Winnipeg River Bridge on PR313 at Lac du Bonnet

June 2014

Manitoba
Regional Context
Local Area
Purpose and Need

• The Winnipeg River Bridge on PR313 was originally constructed in 1930 as a trolley and vehicle bridge. Since then, it has been modified and repaired several times - in 1958, 1965 and 1994.

• The steel edge beams along the north side of the bridge are severely deteriorated. Due to safety reasons, MIT closed the north lane of the bridge, and imposed single lane signalized traffic along the south side of the bridge.

Severe deterioration of the edge beam on north side.
Bridge Cross Section

This diagram illustrates the bridge in a simplified form. The northerly edge beam is severely deteriorated, which is the main reason for closure of the westbound lane.

- Roadway (approx. 6.2m or 20')
- Deck
- Sidewalk
- Edge Beam (deteriorated on north side)
- Main Girder
- Bearing
- Pier
- Normal Water Level
Purpose and Need

• Stantec Ltd. Has undertaken a detailed condition survey of the entire bridge and will complete a preliminary design of rehabilitation alternatives to extend the service life of the bridge.

• The bridge is located on a vital transportation link to the east side of the Winnipeg River at Lac Du Bonnet. The bridge provides access to local residents and businesses, the mining industry, agricultural operations, cottagers and many others. MIT is committed to working expeditiously to have this bridge repaired and re-opened to normal operation as soon as possible.
Current Status

• Stantec has evaluated the condition of the bridge and is in the process of developing viable rehabilitation options.

• MIT has also retained Landmark Planning & Design Inc. to assist with the stakeholder and public consultation process. This process will collect input from stakeholders to assist the project team in making decisions and recommendations.
Findings of the Condition Survey

• Operating the bridge in its current condition (restricted single lane traffic on south side) does not pose a safety risk with respect to bridge stability.

• The river piers and abutments are generally in good condition.

• The steel girders will need extensive repairs and strengthening or possibly replacement (depending on life cycle cost analysis).

• The bridge deck requires full replacement.

• The roadways approaching the bridge will need minor upgrades.
Traffic Signal Operation

• Sensors at each end of the bridge now allow for a longer line of cars to pass through (for as long as 90 seconds), while the end of a short line quickly terminates the green cycle in that direction.

• If there is a 4 second gap, the lights will turn red in that direction.

• There is a 40 second time period to allow vehicles to clear the bridge before the green signal appears for the opposite direction.

• These adjustments should make a significant difference to reducing the overall delay at busy times.

• MIT will continue to monitor the effectiveness of the signals and make adjustments as required.
Alternative Route Across Winnipeg River
Proposed Rehabilitation Alternatives

• The study team has started to examine rehabilitation alternatives. The alternatives may involve a full closure of the bridge at specific periods of time.

• Currently, a series of options are being examined ranging from replacing the failing bridge components, to constructing a new bridge.
Option 1 - Replace Damaged Bridge Components

**Description:** Only the critically deteriorated components would be replaced. These include: Edge Beams and all knee braces along north side, some Connection plates etc.

- **Bridge Closure Periods:** One lane of the bridge would be closed through the construction period.
- **Construction Timeframe:** 12 Months
- **Environmental Approvals:** Working over water: Transport Canada, Fisheries
- **Resulting Bridge Lifespan:** 10 more years
- **Initial Construction Cost:** $10-15M (lifecycle costs tbd)
Option 2 – Extensive Rehabilitation

**Description:** Would include all Option 1 items plus, bearing replacement, girder rust pack cleaning and significant strengthening measures; blast and re-coat entire structure and deck repairs.

- **Bridge Closure Periods:** One lane of the bridge would be closed through the construction period.
- **Construction Timeframe:** 16 Months
- **Environmental Approvals:**
  Working over water: Transport Canada, Fisheries
- **Resulting Bridge Lifespan:**
  No more than 40 years
- **Initial Construction Cost:**
  $15-20M (lifecycle costs tbd)
Option 3 – Construct New Bridge on Existing Piers

**Description:** A new bridge would be constructed on the existing piers. Additional girders added and possible replacement of two existing girders, bridge widening and deck replacement.

- **Bridge Closure Periods:** One lane of the bridge would be closed through the construction period (possibility of full closure for some period of time).
- **Construction Timeframe:** 16 – 24 Months
- **Environmental Approvals:** Working over water: Transport Canada, Fisheries
- **Resulting Bridge Lifespan:** 40+ years
- **Initial Construction Cost:** $20-30M (lifecycle costs tbd)
Option 4 – Construct New Bridge on New Alignment

Description: A new bridge would be constructed on new piers built on the lake bed, beside the existing bridge.

• Bridge Closure Periods: One lane of the bridge would be closed through the construction period

• Construction Timeframe: 3 - 5 years

• Environmental Approvals: Requires environmental approvals. Time period for approvals approximately 1 year, Land expropriation, new approach alignment etc.

• Resulting Bridge Lifespan: 75 years

• Initial Construction Cost: $80-120M
Stakeholder and Public Consultation

- Over the next 6 months we will be meeting with stakeholders and the general public to discuss this project.
- The input will be used to:
  - assist the study team in identifying and refining rehabilitation alternatives
  - selecting a preferred alternative
  - minimizing impact to diverse stakeholders.
## Option Evaluation

<table>
<thead>
<tr>
<th>PR313 Bridge Considerations</th>
<th>Option 1: Replace Damaged Bridge Components</th>
<th>Option 2: Extensive Rehabilitation</th>
<th>Option 3: Construct New Bridge on Existing Piers</th>
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Timing

• Complete a detailed condition survey of the bridge and develop viable rehabilitation alternatives (Initiated November 2013 – November 2014)

• Conduct stakeholder meetings and Public information sessions (May 2014 – October 2014)

• Select a preferred rehabilitation strategy (November 2014)

• Prepare a detailed design of bridge rehabilitation (November 2014 – May 2015)

• Begin construction (Summer/Fall 2015 – 2016)

• If Option 4 is selected, construction would likely begin in 2016 or 2017 and be completed 2019-2020
Questions