MINUTES

September 2018 Section Meeting
Tuesday, September 18th, 2018: 11:30am-1:30pm
Location: Hiway Federal Credit Union
Advertiser: Bolton & Menk

1. **Call Meeting to Order**
   Scott Poska, NCITE President, called the meeting to order at 11:30am. Lunch and networking preceded the meeting.

2. **Introductions**
   All attendees introduced themselves, stated their employer and NCITE involvement, and answered the question “What is the coolest bridge you have ever visited?”. Twenty-three people were in attendance. Responses to the question were as follows:

   - Aerial Lift Bridge in Duluth (2)
   - Golden Gate Bridge (2)
   - Mackinac Bridge (2)
   - One Lane Bridges in New Zealand (2)
   - Stillwater Bridge (2)
   - Baudette Bridge (1)
   - Bridge in Austin (1)
   - Bridge in New Brunswick (1)
   - Bridge in New York (1)

   - Bridge in Prince Edward Island (1)
   - Bridge in South Korea (1)
   - Chapel Bridge in Switzerland (1)
   - Cooper River Bridge (1)
   - Grand Canyon Skywalk (1)
   - Lake Washington Bridge (1)
   - Stone Arch Bridge in Minneapolis (1)
   - Sunshine Skyway Bridge in Florida (1)
   - Suspension Bridge in Vancouver (1)

**Announcements**
Scott made the following announcements:
- The October Section Meeting will take place on October 23rd, 2018 at the University of Minnesota.
- The Annual Meeting will take place on November 15th, 2018 at FlannelJax.
- NCITE scholarship applications are currently being accepted.
- Nominations are open for the upcoming NCITE elections and awards.

3. **Presentation**
   Scott introduced Tyler Krage, NCITE Director. Tyler Krage introduced Dale Grove of Stantec to present on the Baudette Bridge International Crossing Project. The presentation is attached to these minutes. Highlights of the presentation included:

   - **Bridge History:**
     - The bridge was constructed in 1959 and symbolized the transportation initiative to connect Minnesota and Ontario.
     - The bridge operated as a toll bridge until 1988.

   - **Reason for Bridge Replacement:**
     - Corrosion was present on the structural members of the bridge.
The bridge was classified as “fracture critical” and had a sufficiency rating of 48.8 out of 100.

- **Project Team Development:**
  - The project team was non-traditional in that it consisted of two cities, two countries, and two transportation agencies.
  - The project team was divided into a US task team and a Canadian task team who reported to the overall project manager.

- **Project Challenges:**
  - Which agency leads the project and makes final decisions?
  - Who should work on the project and will they be around long enough to see it through completion?
  - How should project meetings take place with stakeholders spread across the US and Canada?
  - Whose design standards should be followed?
  - This is not a “typical” project – there are no manuals or guides.
  - The bridge is a port of entry and cannot be closed for more than 15 minutes.

- **Project Development:**
  - A project communication guide was developed to ensure proper communications throughout the project.
  - Value engineering was encouraged not just to save money but to collect ideas.
  - A bridge standards workshop was conducted to settle on bridge standards, particularly those that differed between the US and Canada.
  - The project team had to work through the environmental documentation per US and Canada standards.

- **Construction Issues:**
  - Who administers the construction contract?
  - Can the contractor’s employees cross the border?
  - How are construction materials imported and taxed?

- **Lessons Learned:**
  - Be ready to listen – there were 96 project stakeholders.
  - Be ready to compromise, especially when agency standards contradict each other.
  - Be ready to document – lots of project specific decisions were made.

4. **Adjourn**

Tyler thanked the speaker and adjourned the meeting at 1:30pm.

Respectfully submitted,

Jacob Folkeringa
2018 Secretary

October 4, 2018
NCITE Section Meeting
September 18, 2018
More than a Bridge: Challenges in Developing an International Border Crossing Project
Agenda

1. Location, History and Need
2. Team Development
3. Project Challenges
4. Developing the Project
5. Lessons Learned
Location, History and Need
Location
History

• Bridge was constructed in 1959 at cost of $1.4M

• Symbolized the local transportation initiatives seeking to connect Minnesota and Ontario, Canada

• Operated as a toll bridge until 1988
Bridge Officially Opened

Pictured here are some of the thousands of people who swarmed onto the new bridge shortly following its official opening. An estimated ten to fifteen thousand jammed the two communities of Rainy River and Baudette Saturday.

TAKEN FROM THE PAGES OF THE RAINY RIVER RECORD AUGUST 4, 1960
Need

• Active *corrosion* on the structural members is reducing the structural capacity of this bridge.

• The bridge is classified as *fracture critical* (non redundant) and has a sufficiency rating of 48.8 out of 100.

• Microbial induced *corrosion* (corrosion due to water-borne bacteria) is evident on the steel caissons.

• This project was initiated as a result of the *Chapter 152 funding* intended to address structural issues
Need
Team Development
Team Development

A non-traditional team was developed to address the needs of:

- Two cities
- Two countries
- Two transportation agencies

...through the construction of one bridge.
Team Development

Project Manager
- Bridge
- Environmental
- Electrical
- Hydraulics
- Highway
- Foundations
- Agency Involvement

Project Manager
- Bridge
- Environmental
- Electrical
- Hydraulics
- Highway
- Foundations
- Agency Involvement
Project Challenges
Project Challenges

Start-Up

- Discussions considering each partner build their half and meet at the center of the river
- Who leads, who decides?
- Developing an Inter-Agency Agreement (design, construction, maintenance)
- Agency staff – who to assign, will they be around long enough to finish the project?
Project Challenges

Start-Up

• What to assign a project consultant to do?
  • Developing a scope

• Long Distances – Toronto, Thunder Bay, St. Catharine’s, Cleveland, Chicago, Minneapolis, Duluth, Bemidji, Baudette, and Rainy River

• Who pays for what and how is that payment made?
Project Challenges

Initial Issues

• Ports of Entry
  • No impacts to operations
  • Limit road closures to 15 minute maximum

• No detours available nearby

• Split ownership of bridge

• Not a “typical” project
  • Only 3 international crossings in MN
  • No “manual” or “how-to” guides
Project Challenges

Legal for US Leading Project

- Presidential Permit
- International Joint Commission
- Government to Government Agreement
- State Department involvement on agreements
- Buy America
Bridge Standards

“You never use that type of construction? On our side of the border we don’t use anything else!”
Project Challenges

Technical

• Different standards

• Different bridge construction methods
  • Pre-cast deck vs. cast in-place
  • Re-bar
  • Different experiences, rules-of-thumb, and preferences

• Which construction method to use?

• Material differences
Project Challenges

Issues/Constraints:
- Ports of Entry
- Rainy River
- Regional Airport
- CNRR Bridge
- Wetlands
- Gravesites
- City Park
- Baudette River
- Stormwater
- Power Sub-Station
- Treatment Ponds
Project Challenges

Environmental

• Historic bridge differences
  • MTO determined the bridge does not qualify for the Ontario Heritage Bridge List

• Differences between the two EA processes requiring coordination and adjusted timing

• Ability of agencies to influence decisions impacting international partners
Non-Traditional Agencies

“We have to contact who? Does anyone have an idea of how we find out who we are supposed to talk to?”
# Project Challenges

## Agencies

<table>
<thead>
<tr>
<th>US</th>
<th>Canada</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBP</td>
<td>Consulate General</td>
<td>IJC</td>
</tr>
<tr>
<td>GSA</td>
<td>CBSA</td>
<td>Rainy River Watershed Board</td>
</tr>
<tr>
<td>USCG</td>
<td>CEAA</td>
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<tr>
<td>US DOS</td>
<td>ECC</td>
<td></td>
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<tr>
<td>USACE</td>
<td>Transport Canada</td>
<td>IBC</td>
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<td>FAA</td>
<td>GAC</td>
<td></td>
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<tr>
<td>FHWA</td>
<td>Ontario MNRF</td>
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<tr>
<td>MNDNR</td>
<td>Ontario MNDM</td>
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<tr>
<td>SHPO</td>
<td>DFO</td>
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</tr>
<tr>
<td>MPCA</td>
<td>MTCS</td>
<td></td>
</tr>
<tr>
<td>Airport Comm.</td>
<td>OPP</td>
<td></td>
</tr>
<tr>
<td>City of Baudette</td>
<td>Town of Rainy River</td>
<td></td>
</tr>
<tr>
<td>LOW County</td>
<td>First Nations</td>
<td></td>
</tr>
<tr>
<td>Tribal Communities</td>
<td>MTCS</td>
<td></td>
</tr>
</tbody>
</table>
Fun

- Every day differences – terms like Consultant or Service Provider, Ministry vs Department, Letting vs Tender Close
- Phrases like “throw away costs”
- Introducing Americans to “Roll Up The Rim”
- Forgetting passports
- Pronouncing words
  - Prä - jekt (US) or prō - jekt (CA)?
- A whole new set of acronyms
  - POE, TH, NEPA, USCG, CBSA, CBP, GSA
Developing the Project
Developing the Project

“Choosing where and how to start the project was like trying to decide where to hop on a spinning merry-go-round.”
Developing the Project

Project Communications

- Project team
  - Project Communication Guide
  - Technical Advisory Committee
  - Decision Request and Record
- Public/Agency involvement Plan
  - Public Advisory Committee
  - Website
  - Community Platform
  - Concurrent Public Meeting Schedules
Developing the Project

Project Communications

- Reaching out to other States and Provinces
- Risk Analysis
- Value Engineering – not just about saving $$ but also for collecting ideas
Developing the Project

Design Standards

• Bridge Design Standards Workshop
  • Design Standards documentation found to be vital to carrying bridge design forward

• Design and Construction Standards Variance Resolution

• Construction requirements and testing

• Who is allowed to do what on each side of the border?
## Developing the Project

### Design Standards

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Topic Number</th>
<th>Topic or Item</th>
<th>Minnesota (MnDOT) Standard</th>
<th>Ontario (MTO) Standard</th>
<th>Project Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-3-C</td>
<td>Structural Concrete</td>
<td>Cements shall conform to MnDOT requirements</td>
<td></td>
<td>OPSS PROV 904 specifies construction specification for concrete structures.</td>
<td></td>
</tr>
<tr>
<td>C-4-B</td>
<td>Reinforcing Material for Concrete</td>
<td>A project specific standard was adopted at the 09/27/2016 Bridge Design Standards Workshop</td>
<td>Black steel will be used in piers, columns, and footings (see DC-19-B Footings, and DC-20-B Piers/Columns). Stainless Steel will be used in the top and bottom deck mats (see DC-21-B Deck Design) and at abutment seats and front faces.</td>
<td></td>
<td>Approved</td>
</tr>
<tr>
<td>C-5-B</td>
<td>Structural Steel</td>
<td>Weathering steel is preferred under the site conditions that exist at the Baudette/Rainy River Bridge</td>
<td>Weathering steel is preferred under the site conditions that exist at the Baudette/Rainy River Bridge</td>
<td>OPSS 906 specifies construction specification for structural steel for bridges MTO only allows weathering steel.</td>
<td>Approved</td>
</tr>
</tbody>
</table>
Developing the Project

Stormwater

- Different methods of managing stormwater of both sides of the border

- Who manages the stormwater from another country?

- Runoff is taken to each respective country for quantity/quality control (no deck drains)
Developing the Project

Historic/Cultural Issues

- Grave sites on US

- Historic bridge in Minnesota, but not in Ontario
  - How do you mitigate ½ a bridge?
  - MN was required to advertise their half “for sale” due to historic nature
Developing the Project

Environmental Studies and Documentation

• Coordinated the processes of both agencies

• Webinars for sharing information
  • Provide project updates to key stakeholders
  • Clarify U.S. and Canadian permit/approval requirements
  • Provide an opportunity for agencies to provide input and for interagency discussion
Developing the Project

Environmental Studies & Documentation
## Developing the Project

### Alignment Alternative Analysis

<table>
<thead>
<tr>
<th>Bridge Alternatives</th>
<th>Description</th>
<th>Result of Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alignment 1</td>
<td>Downstream of Existing Alignment (North Side)</td>
<td>Eliminated</td>
</tr>
<tr>
<td>Alignment 2</td>
<td>Upstream of Existing Alignment (South Side)</td>
<td>Selected Alternative</td>
</tr>
<tr>
<td>Alignment 3A</td>
<td>Existing Alignment, Temporary Modular Bridge (TMB North of Existing Bridge)</td>
<td>Eliminated</td>
</tr>
<tr>
<td>Alignment 3B</td>
<td>Existing Alignment, Temporary Modular Bridge (TMB South of Existing Bridge)</td>
<td>Eliminated</td>
</tr>
<tr>
<td>Alignment 4</td>
<td>Downstream of Existing Alignment (North Side), Staged Construction</td>
<td>Eliminated</td>
</tr>
<tr>
<td>Alignment 5</td>
<td>Upstream of Existing Alignment (South Side), Staged Construction</td>
<td>Eliminated</td>
</tr>
<tr>
<td>No Build Alternative</td>
<td>Description</td>
<td>Result of Evaluation</td>
</tr>
<tr>
<td>No Build</td>
<td>No construction addressing the bridge condition or border operations</td>
<td>Eliminated</td>
</tr>
</tbody>
</table>
Developing the Project

Bridge Type Analysis

- All Bridge Types and Alignment Alternatives needed to work together

<table>
<thead>
<tr>
<th>Bridge Type Alternatives</th>
<th>Description</th>
<th>Result of Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Continuous Steel I-Girder</td>
<td>Selected</td>
</tr>
<tr>
<td>B</td>
<td>Simple-Span Precast/Prestressed I-Girder</td>
<td>Dismissed</td>
</tr>
<tr>
<td>B1</td>
<td>Spliced Prestressed Precast Concrete I-Girder</td>
<td>Dismissed</td>
</tr>
<tr>
<td>C</td>
<td>Continuous Steel Box Girder</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Segmental Concrete Box Girder</td>
<td>Dismissed</td>
</tr>
<tr>
<td>E</td>
<td>Tied Arch Main Span Bridge with Precast Prestressed I-Gird Approaches</td>
<td>Dismissed</td>
</tr>
<tr>
<td>E1</td>
<td>Through Arch Bridge</td>
<td>Dismissed</td>
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<tr>
<td>F</td>
<td>Concrete Slab Span</td>
<td>Dismissed</td>
</tr>
<tr>
<td>G</td>
<td>Spliced Steel Girder</td>
<td>Dismissed</td>
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<tr>
<td>H</td>
<td>Truss Bridge</td>
<td>Dismissed</td>
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<tr>
<td>I</td>
<td>Cable-Stayed</td>
<td>Dismissed</td>
</tr>
<tr>
<td>J</td>
<td>Suspension</td>
<td>Dismissed</td>
</tr>
</tbody>
</table>
Selection of Preferred Alignment

New bridge upstream of existing bridge

FEATURES

• Uses existing bridge for traffic during construction – no temp bridge costs

• Minimizes permanent impacts to U.S. and Canadian Port of Entry facilities

• Allows preferred geometry U.S. Port of Entry

• Increased duration of construction
Selection of Bridge Type
Continuous Steel I-Girder Bridge

FEATURES
• Minimal piers in water
• Experience with construction techniques
• Availability of materials in US and Canada
• Cost effective design and construction
Permitting

Developing the Project

Permit Flow Chart for Baudette-Rainy River International Bridge

Targeted Letting Date: February 23, 2018

[Diagram of permit flow chart]

Project Schedule Key Events

2015

2016

2017

Preliminary Design

Selection of Preferred Plan

MinDOT Design Memo

Geometric Layout

Planning & Preliminary Design Report

Utility Coordination/Coordination

Hydraulics Memo

Waterway Analysis

Hydraulic Report

Bridge Meetings (4)

Preferred Bridge & Alignment

Structure Studies (MN & MinDOT)

A(3) Process & Documentation

Environmental Assessment (MinDOT)

Environmental Assessment (MN)

CEAA Project Description & Review
Developing the Project

International Permitting

• **International Boundary Waters Treaty Act** - International Joint Commission

• **International Bridges and Tunnels Act** – through Transport Canada

• **International Boundary Commission (IBC)** - permit for working near international border
Permitting/Environmental Commitments

• One river, different requirements:
  • In-Water Timing Restrictions (Ontario) in-water construction for the project is permitted from July 16 to March 31
  • In-Water Timing Restrictions (Minnesota) in-water construction for the project is permitted from June 16 to March 14
  • Different requirements for navigational lighting
Developing the Project

Construction

• Who issues and administrates the contract on each side of the border?

• How do the Contractor workforces cross the border? What work is permitted?

• How do materials get across? Are they imported and taxed? Do they require inspection from the border agencies?

• Contractor Information Guide
Baudette/Rainy River International Bridge Replacement
Project Overview & Proposed Views
Lessons Learned
Lessons Learned

Be Ready to Listen
• 96 identified stakeholders
• “My” standards ≠ “Right” standards

Be Ready to Compromise
• Normal standards won’t always be acceptable
• What is good enough?

Be Ready to Document
• Project specific decisions
• TAC choices with other agency staff
Lessons Learned

Be Ready to Travel
• Toronto, Thunder Bay, St. Catharine’s, Cleveland, Chicago, Minneapolis, Duluth, Bemidji, Baudette, and Rainy River

Be Ready to Plan
• TAC & PAC Meetings
• Matching state/national processes
• Actionable Items List
• Schedule/Deliverables
• Construction
Bridges are about connections; our team connected solutions to every challenge (and metric conversion was the easy part)
Questions?