed?

In Watershed 114 there are 52 miles of Provincial Drains and 42 miles of Provincial Dikes. Grace Lake and Big Lake Control Structures are also located in the Watershed.

What are the major issues related to provincial waterways in this watershed and where are these issues located?

All of the Provincial Waterways are located in the polder area west of The Pas. The majority of the agricultural land in the Watershed is reclaimed marshland that was de-watered by the construction of pumping stations and drainage canals. The purpose of the Provincial Waterways is to remove water off the agricultural land.

Gravity flow from the Provincial Drains into the Pasquia, Carrot or Saskatchewan River is rarely possible. During periods when water levels are high in the rivers, pumping is required to remove surface water off the land. In addition, topographical gradient is limited, so during periods of heavy prolonged rainfall flooding and crop losses do occur; water is unable to flow from the farmland to the pumping stations fast enough.

All drains in the polders are susceptible to flow restrictions due to vegetative growth.

Five pumping stations (The Pas, Mile 9, Mile 14, Mile 18, and Victor Jory) are located within the polders. Without the operation of the pumping stations much of the agricultural land would revert to wetlands.

In 2013, a total of 8300 hours were spent on pump operation at a cost of approximately \$500,000. Diesel fuel is the major expense.

What solutions do you suggest for addressing flooding and potential droughts in the Carrot-Saskatchewan River watershed?

Flooding of cropland during heavy rains is a major issue in the polders. Maintenance of the drainage network is essential to minimize crop loss. Additional pumping capacity is desirable at the Knapp Dam (The Pas) pumping station to reduce flooding along the Pasquia River.

Drought is rarely a cause of significant crop loss in the Carrot River Valley.

Are there opportunities for waterway control structures to reduce extreme peak flows and ensure a more natural and ecologically-supportive flow regime in this watershed?

Improvements to the drain that conveys water from Big Lake to the Cul du Sac River should be investigated to determine if increasing drain capacity is cost effective. This channel allows gravity flow to lower Big Lake, which reduces pumping requirements at Jory Pump Station. A lower level on Big Lake would enhance the storage capability of the basin.

Are there any water control structures operated by your department in the watershed? If yes, which structures?

Two control structures are operated by Water Management and Structures; Grace Lake and Big Lake. Big Lake is presently used as a storage reservoir but it is often a challenge to lower the basin to its operating range.

Are there any locations where water can be retained permanently or temporarily to reduce flooding within the Carrot River Valley? If yes, can you provide a map showing ideal areas for water retention projects?

No additional areas with storage potential are known.

What waterway maintenance or reconstruction work is planned in this watershed in the next five years?

MIT is presently reconstructing the Mile 14 Pumping Station. When complete, the new structure will have double the pumping capacity of the old structure, and will have the capability to allow gravity flow when physically practical.

A feasibility study of the Big Lake – Cul du Sac Drain is planned.

The The Pas Pumping Station consists of 3 diesel powered pumps and 1 electric pump. The department is investigating whether converting additional diesel engines to electric is possible. Drain cleanouts are planned for R Drain, Q / B1 Drain, and portions of Drain B2 and Drain 2 subject to funding availability.