

ENVIRONMENTAL ASSESSMENT/ ENVIRONMENTAL ASSESSMENT WORKSHEET

Trunk Highway: 72
State Project: 3905-09

From the United States Border Control to the Canadian Border Control in
City: Baudette, in County: Lake of the Woods of Minnesota
Section(s), Township(s), Range(s): 35, 161N, 31W
and
Town: Rainy River, in Province: Ontario, Country: Canada

Submitted pursuant to 42 U.S.C. 4332 and M. S. 116D
by the
U.S. Department of Transportation
Federal Highway Administration and
Minnesota Department of Transportation
for the
Baudette / Rainy River International Bridge Replacement Project

Contacts:

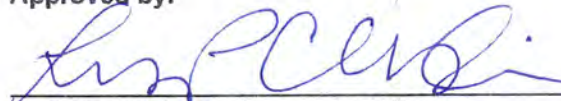
FHWA: Joseph Campbell
Area Engineer
Cray Plaza
380 Jackson Street, Suite 500
St. Paul, MN 55101-4802
Phone: 651-291-6121

MnDOT: Joe McKinnon
Project Manager
MnDOT District 2
3920 Highway 2 West
Bemidji, MN 56601
Phone: 218-755-6517

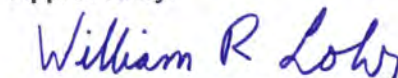
Recommended for approval by:

 1/27/2017
MnDOT – District Engineer Date

Approved by:

 1/30/17
MnDOT – Chief Environmental Officer Date

Approved by:

 WILLIAM R LOHR
2017.01.30 13:02:47 -06'00'
FHWA – Project Development Engineer Date

This document is available in alternative formats to individuals with disabilities by calling the Minnesota Relay Service at 1-800-627-3529.

EA / EAW
January 2017

This page intentionally left blank.

Table of Contents

1.0	REPORT PURPOSE	13
1.1	COORDINATED U.S. AND CANADIAN ENVIRONMENTAL ASSESSMENT PROCESS.....	13
2.0	PURPOSE AND NEED FOR PROJECT	15
2.1	PURPOSE STATEMENT	15
2.2	NEEDS / DEFICIENCIES	15
2.2.1	Primary Need	15
2.2.2	Secondary Needs.....	17
2.2.3	Additional Bridge Operational and Geometric Deficiencies.....	17
2.2.4	Additional Considerations.....	18
3.0	ALTERNATIVES	20
3.1	MAJOR ALTERNATIVE DEVELOPMENT	20
3.1.1	Bridge on a New Location	20
3.1.2	Bridge Rehabilitation	20
3.2	ALIGNMENT ALTERNATIVES.....	21
3.2.1	Alignment Alternatives Considered	21
3.2.2	Evaluation Process	23
3.2.3	Evaluation Criteria.....	23
3.2.4	Evaluation of Alignment Alternatives	25
3.2.5	Preferred Alignment Alternative.....	27
3.3	BRIDGE TYPE ALTERNATIVES.....	28
3.3.1	Bridge Type Alternatives Considered	28
3.3.2	Evaluation of Bridge Type Alternatives	30
3.3.3	Preferred Bridge Type Alternative	34
3.4	DESCRIPTION OF ALTERNATIVES EVALUATED IN THIS EA	34
3.4.1	No Build Alternative.....	34
3.4.2	Preferred Alternative	35
3.5	LIFE-CYCLE COST ANALYSIS.....	36
4.0	SOCIAL ECONOMIC AND ENVIRONMENTAL (SEE) IMPACTS.....	38
4.1	ENVIRONMENTAL ASSESSMENT WORKSHEET	39
4.1.1	Project title	39
4.1.2	Proposer	39
4.1.3	RGU.....	39
4.1.4	Reason for EAW Preparation	39
4.1.5	Project Location	39
4.1.6	Project Description	40
4.1.7	Cover Types.....	43
4.1.8	Permits and Approvals Required.....	44
4.1.9	Land Use.....	47
4.1.10	Geology, soils, and topography/land forms.....	50
4.1.11	Water Resources	52
4.1.12	Contamination, Hazardous Materials, and Wastes	64

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

4.1.13 Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)..... 69

4.1.14 Historic Properties..... 73

4.1.15 Visual..... 76

4.1.16 Air..... 77

4.1.17 Noise..... 89

4.1.18 Transportation..... 96

4.1.19 Cumulative Potential Effects..... 97

4.1.20 Other Potential Environmental Effects..... 100

4.2 RGU CERTIFICATION..... 101

4.3 ADDITIONAL FEDERAL ISSUES..... 102

4.3.1 Right-of-Way and Relocation..... 102

4.3.2 Economics..... 102

4.3.3 Social Impacts..... 102

4.3.4 Transit..... 102

4.3.5 Considerations Relating to Pedestrians and Bicycles..... 102

4.3.6 Section 4(f) Resources..... 103

4.3.7 Section 6(f) Resources..... 107

4.3.8 Section 106 Process..... 107

4.3.9 Environmental Justice..... 107

4.3.10 Aviation..... 112

4.3.11 Rainy River and Baudette River Navigational Traffic Impacts..... 113

4.3.12 Construction Impacts..... 113

4.3.13 Federal Threatened and Endangered Species..... 113

4.3.14 Farmland Protection Policy Act..... 114

4.3.15 Accessibility Requirements..... 114

4.3.16 Indirect Effects and Cumulative Impacts..... 114

5.0 PUBLIC AND AGENCY INVOLVEMENT (AND PERMITS/APPROVALS)..... 115

5.1 PUBLIC INVOLVEMENT PLAN..... 115

5.2 AGENCY COORDINATION & MEETINGS..... 115

5.2.1 Project Advisory Committee..... 115

5.2.2 Technical Advisory Committee..... 118

5.2.3 Facilitated Bridge Discussions..... 122

5.2.4 Federal Highway Administration (FHWA)..... 122

5.2.5 Other Agency Coordination & Meetings:..... 122

5.3 EXTERNAL AGENCY COORDINATION..... 125

5.3.1 International Stakeholder Webinar #1..... 125

5.3.2 International Stakeholder Webinar #2..... 125

5.3.3 International Stakeholder Webinar #3..... 125

5.4 PUBLIC PARTICIPATION..... 125

5.4.1 Public Involvement Meeting #1..... 125

5.4.2 Public Involvement Meeting #2..... 126

5.4.3 Public Involvement Meeting #3..... 126

5.5 ONGOING COMMUNICATION..... 127

5.5.1 Website..... 127

5.5.2 Newsletters, Project Updates, and Fact Sheets..... 127

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

5.6	PERMITS AND APPROVAL REQUIREMENTS	128
5.7	PUBLIC COMMENT PERIOD AND PUBLIC HEARING	128
5.8	REPORT DISTRIBUTION	128
5.9	PROCESS BEYOND THE HEARING.....	128

LIST OF TABLES

Table 1: Preferred Alignment Evaluation Criteria.....	24
Table 2: Cover Types (in acres) for U.S. Side of the Project	43
Table 3: Floodplain Encroachment.....	48
Table 4: USCS Soil Types in Greater Project Area	51
Table 5: Erosion Properties of USCS Soils	52
Table 6: Minnesota Public Impaired Waters near Project Area.....	53
Table 7: Project Impervious Areas Summary (in acres).....	55
Table 8: Recognized Environmental Condition (REC) Area Rankings from Phase I Environmental Site Assessment (ESA).....	65
Table 9: Phase II ESA Potential Contaminants and State Standards	66
Table 10: Summary Significant Findings from the Phase II ESA	66
Table 11: Typical Construction Equipment Noise Levels at 50 Feet.....	89
Table 12: Decibel Level of Common Noise Sources	91
Table 13: Minnesota State Noise Standard	91
Table 14: Noise Abatement Criteria – Hourly A-Weighted Sound Level-Decibels (dBA).....	92
Table 15: Noise Measurement Locations	93
Table 16: Comparison of Measured and Modeled Noise Levels.....	94
Table 17: Population and Race	109
Table 18: Income and Poverty	110
Table 19: Important Decisions Summary (PAC Meetings).....	117
Table 20: Important Decisions Summary (TAC Meetings).....	118
Table 21: Important Discussions Summary (FBD).....	122
Table 22: Comparison of Alignment Alternatives to Replace the Baudette/Rainy River International Bridge.....	C.2
Table 23: Bridge Type Alternative Preliminary Evaluation Matrix	C.4
Table 24: Bridge Type Alternative Refined Evaluation Matrix	C.5
Table 25: Bridge Type Alternative Final Evaluation Matrix	C.6
Table 26: Daytime Model Results (12:00 p.m. - 1:00 p.m.), Baudette Bridge, Baudette, Minnesota.....	I.3
Table 27: Nighttime Model Results (6:00 a.m. - 7:00 a.m.), Baudette Bridge, Baudette, Minnesota.....	I.4

LIST OF FIGURES

Figure 1: Project Location Aerial vii
 Figure 2: Project Location USGS ix
 Figure 3: Area Map xi
 Figure 4: Overview of Class EA Process for U.S. and Canada 14
 Figure 5: Annual Average NO₂ Concentrations Compared to the NAAQs 81
 Figure 6: 1-Hour NO₂ Concentrations Compared to the NAAQs 82
 Figure 7: 1-Hour SO₂ Concentrations Compared to the NAAQs 83
 Figure 8: National MSAT Emissions Trends 1999-2005 for Vehicles Operating on
 Roadways Using EPA's MOVES2010b Model 85
 Figure 9: Location Options Overview A.1
 Figure 10: Alignment Alternative 1 (Downstream of Existing Alignment) A.1
 Figure 11: Alignment Alternative 2 (Upstream of Existing Alignment) A.1
 Figure 12: Alignment Alternative 3 (Same Location Alignment as Existing) A.1
 Figure 13: Bridge Type Example Photos A.1
 Figure 14: Alternative A1 Plans – Continuous Steel I-Girder, 5 Spans A.1
 Figure 15: Bridge Type Alternative Selection Flow Chart A.1
 Figure 16: Preferred Alternative – United States Approach Plan A.1
 Figure 17: Preferred Alternative – Canada Approach Plan A.1
 Figure 18: Preferred Alternative – Plan and Profile A.1
 Figure 19: Preferred Alternative – Typical Sections A.1
 Figure 20: Flood Zones A.1
 Figure 21: Soils Map (USCS) A.1
 Figure 22: Depth to Bedrock (MGS) A.1
 Figure 23: Bedrock Elevation (MGS) A.1
 Figure 24: Public Waters A.1
 Figure 25: Impaired Waters A.1
 Figure 26: Wetland Location Map A.1
 Figure 27: Aquatic Impacts A.1
 Figure 28: Land Cover Types (NLCD 2011) A.1
 Figure 29: Peace Park – 4(f) Impacts A.1
 Figure 30: Right of Way Map A.1
 Figure 31: Environmental Justice Study Area A.1
 Figure 32: Preferred Alternative Visualization Aerial Facing U.S. Port of Entry C.7
 Figure 33: Preferred Alternative Visualization from Bridge C.8
 Figure 34: Preferred Alternative Visualization from Rainy River C.9
 Figure 35: Noise Modeling Locations I.2

LIST OF APPENDICES

APPENDIX A – FIGURES A.1

APPENDIX B – REFERENCES B.1

B.1 Background B.1
 B.2 Development and Evaluation of Alternatives B.1
 B.3 Fisheries & Wetlands B.1
 B.4 Cultural Resources B.2
 B.5 Hazardous Waste & Contamination B.2

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

APPENDIX C – ALTERNATIVES DEVELOPMENT..... C.1

APPENDIX D – AGENCY CORRESPONDENCE D.1

APPENDIX E – AGENCY CORRESPONDENCE – SECTION 106..... E.1

APPENDIX F – UNIFIED SOIL CLASSIFICATION SYSTEM SOILS REPORT..... F.1

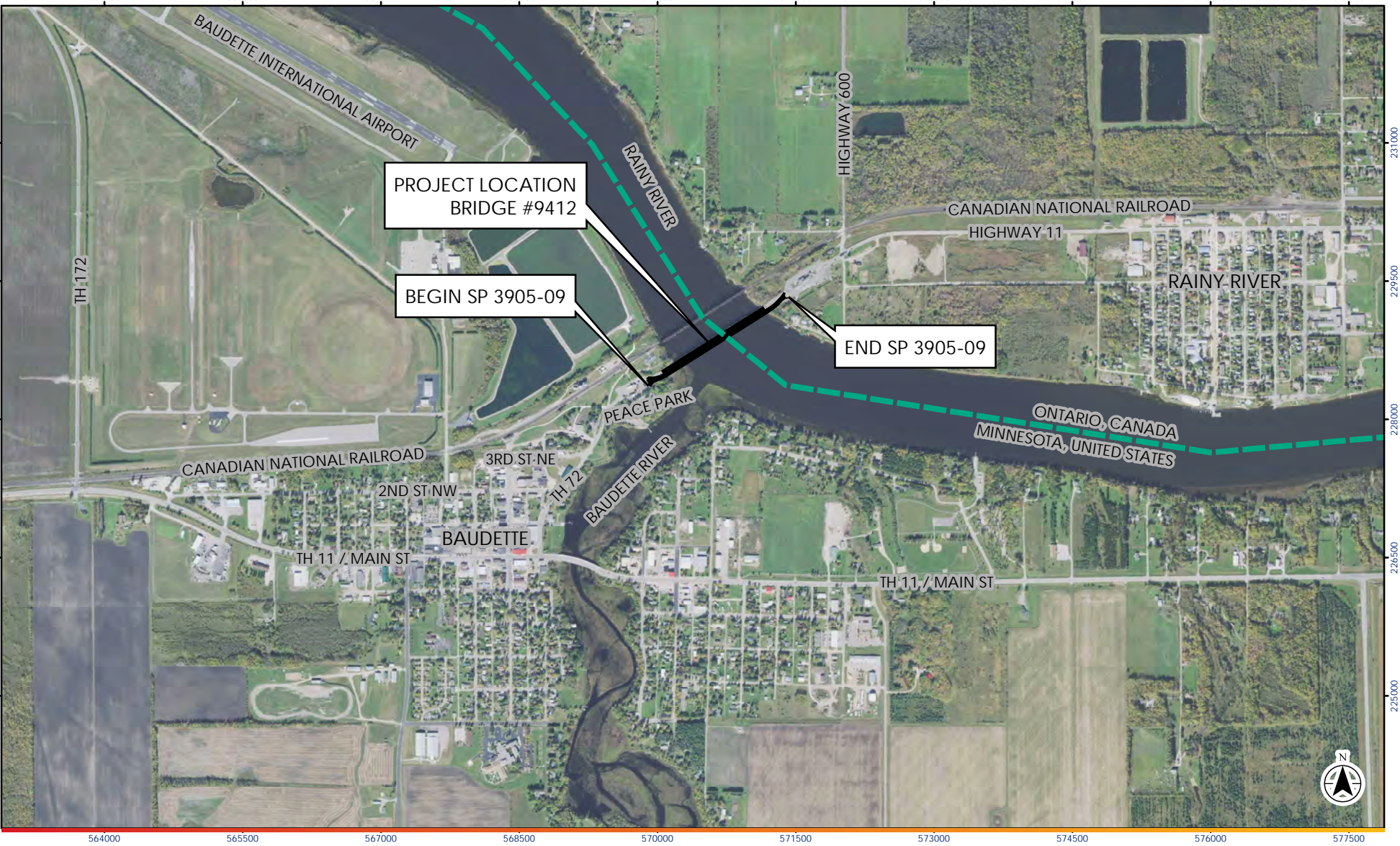
APPENDIX G – PHASE I & II ENVIRONMENTAL SITE ASSESSMENT EXCERPTSG.1

**APPENDIX H – DRAFT PROGRAMMATIC SECTION 4(F) EVALUATION AND
APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE
OF HISTORIC BRIDGES FOR BRIDGE #9412..... H.1**

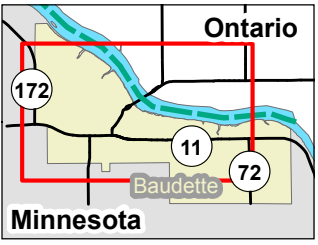
APPENDIX I – NOISE STUDY.....I.1

This page intentionally left blank.

\\US1291-101\workgroup\193802870\CIS\Projects\Park Impacts\AR Aerial & USGS Figures_2017-01-08.mxd
231000
229500
228000
226500
225000



231000
229500
228000
226500
225000



Notes
1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
2. Aerial: MnGEO WMS, 2015 FSA.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
T161N, R31W, S35
City of Baudette, MN

Prepared by arbachonek on 2017-01-08

Client/Project SP 3905-09
MnDOT
Baudette/Rainy River International Bridge
Replacement

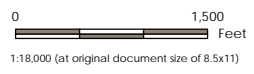
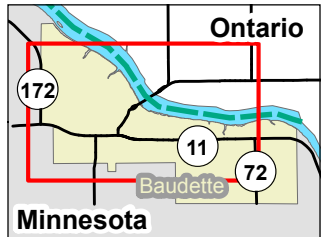
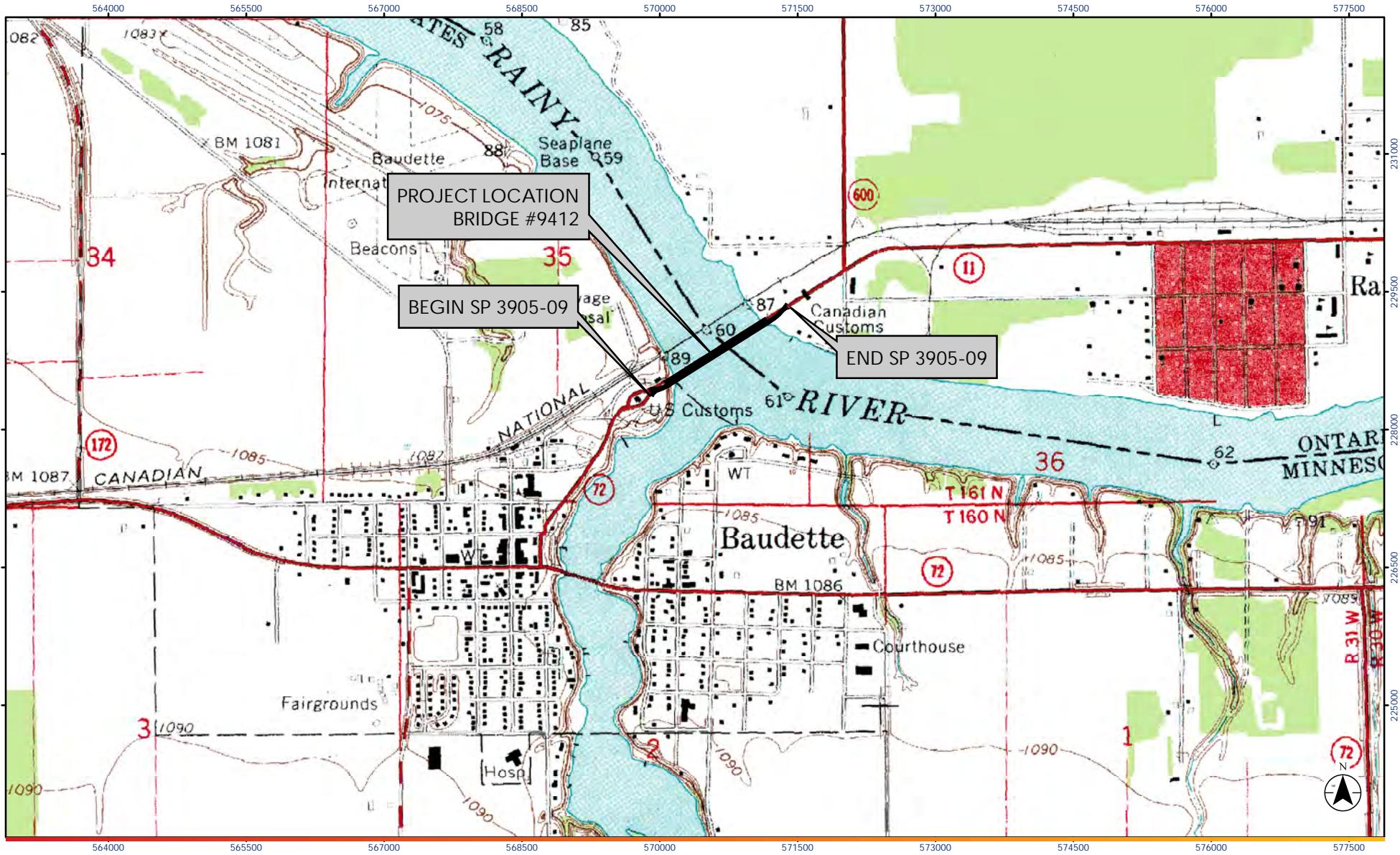
Figure No. 1
Title

PROJECT LOCATION AERIAL

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

This page intentionally left blank.

\\US1291-101\workgroup\193802870\CIS\Projects\Park Impacts\AR Aerial\USGS Figures_2017-01-08.mxd Revised: 2017-01-08 By: arbachonek



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.

2. USGS, Baudette Quad, 1968, Scale 24k.
 Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN

Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge
 Replacement

Figure No. 2
 Title

PROJECT LOCATION USGS

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

This page intentionally left blank.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

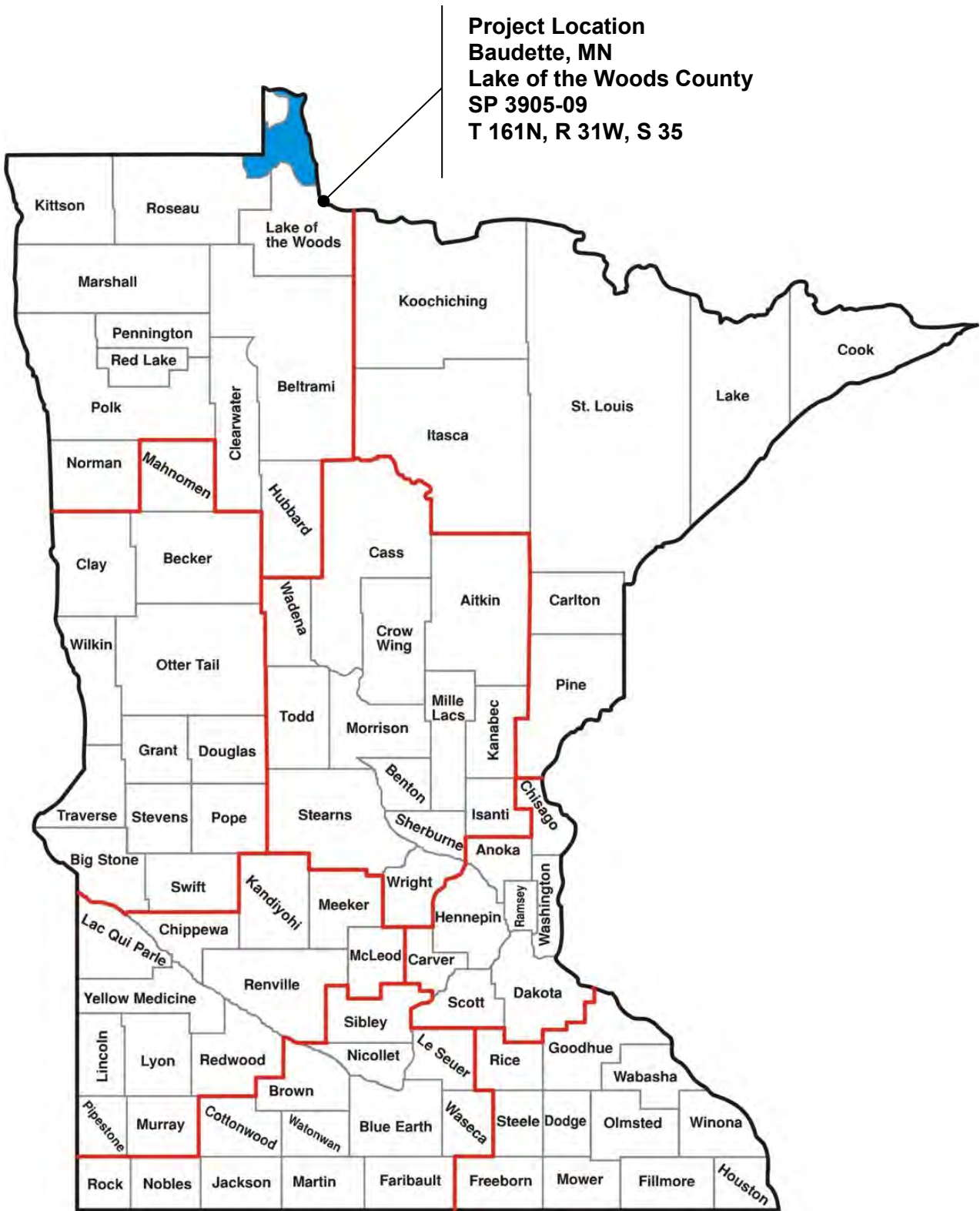


Figure 3: Area Map

This page intentionally left blank.

1.0 REPORT PURPOSE

This Environmental Assessment/Environmental Assessment Worksheet (EA/EAW) for the proposed Baudette / Rainy River International Bridge Replacement Project in Baudette, Minnesota, United States and Rainy River, Ontario, Canada provides background information and analysis, including:

- need for the proposed project
- alternatives considered
- environmental impacts and mitigation
- agency coordination and public involvement

This EA was prepared as a part of the National Environmental Policy Act (NEPA) process and state environmental review process to fulfill requirements of both 42 USC 4332 and M.S. 116D. At the federal level, the EA is used to provide sufficient environmental documentation to determine the need for an Environmental Impact Statement (EIS) or that a Finding of No Significant Impact (FONSI) is appropriate. At the state level, the EA is used to provide sufficient environmental documentation to determine the need for a state EIS or that a Negative Declaration is appropriate.

At the state level, this document also serves as an Environmental Assessment Worksheet (EAW). Minnesota Rules 4410.1300 allows the EA to take the place of the EAW form, provided that the EA addresses each of the environmental effects identified in the EAW form. This EA includes each of the environmental effects identified in the EAW form.

The Minnesota Department of Transportation is the proposer and Responsible Governmental Unit for this project within the Minnesota, United States boundary. Preparation of an EAW is considered discretionary under Minnesota Rules 4410.4500.

This document is made available for public review and comment in accordance with the requirements of 23 CFR 771.119 (d) and Minnesota Rules 4410.1500 through 4410.1600.

1.1 COORDINATED U.S. AND CANADIAN ENVIRONMENTAL ASSESSMENT PROCESS

The environmental assessment study process for this project, including public and agency consultation, has been developed with coordinated efforts from the Minnesota Department of Transportation (MnDOT) and the Ontario Ministry of Transportation (MTO) to effectively coordinate the U.S. and Canadian study processes.

The Canadian study process follows the MTO Class Environmental Assessment Process as a Group 'B' Project for Provincial Transportation Facilities. In addition to the MTO environmental assessment process, a Project Description will be submitted to the Canadian Environmental Assessment Agency to determine whether a federal environmental assessment will be required in accordance with the Canadian Environmental Assessment Act (2012).

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Report Purpose

The Minnesota Department of Transportation's (MnDOT's) environmental assessment process follows Minnesota's environmental review process set by the National Environmental Policy Act (NEPA), and Minnesota Environmental Policy Act (MEPA), to fulfill requirements at both the state and federal level. A combined Environmental Assessment/Environmental Assessment Worksheet (EA/EAW) was prepared. The EA/EAW uses public input and technical analysis to determine the needs, deficiencies, impacts, mitigation, and design of the proposed project. The EA/EAW is distributed for public comment over a 45-day public review period. At the federal level, the EA is used to provide sufficient environmental documentation to determine the need for an Environmental Impact Statement (EIS) or that a Finding of No Significant Impact (FONSI) is appropriate. At the state level, the EAW is used to provide sufficient environmental documentation to determine the need for an EIS or that a Negative Declaration is appropriate. The U.S. Environmental Assessment documentation will provide information on the U.S. process. The coordinated U.S. and Canadian EA processes for this project is shown in Figure 4.

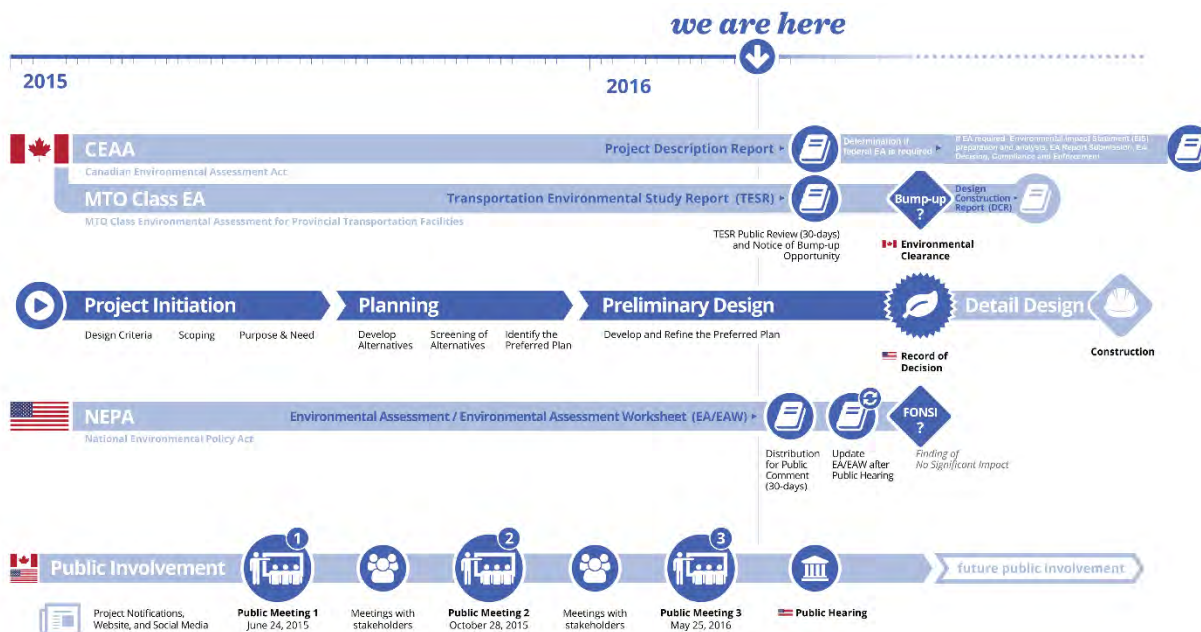


Figure 4: Overview of Class EA Process for U.S. and Canada

2.0 PURPOSE AND NEED FOR PROJECT

2.1 PURPOSE STATEMENT

The Baudette / Rainy River International Bridge (Bridge No. 9412) spans the Rainy River from Baudette, Minnesota to Rainy River, Ontario, Canada. The bridge was originally built in 1959, and has served as an international border crossing since that time. As part of a joint ownership agreement, the Minnesota Department of Transportation (MnDOT) and the Ontario Ministry of Transportation (MTO) maintain and operate the bridge. Minnesota Trunk Highway (TH) 72 and Highway 11 carry traffic over the bridge between the U.S. and Canada. Full service Ports of Entry (Customs) are located immediately after exiting on either end of the bridge.

The purpose of the Baudette / Rainy River International Bridge Replacement Project is to address the deteriorating condition of the bridge structure in order to maintain the international exchange of vehicular, freight and pedestrian traffic across the Rainy River at this location as follows:

- To provide a level of service that meets the transportation needs of area residents, tourists, businesses/industries, and farms;
- To address geometric deficiencies; and
- To ensure the continued serviceability of the route.

Additionally, Chapter 152 of the Minnesota Legislature 2008 Session Laws directs MnDOT to establish a bridge improvement program with an emphasis on structurally deficient and fracture critical bridges. The proposed improvements to this bridge are funded under the Chapter 152 program.

2.2 NEEDS / DEFICIENCIES

2.2.1 Primary Need

2.2.1.1 Need for Structurally Sound Bridge Crossing of the Rainy River between the Baudette Minnesota and Rainy River Ontario Ports of Entry

The primary need for the project is to address the deteriorating condition of the international bridge, and in doing so provide the public with a structurally sound bridge crossing over the Rainy River. The existing bridge carries approximately 1,300 vehicles per day, projected to increase to 1,400-1,450 by 2038 (MnDOT/MTO). The closest international crossing is located approximately 70 miles away.

MnDOT's Minnesota Structure Inventory Report indicates that Bridge #9412 is a fracture critical (non-redundant) bridge with a sufficiency rating of 48.8 out of 100 (Appendix B – MnDOT 2016). The bridge inspection notes provided in the Structure Inventory Report also indicate that inspections were performed with both MnDOT and MTO present on an annual basis. Structural deficiencies are described below:

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Purpose and Need for Project

2.2.1.1.1 Superstructure & Deck Deficiencies

Structural elements of the bridge have been observed to be actively corroding, with some members experiencing substantial section loss (up to 50%). Paint failure, microbial induced corrosion, and pack rust were identified on the surfaces and at the interfaces of many structural members and their connections. Additionally, trusses were found to display free edge distortion (buckling of the unfastened sides of gusset plates) as well as pack rust on many gusset plate connections.

The rocker bearings are in full expansion and in most cases are in contact with the lower chord of the superstructure. This condition has existed for several years and has likely contributed to the bending of several anchor bolts.

In certain areas, the open grid deck was observed to have moderate surface corrosion, several broken welds, and pack rust at its interface with the support beams. Several instances of missing and bent/broken grid bars and other repairs at various locations were noted throughout the field inspection notes (Appendix B – MnDOT 2016).

Due to observations noted in the April 2016 structural inspection report (MnDOT 2016), the superstructure and deck have most recently been given a National Bridge Inventory (NBI) condition rating of 5, indicating that they are in “fair” condition.

2.2.1.1.2 Substructure Deficiencies

The most recent underwater inspection report (See Appendix B – Ayres Associates & Collins Engineers, Inc. 2012), found that the six underwater piers (Piers 2 through 7, from west to east) were generally in good condition with no significant, observable structural defects, but that all six underwater piers showed light concrete scaling within a one-foot band from the top of the caissons. Additionally, the steel caisson shells for Piers 2 through 6 had light to moderate surface corrosion from the top to 3.5 feet below the water line. Below this point, there was moderate to heavy surface corrosion with 0.5-inch to 3-inch diameter rust nodules and up to 1/16-inch-deep pitting over 50% of the area. Moderate to heavy timber debris accumulation (1 foot in diameter and smaller) was also observed at Piers 4 and 5 from the channel bottom to the waterline.

Scour depressions up to 3 to 4 feet deep were observed around the downstream sides, particularly in areas where there was minimal riprap.

As noted in the April 2016 structural inspection report (Appendix B – MnDOT 2016), the substructure for the bridge received an NBI rating of 5, indicating a “fair” condition. The piers were given a Minnesota Scour Code of ‘O’ indicating that the bridge foundations have been determined to be stable for predicted scour conditions, but a “Scour Plan of Action” needs to be established to monitor the bridge during high water events. The scour was last evaluated in 1998.

2.2.2 Secondary Needs

2.2.2.1 Maximizing Maintenance of Traffic during Construction

Maintaining the continuity of traffic during construction will be critical as the Baudette/Rainy River International Bridge provides a vital connection within this region's transportation system. For the approximately 1,300 vehicles per day that use the crossing, the bridge provides access to the many resources that are shared between the two countries, including education and employment facilities, tourism, recreation, as well as timber, mining, and agricultural industries. The closest Customs crossing with continuous operations (open 24/7) is located in International Falls, Minnesota / Fort Francis, Ontario which would add a 140-mile round-trip detour to the local Rainy River and Baudette communities.

While Baudette, Minnesota and Rainy River, Ontario do not have a reciprocity agreement relative to emergency services, the Rainy River ambulance often transports critically ill/injured patients to the Baudette Regional Airport for medical airlift as the Rainy River community does not have an airport facility.

2.2.2.2 Pedestrian Facilities Deficiencies

There is a need to provide a structurally sound bridge crossing for pedestrian, bicycle, and non-motorized traffic. The existing bridge has provided a pedestrian crossing for residents of Rainy River and Baudette since the cantilevered walkway was constructed as part of the original bridge in 1959.

Additionally, the current pedestrian facilities are not ADA compliant. The sidewalk is constructed of a timber plank decking over steel beams and stringers that are in similar condition to the other structural members under the main bridge deck. Several instances of broken and generally weathered timber planks are cited in the 2009 bridge inspection field notes that have not been addressed (Appendix B – MnDOT 2016).

2.2.3 Additional Bridge Operational and Geometric Deficiencies

As detailed in the 2013 Bridge Rehabilitation Study Report, there are additional operational and geometric deficiencies identified in the current bridge related to the vertical clearance, load capacity, and geometric standards.

2.2.3.1 Vertical Clearance

The current bridge experiences daily over-dimensional load traffic. Due to the limited existing vertical clearance of 14.8 feet, the port authorities currently implement special procedures to accommodate over-dimensional loads. First, as documented in the bridge inspection notes, portal frames and sway frames in all spans have distortion from traffic impacts. The inspection notes also indicate that sway frames continue to get bumped by over-dimensional loads; bent members are documented but may be bent slightly more from year to year (Appendix B – MnDOT 2016). To avoid collisions, over-dimensional loads (over 14.8 feet high) are required to unload or otherwise reduce heights to cross the existing structure or use an alternative route. Second, some over-dimensional loads require travel down the center of the

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Purpose and Need for Project

bridge structure where the vertical clearance is maximized, prohibiting two-way traffic, and causing delays for on-coming traffic.

2.2.3.2 Load Capacity

Currently, the structural condition of the bridge can support legal loads of 80,000 lbs. traveling at a maximum of 10 mph, and permitted loads up to 88,000 lbs. when additional special procedures are followed. The bridge structural loading capacity is not consistent with special permitted roadway loading limits on TH 72 which allows loads up to 100,000 lbs., creating a limiting segment on an international corridor. Efficient travel of trucks with permitted overweight loads is not well-accommodated since the closest international crossing is 70 miles away; this inefficiency impedes international commerce.

2.2.3.3 Safety Standards

The main span guardrail and approach span guardrails do not meet current NCHRP 350 safety standards.

2.2.4 Additional Considerations

The following describes additional considerations that would be desirable to address:

2.2.4.1 Structural Redundancy

The Baudette/Rainy River International Bridge is a fracture critical bridge with non-redundant design. Current designs in compliance with MnDOT design standards do not contain fracture critical design components. Chapter 152 of the Minnesota Legislature 2008 Session Laws directs MnDOT to establish a bridge improvement program with an emphasis on structurally deficient and fracture critical bridges.

2.2.4.2 Regulatory Requirements

2.2.4.2.1 Joint Ownership with the Ontario Ministry of Transportation

The State of Minnesota and Province of Ontario operate the bridge under a joint bridge ownership agreement. As part of the joint ownership agreement, each transportation agency is responsible for the maintenance on their respective half of the bridge structure. Since the bridge is jointly owned, decisions regarding how to address the needs of this bridge need to be made jointly by MnDOT and the MTO.

2.2.4.2.2 Historic Resources

The current bridge structure is eligible for listing in the National Register of Historic Places (NRHP). Additionally, the project location is within the Minnesota and Manitoba Railroad Corridor Historic District, which includes the Canadian National (CN) Railway Bridge, located directly downstream of the Baudette/Rainy River International Bridge. The CN Railway Bridge has been determined eligible for listing in the NRHP. See Appendix E for the State of Minnesota Historic Preservation Office (MnHPO)'s letter of determination of no effect to the Canadian National (CN) Railway Bridge dated 10 December 2015.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Purpose and Need for Project

Because federal funds will be used to complete this project, effects to the bridge must be evaluated in accordance with Section 106 of the National Historic Preservation Act, as well as Section 4(f) of the Department of Transportation Act. See Appendix E for additional coordination with MnHPO.

2.2.4.2.3 Parkland

In addition to protecting historic resources as described above, Section 4(f) provides protections for publicly owned parks, trails, recreational areas, and wildlife and waterfowl refuges. Section 4(f) requires avoidance unless there is no prudent and feasible alternative to the use. If avoidance is not possible, then Section 4(f) requires all possible planning to minimize harm to the park property. Peace Park is a Section 4(f) protected park property located directly adjacent to the current bridge.

2.2.4.2.4 Airport

The Baudette International Airport is located approximately 0.5 miles northwest of the Baudette / Rainy River International Bridge. The proposed bridge lies under the approach surface on that end of the Baudette International Airport runway and will need to stay under a 50:1 slope from the end of the primary surface (200 feet beyond the end of the runway). As such, coordination with the Federal Aviation Administration (FAA) has been initiated to verify compliance with these regulations.

2.2.4.2.5 Navigational Channel

The United States Coast Guard (USCG) maintains a navigational channel on the Rainy River and has jurisdiction over structures spanning the channel on the U.S. side of the river. Transport Canada has similar jurisdiction over the navigational channel on the Canadian side of the river. The USCG has determined that the use of the Rainy River in this location is almost entirely recreational and therefore has determined that the CN Railway Bridge located just downstream will be the controlling structure to set the required navigational clearances.

The following requirements were advised by the USCG to apply to the U.S. side of the river:

- The low steel elevation on the proposed bridge needs to be higher than the low steel of the current CN Railway Bridge. If possible, the proposed bridge should be 5 feet higher than the current CN Railway Bridge low elevation.
- The horizontal navigation channel provided beneath the current bridge would:
 - need to have a channel width of 100 feet or more;
 - not need to be in a specific location; and
 - not need to be offset of the border.

2.2.4.2.6 Stormwater

The current bridge deck is an open grate, allowing stormwater to drain directly to the Rainy River without treatment. Roadway contaminants (gasoline, oil, salt, etc.) or accidental spills of hazardous materials also discharge directly into the Rainy River. The existing infrastructure meets current stormwater management standards but does not meet recommended agency practices. Construction of bridge and/or roadway improvements may require incorporation of stormwater management practices consistent with current regulations.

3.0 ALTERNATIVES

3.1 MAJOR ALTERNATIVE DEVELOPMENT

Early in the project development process, MnDOT reviewed two build options for alternative development including (1) building a new structure at a different location without affecting the historic integrity of the old bridge, and (2) rehabilitating the historic bridge without affecting the historic integrity of the structure. The Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges for Bridge 9412 (0, Section 5.0 – Avoidance Alternatives) describes the process for identifying alternatives, including the rationale for rejecting alternatives.

3.1.1 Bridge on a New Location

Alternatives for this project were developed with the intent to provide little to no disruption to either the U.S. and Canadian Ports of Entry (POE) facilities. Relocation of the port facilities would impart impacts and costs that would be outside of the scope of this project.

Additionally, as discussed in Sections 4.3.10 (Aviation) and 4.3.11 (Rainy River and Baudette River Navigational Traffic Impacts), other existing constraints within the project area include the Baudette International Airport airspace and navigational vertical clearance for the Rainy River. These airspace/navigational constraints, along with the need to tie into the existing POEs prohibited the development of a feasible replacement bridge in a new location.

3.1.2 Bridge Rehabilitation

MnDOT completed a bridge rehabilitation study in May 2013 to evaluate rehabilitation/replacement options. The rehabilitation study included minor rehabilitation options that result in relatively low impacts to the historic integrity of the bridge as well as major rehabilitation alternatives with a greater potential for impacts to historic features. In general, these rehabilitation options would provide longer service life and/or address more of the project's secondary needs and additional considerations. Five rehabilitation alternatives were presented in the study as feasible, two of which the State of Minnesota Historic Preservation Office (MnHPO) identified as meeting the U.S. Secretary of the Interior Standards for Rehabilitation. However, as discussed in Section 2.2.4.2.1 (Joint Ownership with the Ontario Ministry of Transportation), MnDOT and MTO are required to make joint decisions when addressing the needs of the bridge.

MnDOT's mitigation and rehabilitation options are constrained by some of MTO's current practices. Based on MTO's investigation, the Ontario Heritage Bridge Guidelines application for Bridge 45-110 resulted in the determination of moderate heritage value. This determination disqualifies the bridge from the Ontario Heritage Bridge List; therefore, MTO concluded that rehabilitation of the existing bridge is not a viable option and recommended replacement. MTO supported their recommendation by indicating that the bridge is experiencing serious ongoing maintenance issues (i.e. scour) and operational deficiencies, as

supported by its fracture critical classification. Without MTO support, rehabilitation is not a prudent or feasible avoidance alternative.

Therefore, rehabilitation of the existing bridge was eliminated from consideration.

A public meeting was held to present the need for the project and the determination that the project would include a full bridge replacement.

3.2 ALIGNMENT ALTERNATIVES

The development and evaluation of new bridge replacement alternatives was conducted in two independent parts: Roadway Alignments and Bridge Structure Types. This approach was possible because all Alignment Alternatives would be compatible with all Bridge Type Alternatives. The approach facilitated more manageable sub-processes, more refined analysis, and clearer communication with project stakeholders.

The Alignment Alternatives were developed and evaluated through a collaborative discussion among the Technical Advisory Committee (TAC) which included MnDOT project engineers, MTO project engineers, Port of Entry staff and design consultants. The TAC met regularly through the project development process. All of the alignment alternatives were developed to meet the constraints posed by the FAA for airspace, and USCG and Transport Canada for navigational clearances, and designed to tie into the existing Ports of Entry as quickly as possible.

Details of the alternatives decision-making process are discussed in each of the sections below. Appendix A and Appendix C show the alternative Figures and supporting Tables discussed throughout this section.

3.2.1 Alignment Alternatives Considered

Six preliminary Alignment Alternatives were presented to the Technical Advisory Committee (TAC) and are summarized in this section.

3.2.1.1 Alignment Alternative 1 – Downstream of Existing Alignment (North Side)

Alignment Alternative 1 (Figure 10 in Appendix A) is for the replacement bridge to be located north or downstream of the existing bridge with 3 feet separation from the existing bridge. Alignment Alternative 1 is parallel to the existing bridge with the centerline shifted approximately 52.1 feet downstream. The alignment curves from the end of the bridge to tie back into the existing alignment just before the channelization of the Port of Entry lanes.

3.2.1.2 Alignment Alternative 2 – Upstream of Existing Alignment (South Side)

Alignment Alternative 2 (Figure 11 in Appendix A) is for the replacement bridge to be located south or upstream of the existing bridge with 3 feet separation from the existing bridge. Alignment Alternative 2 is parallel to the existing bridge with the centerline shifted approximately 46.7 feet upstream. Compared to

the existing alignment, this alignment features a shorter, straight approach on the U.S. side and a longer, curved approach on the Canadian side, both of which tie back into the existing alignment just before the channelization of the Port of Entry lanes.

3.2.1.3 Alignment Alternative 3A – Existing Alignment, Temporary Modular Bridge (TMB North of Existing Bridge)

Alignment Alternative 3A (Figure 12 in Appendix A) is for the replacement bridge to be located on the alignment of the existing bridge. To maintain traffic during construction, a Temporary Modular Bridge (TMB) would be located north or downstream of the existing bridge in a similar location as Alignment Alternative 1 to provide access across the border to the Port of Entry facilities.

3.2.1.4 Alignment Alternative 3B – Existing Alignment, Temporary Modular Bridge (TMB South of Existing Bridge)

Alignment Alternative 3B (Figure 12 in Appendix A) is for the replacement bridge to be located on the alignment of the existing bridge. To maintain traffic during construction, a TMB would be located south or upstream of the existing bridge in a similar location as Alignment Alternative 2 to provide access across the border to the Port of Entry facilities.

3.2.1.5 Alignment Alternative 4 – Downstream of Existing Alignment (North Side), Staged Construction

Alignment Alternative 4 is for the replacement bridge to be located to the north or downstream of the existing bridge (similar to Alignment Alternative 1); however the centerline of Alignment Alternative 4 would be located only 28.5 feet from the existing centerline. This would be accomplished by constructing a section of the replacement bridge (U.S. bound) downstream of the existing bridge with approximately 3 feet of separation from the existing bridge. Two-way access would be maintained across the border on the existing bridge until construction of new section of replacement bridge is complete. When two-way access is shifted to the completed section of the replacement bridge, the existing bridge is removed and the final section of the replacement bridge is constructed.

3.2.1.6 Alignment Alternative 5 – Upstream of Existing Alignment (South Side), Staged Construction

Alignment Alternative 5 is for the replacement bridge to be located to the south or upstream of the existing bridge (similar to Alignment Alternative 2), however the centerline of Alignment Alternative 5 would be located only 27.1 feet from the existing centerline. This would be accomplished by constructing a section of the replacement bridge (Canada bound) downstream of the existing bridge with approximately 3 feet of separation from the existing bridge. Two-way access would be maintained across the border on the existing bridge until construction of new section of replacement bridge is complete. When two-way access is shifted to the completed section of the replacement bridge, the existing bridge is removed and the final section of the replacement bridge is constructed.

3.2.2 Evaluation Process

Each of the six Alignment Alternatives described in this section meet the Purpose and Need for the project. A comparison of the alignment alternatives was made by the TAC. Although Alignment Alternatives 4 and 5 had the same geometric advantages, it also had similar environmental impacts. Disadvantages to staged construction include increases in traffic delays, duration of construction operations and cost. Additionally, staged construction would require an overbuild of the new bridge to provide adequate width to maintain two-way traffic through construction. While Alternatives 4 and 5 maintain similar environmental impacts as other alignment alternatives under consideration, they were eliminated from further consideration based on the increased cost and construction timing for the project and were not subjected to more detailed evaluation.

A process was developed for selecting the Preferred Alignment Alternative from the remaining four Alignment Alternatives:

1. Alignment Alternative 1 – Downstream of Existing Alignment (North Side)
2. Alignment Alternative 2 – Upstream of Existing Alignment (South Side)
3. Alignment Alternative 3A – Existing Alignment, Temporary Modular Bridge (TMB North of Existing Bridge)
4. Alignment Alternative 3B – Existing Alignment, Temporary Modular Bridge (TMB South of Existing Bridge)

The development of evaluation criteria and the evaluation of alignment alternatives are discussed below.

3.2.3 Evaluation Criteria

Evaluation criteria that address the key issues for selecting a preferred alignment alternative were identified by the project team. The evaluation criteria reflect the proposed project area constraints (on both Canadian and U.S. sides of the project area) identified during the collection of background and existing conditions data.

The evaluation criteria, as shown in Table 1, are independent variables, each of which may contribute a positive or negative influence on the overall suitability of an alternative. .

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

Table 1: Preferred Alignment Evaluation Criteria

Category	Criteria	Factors Considered
Transportation Engineering	<i>Geometrics:</i>	Horizontal alignment Vertical alignment Impacts to Port of Entry Facilities Proximity to adjacent CN Rail Bridge Sightlines for Port of Entry Facilities
	<i>Constructability:</i>	Construction feasibility Construction staging Temporary impacts to Port Operations Delay for emergency service providers Delay for residents and commercial traffic
	<i>Cost:</i>	Capital cost including construction and property acquisition Future maintenance costs
	<i>Pedestrians/Cyclists:</i>	ADA/Accessibility Safety and access
Social & Cultural Environment	<i>Property/Right of Way:</i>	Private property and public land required
	<i>Archaeology and Cultural Heritage:</i>	Registered Archaeological Sites Areas of high archaeological potential Culturally significant features within Peace Park
	<i>Impacts to Park Land/4(f):</i>	Designated parkland on U.S. side of border
	<i>Aesthetics/Visual Impacts:</i>	Aesthetics of bridge structure
	<i>Environmental Justice/Business Impacts/Access Impacts:</i>	Local businesses that rely on traffic Access restrictions for residents and travelers
Natural Environment	<i>Fish and Aquatic Habitat:</i>	Alteration to existing watercourse (i.e., number of piers and locations) Sensitive aquatic habitat (i.e., spawning areas)
	<i>Wildlife and Terrestrial Habitat and Vegetation:</i>	Threatened and Endangered Species/Species-at-Risk Area of sensitive/environmentally significant areas impacted Removal of vegetation Impact to wildlife habitat
	<i>Noise/Vibration:</i>	Noise Sensitive Receptors Vibration Sensitive Receptors
	<i>Wetland/Floodplains/Protected Waters:</i>	Area of wetlands impacted Area of floodplains impacted

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

Some environmental resources that are relevant to this study are potentially impacted to the same degree or in the same way with all of the alternatives. Impacts to these resources (if any) can be avoided, minimized, and mitigated successfully using typical MnDOT design and mitigation techniques during construction, which is discussed throughout Section 4.0. Therefore, impacts to these resources were not explicitly considered in the evaluation that led to the selection of the Preferred Alternative.

In addition to the environmental evaluation factors considered, it was also important to include engineering and technical aspects in the evaluation and selection of the Preferred Alternative. The evaluation must consider highway and bridge design standards, provide for safe movement of traffic through the project area, and be constructible.

3.2.4 Evaluation of Alignment Alternatives

Each of the alignment alternatives were evaluated using, a qualitative comparison between the alternatives as they related to the evaluation criteria in Table 1 above. Table 22 in Appendix C compares the advantages and disadvantages for the four remaining alignment alternatives. Advantages and disadvantages are identified by plus sign (+) and minus sign (-), respectively. Otherwise, a bullet sign (●) denotes where there is no clear advantage or disadvantage. This approach was proposed by the project team and agreed upon by the TAC. The advantages and disadvantages for the four remaining Alignment Alternatives are summarized in this section.

3.2.4.1 Alignment Alternative 1 – Downstream of Existing Alignment (North Side)

Alignment Alternative 1 (Figure 10 in Appendix A) has the following advantages:

- Access will be maintained across the border on the existing bridge until construction of replacement bridge is complete
- Avoids impacts to Peace Park on the U.S. side (Section 4(f))
- Avoids impacts to unidentified gravesites and culturally significant features on the U.S. side
- Minimizes impacts to identified wetlands on the U.S. side

Alignment Alternative 1 has the following disadvantages:

- Requires the purchase of private/municipal property on the U.S. side
- Constrained construction area between the existing bridge and the CN Railroad Bridge
- Due to restricted roadway geometry, trucks approaching U.S. Port of Entry (POE) can use right lane only to avoid impacts to POE equipment
- Relocation of detection equipment is required to accommodate trucks in left lane on the U.S. side
- May impact contaminated soils from former electric power plant on the U.S. side

3.2.4.2 Alignment Alternative 2 – Upstream of Existing Alignment (South Side)

Alignment Alternative 2 (Figure 11 in Appendix A) has the following advantages:

- Access will be maintained across the border on the existing bridge until construction of replacement bridge is complete

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

- Provides desirable geometric alignment connections to existing U.S. and Canadian Ports of Entry facilities
- Improved truck entry at U.S. Port of Entry (POE) avoids impacts to POE equipment (i.e. trucks can be accommodated in both lanes)

Alignment Alternative 2 has the following disadvantages:

- Requires the purchase of private/municipal property on the U.S. and Canadian sides
- Impacts Peace Park on the U.S. side (Section 4(f))
- Impacts identified wetlands located south of the existing bridge on the U.S. side
- May impact unidentified gravesites/culturally significant features on the U.S. side

3.2.4.3 Alignment Alternative 3A – Existing Alignment, Temporary Modular Bridge (TMB North of Existing Bridge)

Alignment Alternative 3A (Figure 12 in Appendix A) has the following advantages:

- Maintains existing alignment and minimizes permanent impacts to U.S. and Canadian Ports of Entry facilities
- Geometry accommodates trucks in both lanes at the U.S. Port of Entry (POE), which avoids impacts to POE facilities/equipment
- Avoids impacts to Peace Park on the U.S. side (Section 4(f))
- Avoids impacts to unidentified gravesites and culturally significant features on the U.S. side
- Minimizes impacts to identified wetlands on the U.S. side

Alignment Alternative 3A has the following disadvantages:

- Cost of temporary bridge is high resulting in significant throw away costs
- Temporary traffic delays and safety concerns due to narrow temporary bridge
- Increased duration of construction
- Requires temporary property on the U.S. side
- Increased risk of fish and aquatic habitat impacts due to additional piers in water for temporary bridge
- Constrained construction area between the existing bridge and the CN Railroad Bridge
- May impact contaminated soils from former electric power plant on the U.S. side

3.2.4.4 Alignment Alternative 3B – Existing Alignment, Temporary Modular Bridge (TMB South of Existing Bridge)

Alignment Alternative 3B (Figure 12 in Appendix A) has the following advantages:

- Maintains existing alignment and minimizes permanent impacts to U.S. and Canadian Ports of Entry facilities
- Existing truck entry at U.S. Port of Entry (POE) can be accommodated in both lanes, which avoids impacts to POE facilities/equipment

Alignment Alternative 3B has the following disadvantages:

- Cost of temporary bridge is high resulting in significant throw away costs
- Temporary traffic delays and safety concerns due to narrow temporary bridge

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

- Increased duration of construction
- Increased risk of fish and aquatic habitat impacts due to additional piers in water for temporary bridge
- Requires temporary property on the U.S. and Canadian sides
- Impacts Peace Park on the U.S. side (Section 4(f))
- Impacts identified wetlands located south of the existing bridge on the U.S. side
- May impact unidentified gravesites/culturally significant features on the U.S. side

3.2.4.5 Summary of Alignment Alternative Selection

The Project Team and TAC evaluated the four Alignment Alternatives considering the advantages and disadvantages outlined in the previous section.

The Temporary Modular Bridge Alignment Alternatives, 3A and 3B, provide similar advantages and disadvantages as Alignment Alternative 1 and 2, respectfully. However, Alignment Alternatives 3A and 3B were eliminated from consideration for having the following prohibitive disadvantages associated with the construction and decommissioning of the temporary bridge:

- Significant throw away costs
- Temporary traffic delays and safety concerns due to narrow temporary bridge
- Schedule impacts due to increased duration of construction
- Increased wetland, floodplain, and fish and aquatic habitat impacts due to additional piers in water for temporary bridge

Alignment Alternative 1 was eliminated from consideration for the following reasons:

- Constrained construction area between the existing bridge and the CN Railroad Bridge
- Due to restricted roadway geometry, trucks approaching U.S. Port of Entry (POE) can use right lane only to avoid impacts to POE equipment
- Relocation of detection equipment is cost prohibitive but required to accommodate trucks in left lane on the U.S side

Alignment Alternative 2 was selected as the Preferred Alignment Alternative as described in the following section.

3.2.5 Preferred Alignment Alternative

Following the comparison of the remaining alignment alternatives, each alternative's positive, negative, and neutral counts were tabulated as shown in Table 22. After completing the evaluation process, Alternative 2 was selected as the Preferred Alignment Alternative and is shown in Figure 11 in Appendix A.

Alignment Alternative 2, located south or upstream of the existing bridge with approximately 3 feet separation, was determined to meet all of the project primary needs and was selected as the Preferred Alignment for the following reasons:

- Alignment provides desirable geometric connections to existing U.S. Port of Entry facility allowing:
 - The existing U.S. Port of Entry infrastructure to remain in place

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

- Accommodation of truck entry at the U.S. Port of Entry in both lanes
- U.S. Border Patrol to maintain line of sight for the bridge
- Reduced cost compared to Alternatives 3A and 3B which require a temporary modular bridge
- Alignment does not pose significant or unique constructability concerns as posed by the other three alternatives
- Refinements can be made to the alignment geometry to reduce impact footprint affecting Peace Park and unidentified gravesites/cultural heritage features
- Will not impact the contaminated soils from former electric power plant on north side of existing bridge

3.3 BRIDGE TYPE ALTERNATIVES

As discussed previously in Section 3.2 (Alignment Alternatives), the Bridge Type Alternatives were developed independently from the Alignment Alternatives to identify potential locations/alignments for the replacement bridge. A process was developed by the project team with approval from the TAC to objectively analyze and evaluate the Bridge Type Alternatives in order to select a Preferred Bridge Type Alternative.

The development and evaluation of Bridge Type Alternatives are discussed and described below.

3.3.1 Bridge Type Alternatives Considered

Similar to the development of the Alignment Alternatives, an initial set of 12 conceptual bridge type structures were presented at the fourth Technical Advisory Committee (TAC) meeting and are summarized in this section.

3.3.1.1 Alternative A – Continuous Steel I-Girder Bridge

Alternative A is a continuous steel I-girder superstructure which incorporates the following design features:

- Structural elements below deck require a higher roadway elevation
- Structure type is common in Minnesota and Ontario
- Construction can be performed using common techniques
- Requires the lowest number of substructures in the river
- No apparent traffic impacts
- Opportunity to launch structure as defined in Section 4.1.6.2.1 (Construction: Potential Construction Options).

3.3.1.2 Alternative B – Simple-Span Precast/Prestressed I-Girder Bridge

Alternative B is a simple span precast prestressed concrete I-girder superstructure which incorporates the following design features:

- Structural elements below deck require a higher roadway elevation
- Structure type is common in Minnesota and Ontario and standardized shapes exist
- Construction can be performed using common techniques

3.3.1.3 Alternative B1 – Spliced Prestressed Precast Concrete I-Girder Bridge

Alternative B1 is a spliced precast prestressed concrete I-girder superstructure which incorporates the same design features as Alternative B, plus the following:

- Precast structural elements that are connected to achieve longer spans

3.3.1.4 Alternative C – Continuous Steel Box Girder Bridge

Alternative C is a continuous steel box girder superstructure which incorporates the following design features:

- Structural elements below deck require a higher roadway elevation
- Box shape adds stability and allows for construction of longer spans
- Construction can be performed using common techniques

3.3.1.5 Alternative D – Segmental Concrete Box Girder Bridge

Alternative D is a segmental concrete box girder structure which incorporates the following design features:

- Structural elements below deck require a higher roadway elevation
- Optimized shape allows for construction of longer spans
- May require a specialty contractor to construct and/or inspect

3.3.1.6 Alternative E – Tied Arch Main Span Bridge with Precast Prestressed I-Girder Approaches

Alternative E is a tied arch main span bridge with precast prestressed I-girder approaches which incorporates the following design features:

- Structural elements above deck allow for a lower roadway elevation
- May result in the most piers in the river
- May require a specialty contractor to construct and/or inspect

3.3.1.7 Alternative E1 – Through Arch Bridge

Alternative E1 is a through arch bridge which incorporates the same design features as Alternative E, plus the following:

- Design of foundation support is more complex.
- Challenging construction methods

3.3.1.8 Alternative F – Concrete Slab Span Bridge

Alternative F is a concrete slab span bridge which incorporates the following design features:

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

- Depth and shape can be optimized
- Shape allows for construction of short spans

3.3.1.9 Alternative G – Spliced Steel Girder Bridge

Alternative G is a spliced girder bridge which incorporates the following design features:

- Precast structural elements that are connected to achieve longer spans
- Steel plates are built up to resist loads

3.3.1.10 Alternative H – Truss Bridge

Alternative H is a truss bridge which incorporates the following design features:

- Efficient use of materials
- Multiple members assembled to resist loads

3.3.1.11 Alternative I – Cable-Stayed Bridge

Alternative I is a cable-stayed bridge which incorporates the following design features:

- Cables, edge beams, and towers to resist loads
- Tallest above deck structure

3.3.1.12 Alternative J – Suspension Bridge

Alternative J is a suspension bridge which incorporates the following design features:

- Cables and towers to resist loads
- Optimized for long spans

3.3.2 Evaluation of Bridge Type Alternatives

Each of the Bridge Type Alternatives considered would meet the Purpose and Need for the project. Early in the Bridge Type Alternatives development process, the TAC (based on recommendation from the Bridge Engineer team) eliminated seven of the 12 original concepts from further consideration and did not subjected them to more detailed evaluation. These bridge type concepts were eliminated for the following reasons:

- Alternative B1 – Prestressed Precast Concrete Girder Bridge (Spliced): There is limited construction experience in both Minnesota and Ontario and existing alternatives could be refined later to capture this configuration.
- Alternative E1 – Through Arch: This alternative is not cost effective for the span lengths considered.
- Alternative F – Concrete Slab Span: The span lengths are too small for this crossing which would increase the number of piers in the channel and minimize the navigation channel.
- Alternative G – Spliced Steel Girder: There is limited construction experience in both Minnesota and Ontario and existing alternatives could be refined later to capture this configuration.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

- Alternative H – Truss: The industry is moving away from truss bridges because they require higher maintenance costs, long-term maintenance challenges, and are generally more labor intensive.
- Alternative I – Cable-Stayed: This alternative is not cost effective for the span lengths considered. The short span lengths would increase the number of piers in the channel. Additionally, the structure height would likely exceed the aviation clearance envelope.
- Alternative J – Suspension: This alternative is more appropriate for spans that are longer than this crossing. For this crossing, this option is not cost effective and would require higher maintenance costs. Additionally, the structure height would likely exceed the aviation clearance envelope.

The following four-phase evaluation approach was used to evaluate the remaining five Bridge Type Alternatives and three configurations of Alternative A that were added and refined throughout this process:

1. Evaluation Criteria Development
2. High-Level Evaluation Screening
3. Alternative Refinement, and
4. Preferred Alternative Determination

Examples of the five remaining Bridge Type Alternatives A through E are illustrated in Figure 13 in Appendix A.

Phase 1: Evaluation Criteria Development

During the first phase, existing site conditions were determined to confirm potential bridge types and to develop site-specific evaluation criteria. The initial evaluation criteria developed for the bridge type alternative evaluation are listed below:

- Maximum increase in structure depth
- Number of substructures in river and location relative to adjacent CN Rail bridge
- Traffic impacts/staging considerations
- Geometric challenges
- Constructability
- Maintenance and inspection needs
- Security and vulnerability
- Estimated construction costs

At this point in the process, MTO requested refinements to Alternative A that would minimize impacts to the river. Therefore, the following base configurations of Alternative A were developed:

3.3.2.1 Configuration A1 – Continuous Steel I-Girder Bridge, 5 spans

Configuration A1 is a refinement of Alternative A that has five spans, which would require the construction of four substructures (piers) in the river bed.

3.3.2.2 Configuration A2 – Continuous Steel I-Girder Bridge, 3-4 spans

Configuration A2 is a refinement of Alternative A that has three to four spans, which would require the construction of two to three substructures (piers) in the river bed.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

Phase 2: High-Level Evaluation Screening

The second phase of the evaluation included an initial screening and high-level evaluation of the five overall bridge type alternatives (including Configurations A1 and A2 of Alternative A) by utilizing the preliminary bridge evaluation matrix. Each alternative was compared against the evaluation criteria noted in the preliminary evaluation matrix.¹ During this phase the TAC eliminated the following three alternatives:

- Alternative C – Continuous steel box girder: This alternative was found to have minimal advantages over the continuous steel I-girder alternative, and would result in higher design and construction complexity and risk.
- Alternative D – Segmental concrete box girder: This option had the deepest structure depth, resulting in the largest increase in roadway elevation, which seemed inappropriate for the context.
- Alternative E – Tied arch main span with precast concrete I-girder approaches: Although this offered the shallowest structure depth, it resulted in a large number of substructures and increased complexity in design and maintenance, and did not provide sight distance from one bridge end to the other (a desire of U.S Customs and Border Protection (CBP) and General Services Administration (GSA)).

Phase 3: Alternative Refinement

The two remaining overall alternatives, Bridge Type Alternative A (including Configurations A1 and A2; continuous steel I-girder superstructures) and Bridge Type Alternative B (precast concrete I-girder superstructure), were further refined in the third phase of evaluation. With approval from the TAC, new evaluation criteria were added by the project team to closely examine the remaining alternatives. The new criteria included:

- Construction and fabrication complexity
- Geometric opportunities and challenges
- Ability to apply Advance Bridge Construction (ABC) techniques
- Construction duration
- Aesthetic opportunities

Using the new criteria, Bridge Type Alternatives A (Configurations A1 and A2) and B were evaluated in the refined evaluation matrix². As a result of this refined evaluation, Alternative B was eliminated due to the following challenges:

- Alternative B – Simple-Span Precast/Prestressed I-Girder Bridge:
 - This bridge type would require the most substructures, increasing construction risk.
 - It would limit the number of potential fabricators, with few capable of fabricating a sufficiently long beam, especially in Canada.

¹ See Table 23 in Appendix C for the preliminary evaluation matrix dated January 20, 2016. Red text in the evaluation matrix indicates differences among the alternatives, both positive and negative.

² See Table 24 in Appendix C for the refined evaluation matrix dated February 19, 2016. Red text in the evaluation matrix indicates differences among the alternatives, both positive and negative.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

- Lastly, the evaluation revealed differences between design practices and philosophies in MnDOT and MTO, which would have required both bridge owners to compromise their typical practices.

Phase 4: Preferred Alternative Determination

Bridge Type Alternative A, Configurations A1 and A2 were brought into the final phase of evaluation and further refined to develop and determine the following final, optimal span configurations which are summarized below:

3.3.2.3 Configuration A1.1 – Continuous Steel I-Girder Bridge, 5 spans, Prismatic

Configuration A1.1 is a refinement of Alternative A that has five spans, four substructures in the river bed, and a prismatic (constant depth – see Figure 14, Sheet 1 in Appendix A) superstructure. Aesthetically, the prismatic shape of the spans would provide clean, collinear lines for all bridge elements.

3.3.2.4 Configuration A1.2 – Continuous Steel I-Girder Bridge, 5 spans, Haunched

Configuration A1.2 is a refinement of Alternative A that has five spans, four substructures in the river bed, and a haunched (variable depth – see Figure 14, Sheet 2 in Appendix A) superstructure. Aesthetically, the haunched shape of the spans would provide an effect that the bridge is slender and efficient.

3.3.2.5 Refined Configuration A2 – Continuous Steel I-Girder Bridge, 4 spans, Haunched

The Refined Configuration A2 has four spans, three substructures in the river bed, and a haunched superstructure. Aesthetically, the haunched shape of the spans would provide an effect that the bridge is slender and efficient.

The agencies evaluated both four-span and five-span configurations, as well as haunched and prismatic (constant depth) superstructures. Again, new evaluation criteria were developed by the project team to closely examine the three proposed configurations of Bridge Type Alternative A. The final evaluation matrix³ documents the performance of Bridge Type Alternative A configurations against the final evaluation criteria, which included:

- Hydraulic considerations
- Potential temporary bent⁴ needs
- Potential impact to navigational openings during construction

³ See Table 25 in Appendix C for the final evaluation matrix dated March 22, 2016.

⁴ Temporary bents are temporary support units that facilitate the construction of a bridge. They consist of two or more column-like members connected at their topmost ends by a cap/another member holding them in their correct position.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

The final evaluation eliminated the Refined Configuration A2 for the following reasons:

- Refined Configuration A2 – Continuous Steel I-Girder Bridge, 4 spans, Haunched:
 - This Configuration involved the most construction complexity and risk.
 - A preliminary erection plan showed that this configuration would likely require eight temporary structures to support bridge segments during construction, compared to four segments with a five-span configuration.
 - The likely location of these temporary structures would decrease the navigational opening by about half the allowable width during construction.

The differences between Configuration A1.1 (five-span prismatic) and Configuration A1.2 (five-span haunched) were more subtle. From an aesthetic perspective, the haunched alternative featured a light and slender appearance, while the prismatic alternative featured a clean, parallel appearance. Ultimately, the five-span haunched continuous steel I-girder (Alternative A Configuration A1.2) was selected as the Preferred Bridge Type Alternative based on the results of the evaluation and is depicted in Figure 14 in Appendix A. Public involvement in this decision is discussed in Sections 4.1.15 (Visual), 5.2.1 (Project Advisory Committee), and 5.2.2 (Technical Advisory Committee).

3.3.3 Preferred Bridge Type Alternative

Figure 15 in Appendix A provides a summary of the evaluation process detailed previously in Section 3.3.2 (Evaluation of Bridge Type Alternatives) that led to the selection of Alternative A Configuration A1.2 as the Preferred Bridge Type Alternative. Alternative A Configuration A1.2, a five-span, haunched continuous steel I-girder superstructure, is depicted in Figure 14 in Appendix A and was selected as the Preferred Bridge Type for the following reasons:

- It is a standard structure type in Minnesota and Ontario
- Typical construction methodology and maintenance
- Fewer number of piers in river than existing
- Can accommodate a lower bridge profile
- Can use prefabricated elements

3.4 DESCRIPTION OF ALTERNATIVES EVALUATED IN THIS EA

The Preferred Alternative (Preferred Alignment Alternative and Preferred Bridge Type Alternative) and the No Build Alternative are evaluated further in this EA against the detailed assessment of social, economic, and environmental (SEE) effects documented in Section 4.0.

3.4.1 No Build Alternative

The No Build Alternative entails maintaining and rehabilitating the existing bridge in its current alignment by performing necessary routine maintenance and repairs for as long as feasible to continue general use. The No Build Alternative also proposes that no replacement bridge is constructed. The existing bridge would continue to deteriorate unless major repairs were made.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

The No Build Alternative does not address the issues discussed in Section 2.0 (Purpose and Need for Project).

3.4.2 Preferred Alternative

The Preferred Alternative is to construct a five-span, haunched continuous steel I-girder replacement bridge (Bridge Type Alternative A, Configuration 1B) along a new alignment located south or upstream of the existing bridge with 3 feet separation from the existing bridge (Alignment Alternative 2).

Following the selection of Alternative 2 as the Preferred Alignment Alternative and Alternative A Configuration A1.2 (five-span haunched steel I-girder) as the Preferred Bridge Type Alternative, refinements to the selected alignment alternative were made to minimize impacts at the tie-in points. See Appendix A for plan views of the U.S. and Canadian approach segments, Figure 16 and Figure 17, respectively. Also, Figure 18 and Figure 19 in Appendix A show the typical sections and plan/profile, respectively.

A three-dimensional model of the preferred bridge type on the preferred alignment was developed to render views of the preferred bridge from various angles. The visualizations were prepared using a standard pier type and railing and are intended to provide a conceptual idea of what the bridge would look like in its actual setting. These visualizations are available in Appendix C in Figure 32 through Figure 34.

Construction of the proposed bridge will address the needs outlined in Section 2.0 by providing a structurally sound bridge crossing over the Rainy River and continued access to vehicles and pedestrians. The proposed bridge will include new substructures and superstructures, eliminating all corrosion and structural deficiencies currently found on the existing bridge. Traffic will be maximized during construction for both vehicles and pedestrians, as the existing bridge will remain operational while the proposed bridge is under construction.

The proposed bridge features an open design that does not feature any overhead structural elements, which will address vertical clearance issues experienced with the existing bridge. Current MnDOT and MTO design standards were incorporated into the proposed design to ensure adequate load capacity and guardrails will be supported and provided by the new bridge. To satisfy the program outlined by Chapter 152 of the Minnesota Legislature 2008 Session Laws, the proposed bridge does not feature fracture critical design.

Ongoing coordination continues to exist between MnDOT and MTO throughout this project. In accordance with Section 106 of the National Historic Preservation Act, there has been ongoing coordination with MnHPO and the FHWA to document effects to the existing bridge. The Preferred Alignment will impact parkland and wetlands on the U.S. side of the project. Throughout design, modifications to the alignment (i.e. tightening the curves to pull in the curblines) have been made to minimize the proposed bridge's footprint. Selection of the Preferred Bridge Type satisfies constraints set by the FAA related to Baudette International Airport's critical approach areas. MnDOT will continue coordination with the FAA and the Baudette International Airport as needed as the design progresses.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

Design of the proposed bridge's substructures meet requirements advised by the USCG to apply to the U.S. side of the river to prevent navigational issues.

Compared to the existing bridge, the proposed bridge features a solid deck to eliminate direct drainage from the bridge into Rainy River. Additional stormwater treatment methods and inclusion of permanent Stormwater Best Management Practices (BMPs) will be determined in the final design phase of the project.

3.5 LIFE-CYCLE COST ANALYSIS

A life-cycle analysis appraises the effects of an investment into a measurable unit (2016 U.S. dollars). This approach allows for a comparison to be made between initial investments which occur during the initial years of the project, and the project benefits or costs that often accumulate over a long period of time.

A preliminary life-cycle and construction cost analysis was completed during the alternative refinement process. This analysis indicated the following estimated totals for construction (including contingency and escalation) and life-cycle costs:

Bridge Type Alternative	Bridge Description	Total Est. Life-Cycle Costs (2016 dollars)	Total Est. Construction Costs (2016 dollars)
Alternative B	Precast Concrete I-Girder, 5 Spans	\$32.9 M	\$31.4 M
Alternative A / Configurations 1 & 1B	Continuous Steel I-Girder, 5 Spans	\$32.9 M	\$31.7 M
Alternative A / Configuration 1A	Continuous Steel I-Girder, 4 Spans, Haunched	\$34.2 M	\$33.2 M

State of Minnesota Chapter 152 bond and Federal Aid will cover a majority of the initial construction costs. The project funding is outlined in the 2016-2019 State Transportation Improvement Program (STIP) as shown in the table below:

Sequence #	Cost Category	Expenditure Year	Total	FHWA	Bond
350	Construction	2018	\$6.1M	\$3M	\$3.1M
381	Construction	2019	\$9.4M	\$9.4M	
Totals:			\$15.5M	\$12.4M	\$3.1M

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Alternatives

Following selection of the preferred alternative, a refined total Project Construction Cost estimate was completed.

Project Construction Cost: \$29,100,000 (in 2018/2019 dollars)

Anticipated Funding:

Federal (National Highway Performance Program (NHPP):	\$ 12,400,000
State (Chapter 152 Bonds):	\$ 7,000,000
Other (Canadian Portion of Project):	\$ 9,700,000

3.6 PROPOSED PROJECT SCHEDULE

The following is a tentative schedule of activities for the project:

EA/EAW released for public comment	January/February 2017
Public hearing	February 2017
Complete Environmental Review Process	Spring 2017
Preliminary & Final Design	Winter 2017
Construction	Spring 2018 – Spring 2019

4.0 SOCIAL ECONOMIC AND ENVIRONMENTAL (SEE) IMPACTS

This section discusses environmental impacts of the No Build Alternative and the Preferred Alternative identified in Sections 3.4.1 and 3.4.2, respectively. It contains two sub-sections;

- State Environmental Assessment Worksheet (EAW)
- Additional Federal Issues

The EAW is a standard format used in Minnesota for environmental review of projects meeting certain thresholds at Minnesota Rule 4410.4300. Federal environmental regulations not addressed on the EAW are addressed in Sections 4.3 and 5.9.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1 ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at:

<http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm>.

The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

4.1.1 Project title

Baudette / Rainy River International Bridge Replacement Project

4.1.2 Proposer

Contact person: Craig Collison
Title: MnDOT District Engineer
Address: 3920 Highway 2 West
City, State, ZIP: Bemidji, MN 56601
Phone: (218) 755-6549
Fax: (218) 755-6512
Email: craig.collison@state.mn.us

4.1.3 RGU

Contact person: Joe McKinnon
Title: MnDOT Project Manager
Address: 3920 Highway 2 West
City, State, ZIP: Bemidji, MN 56601
Phone: (218) 755-6517
Fax: (218) 755-6512
Email: joseph.mckinnon@state.mn.us

4.1.4 Reason for EAW Preparation

Required:

- EIS Scoping
- Mandatory EAW

Discretionary:

- Citizen petition
- RGU discretion
- Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): N/A

4.1.5 Project Location

County: Lake of the Woods
City/Township: Baudette
PLS Location (Section, Township, Range): 35, 161N, 31W

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Watershed (81 major watershed scale): #79: Rainy River – Baudette

GPS Coordinates: N/A

Tax Parcel Number: N/A

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project;
 - See Figure 3 at the beginning of this report.
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and
 - See Figure 2 at the beginning of this report.
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.
 - See Figure 1 at the beginning of this report.

4.1.6 Project Description

4.1.6.1 Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

MnDOT is proposing the replacement of the Baudette / Rainy River International Bridge with a new five-span, haunched continuous steel girder structure located on a new alignment immediately upstream of the existing bridge. The project will include reconstruction of the U.S. and Canadian approaches to tie into the existing roadway, Trunk Highway 72 and Highway 11.

4.1.6.2 Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal, or remodeling of existing structures, and 4) timing and duration of construction activities.

This project involves three components: the decommissioning and removal of the existing Bridge #9412, construction of the replacement bridge on a new alignment, and construction of the U.S. and Canadian approaches to be tied in with the existing roads. See Figure 16 through Figure 19 in Appendix A for the Preferred Alternative U.S. and Canada approach plans, overall plan and profile, and typical sections.

The existing bridge is a two-lane, six-span, 192.5-foot-long Pennsylvania through-truss structure. The current sidewalk is constructed of a timber plank decking over steel beams and stringers that are in similar condition to the other structural members under the main bridge deck. With the six steel beam approach spans, the total length is approximately 1,286 feet.

The replacement bridge will be a new five-span haunched continuous steel girder structure located on a new alignment immediately upstream of the existing bridge. The proposed new structure will include two

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

11.5-foot wide lanes, two 8-foot wide shoulders, and a 6-foot wide pedestrian/bicyclist facility on the south (upstream) side of the bridge. This results in a total width, including barriers, of 48.2 feet.

Construction is anticipated to begin in 2018, with substantial completion by the end of 2019. Since the existing bridge will remain open during construction of the new bridge, substantial traffic disruption to users is not expected.

4.1.6.2.1 Construction: Potential Construction Options

An assessment of potential superstructure erection and construction options was performed as part of the structure type study to determine and make recommendations on the feasibility, advantages, and disadvantages of each potential method. The three methods considered and evaluated were:

1. Conventional erection method using heavy duty cranes and erection towers;
2. Launching the superstructure steel framework from the Canadian side of the Rainy River into the U.S.; and
3. Using winter ice and the frozen river as an erection platform.

Following the assessment, the winter ice construction method (Method 3) was eliminated from the evaluation due to insufficient ice thickness (15.7-17.7 inches) that forms on the Rainy River. A minimum ice thickness of 50 inches is required for this construction and erection method.

The remaining two potential methods that were determined to be feasible for this project include:

Method 1 – Conventional Erection Method:

This method uses high capacity cranes with long boom capabilities and heavy duty temporary falsework towers that will be ‘leapfrogged’ between spans as steel erection progresses. It is assumed that falsework towers will require temporary pile foundations. The evaluation of environmental considerations included factors such as impacts of a minimum of five temporary falsework towers (four located over water), the possible need for stability towers in the river during construction, potential impacts of tower construction and removal, and the need for a shoreline staging area (girder laydown site).

Method 2 – Launching the Bridge from Canada into the United States:

Launching consists of incrementally assembling the steel framework on the Canadian side of the Rainy River and pushing or pulling it across the river and on top of the piers. The report concluded that this method has several advantages, including environmental, since temporary falsework and stability towers would not be required. As a result, the risk of effects to the river and surrounding environment are reduced in comparison to conventional methods.

The conventional erection method and the launching superstructure method will be carried forward and evaluated during the Detail Design Study when the final construction method will be confirmed and finalized.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Summary of Potential Construction Options

Either Method 1 or 2 is expected to be used to construct the proposed project. However, the final construction method will be determined in final design and construction.

4.1.6.2.2 Construction: Potential Staging Areas

Laydown and staging areas will likely be located on Canada Border Services Agency (CBSA) owned land located south of the bridge and the Canadian Port of Entry facilities. It is assumed that a bulkhead or dock area will need to be constructed, allowing material delivery and placement onto a barge via crane to occur. Foundation installation is assumed to require pile driving equipment placed on barges. Barge placement accommodating the existing bridge appears feasible.

Minor staging may occur on the US side of the border within Peace Park, a City-owned property, located directly adjacent to the project area. Contractors may request to use a portion of Peace Park during construction for staging purposes, including storage of materials or equipment in the parking lot and using the boat launch to provide access to Rainy River through the Baudette River. Access to proposed Pier 1⁵ on the U.S. side would require either construction of a temporary causeway from the U.S. shore or dredging of the river to allow barge access closer to the shore. If dredging is performed, clearing and grubbing sufficient for crane placement on the U.S. shore would still be necessary.

See Sections 4.1.11.2.4 (Water Resources – Surface Waters) and 4.3.6.2 (Additional Federal Issues – Section 4(f) Resources – Peace Park) for additional discussions regarding the impacts of the proposed causeway on the river channel/wetlands and Peace Park, respectfully.

4.1.6.3 Project Magnitude:

Total Project Acreage	Approx. 0.5 in the U.S.; Approx. 0.9 in Canada
Linear project length	Approx. 1,200 feet in the U.S.; Approx. 900 feet in Canada
Number and type of residential units	NA
Commercial building area (in square feet)	NA
Industrial building area (in square feet)	NA
Institutional building area (in square feet)	NA
Other uses – specify (in square feet)	NA
Structure height(s)	NA

⁵ Pier 1 is located at the end of the proposed bridge's first span; approximately 220 feet from the end of the proposed roadway – see Figure 29: Peace Park – 4(f) Impacts.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.6.4 Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

See Section 2.0 for the Purpose and Need for Project. Beneficiaries of this project will include all roadway users of the proposed river crossing from both the U.S. and Canada.

4.1.6.5 Are future stages of this development including development on any other property planned or likely to happen? Yes No. If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

4.1.6.6 Is this project a subsequent stage of an earlier project? Yes No. If yes, briefly describe the past development, timeline, and any past environmental review.

4.1.7 Cover Types

Estimate the acreage of the site with each of the following cover types before and after development:

Table 2: Cover Types (in acres) for U.S. Side of the Project

	Before	After		Before	After
Wetlands ¹	0.71	0.71	Lawn/landscaping	0.06	0.46
Deep water/streams ²	3.44	3.20	Impervious Surface ²	0.18	1.08
Wooded/forest	0.47	0	Stormwater Pond ³	0	0
Brush/Grassland	0	0	Pervious Bridge Surface ²	0.59	0
Cropland	0	0	Other (describe)	0	0
			TOTAL	5.45	5.45

¹ These areas are defined by the USACE Section 404 process. See Section 4.1.11.2.4 (Water Resources – Surface Waters), Figure 27A, and Figure 27B for additional discussion and visuals of both USACE and MnDNR/WCA wetland areas.

² The Deep Water area does not actually change. It is shown in the table to decrease due a change in bridge deck materials; the existing bridge deck is open grate (pervious) whereas the proposed bridge deck will be impervious.

³ A Stormwater BMP design will be selected during final design development. If a stormwater pond or -like solution is incorporated during the final design process, acreage will most likely be taken from the lawn/landscaping category. At this time in the design process, pond area values of zero are provided for before and after project completion.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.8 Permits and Approvals Required

In addition to U.S. federal, state and municipal permits and approvals, International and Canadian federal and provincial approval requirements will be required for this project, as outlined in this section.

4.1.8.1 U.S. Permits & Approvals

List all known local, state and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Type of Application	Action Required
Federal		
FHWA/MNDOT	Environmental Assessment	Approval
FHWA	EIS Need Decision	Approval
	Section 4(f) de minimis determination	Approval
	Endangered Species Act Section 7	Consultation
	Section 106 (Historic/Archeological)	Approval
USACE	Section 404 Permit	Permit
USCG	Section 9 Permit ⁶	Permit
General Services Administration (GSA)	Revocable License for Non-Federal Use of Federal Property	Approval
Federal Aviation Administration (FAA)	FAA 7460-1 Permit	Permit
US Department of State	Secretary of State Approval of agreements between MnDOT and MTO	Approval
	Special Agreement with Global Affairs Canada (if IJC Permit is not required – See Section 4.1.8.2)	Approval

⁶ USACE Section 10 Permit is waived to USCG Bridge's Section 9 Permit.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

State		
MnDOT	Environmental Assessment Worksheet (EAW)	Approval
	EIS Need Decision	Approval
	Wetland Conservation Act (Replacement Plan) for new roads and capacity expansion projects	Approval/Review
MnDNR	Dewatering permit	Permit
	Public Waters Work Permit	Permit
	Prohibited Invasive Species Permit (if needed)	Permit
MPCA	Section 401	Certification
	National Pollutant Discharge Elimination System – Construction Stormwater	Permit
	Notification to Manage Dredged Materials without a Permit	Form Submittal
Local		
City of Baudette	Municipal Consent	Approval
Lake of the Woods County	Floodplain Permit	Permit

4.1.8.2 International Permits & Approvals

See Section 5.2.5 (Other Agency Coordination & Meetings) for additional discussion on the following agencies:

Agency	Permit / Act	Project Activities	Project Phase when Permit/Approval will be Obtained
International			
International Joint Commission (IJC)	Special agreement or an Order of Approval	Work that takes place on an international waterway	Detail Design
International Boundary Commission (IBC)	International Boundary Waters Treaty Act - Duplicate of US Letter of Request - for work within 10 feet of a border	Any work that takes place within 3 m of the U.S./Canadian border	Detail Design/in advance of Construction

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.8.3 Canadian Federal and Provincial Permits & Approvals

Agency	Permit / Act	Project Activities	Project Phase when Permit/Approval will be Obtained
Federal			
Global Affairs Canada	Special Agreement with U.S State Department- no application required	Work that takes place on an international waterway	Preliminary and Detail Design
Canada Border Services Agency (CBSA)	Access permits	Work that takes place on CBSA property (including TLIs and access)	Detail Design / Construction
Transport Canada	Navigation Protection Act - application for works in Scheduled waterway - Submit NPP Notice of Work Form to the TC and the Minister	Work on a waterway that is listed on the List of Scheduled Waters	Detail Design
Transport Canada	International Bridges and Tunnels Act - Permit	Work on any international bridge/tunnel	Detail Design
Department of Fisheries & Oceans	Fisheries Act - Authorization for Works or Undertakings Affecting Fish Habitat Fisheries Act	Work that may result in serious harm to fish that are part of a commercial, recreational, or Aboriginal fishery, or to fish that support such a fishery	Detail Design
Environment and Climate Change Canada	Migratory Birds Convention Act (MBCA)	Work that may result in impacts to migratory birds or birds' nests listed on the MBCA	Detail Design
Canadian Environmental Assessment Agency (CEAA)	Canadian Environmental Assessment Act	Projects that are listed as Designated Project in the Regulations Designating Physical Activities of the Canadian Environmental Assessment Act	Preliminary Design (Project Description); Detail Design (Federal EA, if required)

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Provincial			
Ontario Ministry of Natural Resources and Forestry	Endangered Species Act (ESA) Permit or Authorization	Work that have the potential to affect a species listed on the Species at Risk in Ontario List and/or its habitat	Detail Design
Ontario Ministry of Tourism, Culture, and Sport	Ontario Heritage Act- Acceptance of Report to Register	Disturbance of any potential archaeological sites	Preliminary Design
Ministry of the Environment Climate Change	Class Environmental Assessment (EA) for Provincial Transportation Facilities	Part II Order Requests during TESR Public Review Period	Preliminary and Detail Design

4.1.9 Land Use

4.1.9.1 Describe:

4.1.9.1.1 Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

Currently, the site is used as an international Port of Entry, with full-service, 24-hour Border Control facilities, a small rest stop area with adjacent boat launch into the Baudette River, and a public park (Peace Park, owned by the City of Baudette). The project is in an urban setting; no agricultural land exists within the project area. The proposed project seeks to maintain the current land use at the project site.

4.1.9.1.2 Plans: Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

Future land use/desired future development in the vicinity of the project area includes rural development activities. According to the 2016 Lake of the Woods County Comprehensive Plan, this development may include industrial, commercial, tourism, residential or other uses as appropriate to the site's characteristics and neighborhood's character.

4.1.9.1.3 Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

4.1.9.1.3.1 Floodplain Assessment

The current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) has been reviewed for this project (Map Number 27077C0425C in Lake of the Woods County, Minnesota dated September 5, 1990). Base flood (100-year or Zone A) floodplain boundaries are delineated on the U.S. side of the International Boundary on Figure 20 in Appendix A. Due to a lack of floodplain information regarding the Canadian side, the approximate riverine flood hazard area boundaries from the U.S. were used where base flood elevations have not been determined.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

The project will span the Rainy River, connecting Baudette, Minnesota to Rainy River, Ontario. The project area encompasses the river crossing and the bridge approaches in both the U.S. and Canada. The project will also replace the existing Baudette / Rainy River International Bridge with a new crossing and approach roadways. The existing bridge has seven piers, three and a half of which exist on the U.S. side of the International Boundary (Pier 4 is located on the centerline of the International Boundary). The proposed bridge has four piers, two of which will be located on the U.S. side.

The project will encroach on the following floodplains:

Table 3: Floodplain Encroachment

Floodplain	Type of Encroachment	Length (feet)
Rainy River (U.S. Side)	Transverse	25
Rainy River (Canadian Side)	Transverse	220

Floodplain Impact Analysis

This project will not result in any significant floodplain impacts for the following reasons:

No significant interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.

- All roadway grades will be designed above the 100-year flood elevation. Potential impacts to the existing floodplain were analyzed using the preliminary hydraulics model previously established for the project. Using the design flood (100-year recurrence) simulations of the existing and proposed conditions in HEC-RAS determined the limits for the existing floodplain. The 100-year flood elevation at Rainy River is 1066.49 feet (NAVD 88 datum) for the existing bridge condition. Similarly, the 100-year flood elevation at the Baudette River was modeled to be 1066.48 feet (NAVD 88 datum) post-construction (a 0.01 feet decrease from the existing condition).
- There is no recorded evidence of flooding or overtopping of the existing bridge or roadways at the river crossing.

No significant adverse impact on natural and beneficial floodplain values should result from this project.

- No substantial fisheries impacts are anticipated. Construction operations that may impact the river bed would not occur during fish spawning and migration periods (March 15th through June 15th in the U.S. and April 1st through July 15th in Canada) without approval from MnDNR and the Ontario Ministry of Natural Resources and Forestry (MNR). See Section 4.1.13.4 (Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)) for additional information regarding avoidance, minimization, and mitigation measures.
- The new bridge structures will not increase the flow velocities in the river. Therefore, fish movements should not be affected.
- No changes in public access (boat or canoe) would result from the project.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

The U.S. half of the proposed bridge and approach would require some fill in the field delineated wetland that is in the project vicinity. Impacts would be minimized to the greatest extent practicable – See Section 4.1.11.2.4.1 (Water Resources – Wetlands) for additional information.

- Lake sturgeon and the creek heelsplitter mussel are species of concern that have been identified in the floodplain within the project vicinity. However, no substantial impacts have been identified. See Sections 4.1.13.3 and 4.1.13.4 (Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)) for additional information regarding threatened or endangered species as well as avoidance, minimization, and mitigation measures.
- As discussed in Section 4.1.11.2.2 (Water Resources - Stormwater), appropriate erosion control measures will be used and decided upon during final design development.

No significant increased risk of flooding will result.

- No significant change in headwater or tailwater elevations will result. As discussed previously, hydraulic models of the existing and post-construction conditions indicate an expected stage decrease of 0.01 feet associated with the new bridge crossing of the Rainy River. There is no apparent flood damage potential upstream because there is no development in the floodplain.
- Hydraulic analysis indicates no stage increase for the new bridge crossing of the Rainy River. There are no known flooding problems at the Rainy River crossing.

This project should not result in any incompatible floodplain development.

- Lake of the Woods County, Minnesota has a floodplain ordinance that regulates floodplain development and conforms to the Minnesota Department of Natural Resources Floodplain Management guidelines. The Town of Rainy River, Ontario also has a bylaw prohibiting construction of certain features in the Flood Plain Zone (FZ). Public services of approved hydraulic design (including roads and bridges) are permitted in the FZ. There will be no incompatible development within the Regulatory Floodplain, which is defined as all lands situated below the Regulatory Flood Elevation of 1065.0 feet (324.6m, CGVD1928).
- No new access to the floodplain area is being created.

Floodplain Impact Summary

Based on hydraulic modeling and the above floodplain assessment, no significant floodplain impacts are expected.

4.1.9.1.3.2 Wild and Scenic Rivers

The National Wild and Scenic River System map and the Minnesota Department of Natural Resources Wild and Scenic River Program maps were reviewed, and there are no wild and scenic rivers within or directly adjacent to the project area.

4.1.9.1.3.3 Critical Area

There are no wild, scenic, and recreational river districts, Mississippi River Critical Areas, or special districts within the project area.

4.1.9.1.3.4 Shorelands

The Rainy River is not included in Lake of the Woods County shoreland ordinances or shoreland management areas.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.9.1.3.5 *Agricultural Districts*

A review of the Lake of the Woods County zoning maps show that no agricultural preserves are located within the project area.

4.1.9.2 Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 4.1.9.1 above, concentrating on implications for environmental effects.

The project is not expected to cause significant change in land use within the vicinity of the limits of construction. It is not anticipated to lead to the development of any large scale commercial, industrial, residential, or other development. Access will not be changed, and if so changes are not deemed significant. The project is consistent with local and/or regional comprehensive plans.

4.1.9.3 Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 4.1.9.2 above.

N/A

4.1.10 Geology, soils, and topography/land forms

4.1.10.1 Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Additional discussion of geological and soil information can be found in the following reports outlined in Appendix B. A summary of this information is provided below.

1. *Phase I and Phase II Architecture/History Survey Report: Trunk Highway 72 Area of Potential Effects, Baudette, Minnesota*, (Mead and Hunt 2014).
2. *Phase I Environmental Site Assessment*, (Landmark Environmental 2014a).
3. *Phase II Drilling Investigation*, (Landmark Environmental 2014b).

The project area is located in the Agassiz Lacustrine Plain, Big Fork Valley geomorphic area and the Beltrami Arm of Glacial Lake Agassiz physiographic province. The project area consists of an upland point bar area that formed at the junction of the Rainy and Baudette Rivers. The soils located in the project area consist of layered mixtures of sands, silts, and clays with variable concentrations. Part of 'Old Town' Baudette was built along the uplands adjacent to the Baudette River, resulting in shallow disturbances of the sediment between 8 and 12 inches (20 and 30 cm) below the surface. In addition, the 'Old Town' cemetery was located near the northeastern tip of the point bar within the proposed project area. Most of the graves were reported to have been moved to a different cemetery location in the early 20th Century. Additional discussion regarding Old Town Cemetery is provided in Section 4.1.14 (Historic Properties).

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Surface elevations of the project area range from 1,065 feet, near the river's edge, to 1,080 feet above mean sea level, upslope from the river. Unconsolidated sediments consisting of lake modified glacial till underlie the project area. The uppermost bedrock unit beneath the project area consists of metamorphosed felsic volcanic rock. According to the Minnesota Geological Survey (MGS), the approximate range of depths to bedrock is from 24.8 feet to 37.5 feet for the project area; approximately 1,040.2 feet to 1050.1 feet in elevation (see Figure 22 and Figure 23).

According to the MPCA website⁷, karst conditions do not exist in proximity to the proposed project area and does not exist in a region where sinkhole and surface karst feature development is anticipated.⁸

4.1.10.2 Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 4.1.11.2.2 (Water Resources – Stormwater).

A Unified Soil Classification System soils report for the approximate project area can be found in Appendix F. Additionally, Figure 21 in Appendix A shows the soils for the greater project area.

Table 4 summarizes the soil type information within the project area and adjacent areas. Significant soils and topographical constraints are not anticipated.

Table 4: USCS Soil Types in Greater Project Area

Symbol	Location	Name	Texture	Permeability
122B	Project Area	Taylor loam	Loam	Moderately well drained
172	Adjacent Area	Indus clay loam	Clay loam	Poorly drained
755	Adjacent Area	Woodlake clay	Clay	Very poorly drained

The project area is composed of Taylor loam which generally consists of 39.2% sand, 37.3% silt and 23.5% clay as a result of succession and deposition from the prehistoric Glacial Lake Agassiz. As

⁷ Source: <https://www.pca.state.mn.us/water/karst-minnesota>. Accessed May 2, 2016.

⁸ Source: <https://gisdata.mn.gov/dataset/geos-surface-karst-feature-devel>. Accessed May 2, 2016.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

denoted in Table 5 below, the Taylor and Indus clay loams within and adjacent to the project area indicate a level of stability that is not likely to erode.

Table 5: Erosion Properties of USCS Soils

Symbol	Location	Erosion Factors	
		T, tons/acre/year	Wind Erodibility Group
122B	Project Area	5	6
172	Adjacent Area	5	6
755	Adjacent Area	5	4

Notes:

1. T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. Values range from 1 (indicating shallow or fragile soils) to 5 (deep soils least subject to erosion damage) tons/acre/year and apply to the entire soil depth profile (surface to bedrock).
2. Wind Erodibility Groups indicate a soil's susceptibility to wind erosion in cultivated areas. Values range from 1 (most susceptible) to 8 (least) and apply only to the surface layer of soil.

As discussed in Section 2.2.1.1.2 (Substructure Deficiencies), channel scour near the existing bridge piers has been observed over time, particularly in areas with minimal riprap. A scour analysis was performed for the proposed pier foundations. The scour analysis considered both contraction scour and pier scour. The total scour for the Preferred Alternative was 31.34 feet for the 100-year event and 33.28 feet for the 500-year event. The predicted scour depths are comparable to the 30ft scour depth, which was documented in a June 19, 2009 MnDOT memorandum. This analysis was conducted using a pier skew at 18.7° relative to the channel thalweg, or lowest points along the stream bed. Aligning piers normal to the channel flow could effectively reduce the overall scour estimates.

4.1.11 Water Resources

4.1.11.1 Describe surface water and groundwater features on or near the site in

4.1.11.1.1 (Surface Water) and 4.1.11.1.2 (Groundwater) below.

- 4.1.11.1.1 Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Figure 24 and Table 6 below lists the surface waters identified in Minnesota Public Water Inventory (PWI) as being located within one mile of the project.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Table 6: Minnesota Public Impaired Waters near Project Area

#	Reach Name	PWI ID / Assessment Unit (AUID)	Public Water	303d Impaired Water	Special Designations	Pollutant / Stressor
1	Baudette River	09030008-536	Yes	Yes	N/A	Dissolved Oxygen
2	Rainy River	09030008-504	Yes	Yes	N/A	Mercury in fish tissue
3		09030008-508				
4		09030008-509				

The Proposed Project will span the Rainy River and is located adjacent to the confluence of Rainy and Baudette Rivers. The Minnesota Pollution Control Agency (MPCA) has identified that the Rainy River is on the Impaired Waters List for mercury in fish tissue, not dissolved oxygen. The pollutant present in the Rainy River involves concentrations of mercury in fish tissue that exceeded the water quality standard, therefore a fish consumption advisory for this river was recommended by the Minnesota Department of Health (MDH). A Total Maximum Daily Load (TMDL) study has been approved by the Environmental Protection Agency (EPA) for mercury in fish impairments, however the MPCA does not require additional design or construction mitigation measures to be taken since mercury is not generally associated with stormwater discharges on roadway construction projects.

The section of the Baudette River that is adjacent to the project area is on the MPCA Impaired Waters List as a waterway that may not support a thriving community of fish and other aquatic organisms due to insufficient dissolved oxygen levels. For the dissolved oxygen impairment, a TMDL is required and in the process of being written. The target start and completion dates for this reach of Baudette River have been scheduled for 2017 and 2021, respectively.

The MPCA would require that a National Pollutant Discharge Elimination System (NPDES) construction stormwater permit be obtained for this project and all design and construction would follow the NPDES construction stormwater permitting requirements.

4.1.11.1.2 Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Depth to groundwater is approximately between 15 feet and 20 feet near the project area which is consistent with the boring logs taken for the *Phase II Drilling Investigation* (see Appendix G for boring logs and Section 4.1.12, Contamination/Hazardous Materials/Wastes, for additional discussion). Due to the project's proximity to the Rainy and Baudette Rivers, it is presumed that the groundwater level within the project area is consistent with the rivers' water elevation.

Possible groundwater contamination identified within the project area is discussed in Section 4.1.12 (Contamination/Hazardous Materials/Wastes). As part of the Phase I Environmental Site Assessment, the

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Minnesota County Well Index (CWI) has been queried and there are no wells located in the project area and there are no wellhead protection areas in Lake of the Woods County⁹. No wells will be constructed and no existing wells will be closed as a result of this project.

4.1.11.2 Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item 4.1.11.2.1 through Item 4.1.11.2.4 below.

4.1.11.2.1 Wastewater - For each of the following, describe the sources, quantities, and composition of all sanitary, municipal/domestic, and industrial wastewater produced or treated at the site.

4.1.11.2.1.1 *If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.*

Not applicable.

4.1.11.2.1.2 *If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.*

Not applicable.

4.1.11.2.1.3 *If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.*

No impacts to existing wastewater treatment or conveyance systems are anticipated.

⁹ Source: Minnesota Department of Health. <<http://www.health.state.mn.us/divs/eh/water/swp/maps/gis/whpa.pdf>>. Accessed July 14, 2016.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

- 4.1.11.2.2 Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

Under existing conditions, stormwater runoff from the bridge is discharged directly to the river through the open-grate bridge deck. The volume of runoff is expected to increase as a result of adding approximately 0.9 acres of impervious area to the proposed U.S. approach. The portion of existing and new impervious areas in Minnesota and Ontario is summarized in Table 7.

Table 7: Project Impervious Areas Summary (in acres)

	Existing Impervious (ac)	Proposed Impervious (ac)	Impervious Increase (ac)
U.S.	0.18	1.08	0.90
Canada	0.22	0.82	0.60
Total	0.40	1.90	1.50

A Stormwater Management Plan is being developed to address the preliminary design for drainage and water resources management for the proposed bridge. The Rainy River is one body of water handled by the International Joint Commission (IJC), a binational organization dedicated to managing boundary waters. The International Rainy-Lake of the Woods Watershed Board (IRLCB) is a subsidiary group within the IJC. The IRLCB does not have additional water resources standards.

Permanent stormwater management is required for projects where one or more acres of new impervious surface are added. As shown above, this project is adding approximately 0.90 acres of new impervious surface on the U.S. portion. The stormwater treatment method and inclusion of permanent Stormwater Best Management Practices (BMPs) will be determined in the final design phase of the project. If BMPs are employed, based on rate control and pollutant load reduction, the preferred stormwater practices would include a combination of dry pond and filtration swales. This proposed BMP configuration would provide volume abstraction adequate to meet water quality standards and will also provide retention to help meet the rate control design requirements.

The project may also mimic the existing conditions at the site and discharge bridge runoff directly to the Rainy River at the bridge abutment through overland flow.

The MPCA General Stormwater Permit requires additional water quality treatment for waters identified as impaired where the identified pollutants or stressors are phosphorus, turbidity, dissolved oxygen, or biotic impairment (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment). As of this writing, the Rainy River is not classified as impaired, however, the tributary

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Baudette River is classified as such due to dissolved oxygen. Additional water quality treatment is not required for the project based on this impairment.

Preliminary analysis of water quality treatment indicates that the project meets or exceeds the applicable standards. As the project goes into final design, a more detailed analysis of stormwater treatment features will be carried out.

Under present conditions, the site discharges directly into the Rainy River. The Rainy flows north and west to Lake of the Woods (approximately 11 miles downstream). Overland flow routes and drainage areas in the vicinity of the project are shown in the Drainage Overview Map provided in the Project Preliminary Stormwater Management Plan.

Rainy River (AUID: 09030008-509) is the ultimate receiving water body for the project area. Rainy River flows to Lake of the Woods (AUID: 39-0002-02) (approximately 11 miles downstream). Both Rainy River and Lake of the Woods have impairments for mercury in fish tissue. Nutrient/eutrophication biological indicators also impair Lake of the Woods. Stormwater discharged from urban developments has the potential to release pollutants in the form of suspended solids and nutrients (e.g. phosphorus). the implementation of a permanent stormwater management system would mitigate these pollutants.

Temporary erosion and sediment control measures will be implemented throughout construction activities to protect receiving waters. A National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit will be required for this project. This permit requires the development of a project stormwater pollution prevention plan (SWPPP) which includes directives for both construction stage and permanent sediment and erosion control.

A Stormwater pollution prevention plan (SWPPP) is required as part of the NPDES permit. This SWPPP will provide methods, schedules, and details for best management practices to be used for this project to prevent impacts to the quality of receiving waters. Erosion control measures will be in place and maintained throughout the entire construction period with implementation schedule as stated in the SWPPP. Removal of erosion control measures will not occur until all disturbed areas have been stabilized.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.11.2.3 Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

The nature and extent of dewatering activities for this project are not yet known, though some temporary dewatering may reasonably be anticipated during construction of bridge piers, stormwater management facilities, or other underground utility. In the event the dewatering efforts exceed the minimum guidelines for a DNR Water Appropriations permit, the project Owner must coordinate with the DNR prior to construction. An equivalent permit (Permit to Take Water) would be required in Canada. Any dewatering required for this project will be temporary, and no adverse effects on the groundwater or surface water are anticipated. Depending on the dewatering activity (i.e. volume and duration), it is recommended that the project SWPPP include provisions for the management of the discharge to prevent erosion and particulate pollutant loading in the receiving water.

As part of the Phase I Environmental Site Assessment, the Minnesota County Well Index (CWI) has been queried and there are no wells located in the project area.

4.1.11.2.4 Surface Waters

4.1.11.2.4.1 *Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.*

Wetland/Watercourse Delineation, Assessment, and Classification

A wetland/watercourse site assessment was conducted in May 2015 to determine the presence and spatial arrangement of any wetlands and watercourses within the project area. The wetlands were delineated using the 3-parameter method prescribed in the 1987 Army Corps of Engineers Wetland Delineation Manual, specifically the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest Region (USACE 2012). The Study Area shown on Figure 26 is bounded by the Rainy River along the north and east boundary and the Baudette River along the southern boundary.

One wetland (W-1) was mapped within the project limits. Wetland W-1 is a PEMB, Type 2 (emergent marsh) wetland and is 1.98 acres in size. The wetland was dominated by reed canary grass (*Phalaris arundinacea*), soft stem bulrush (*Schoenoplectus tabernaemontani*), cattail (*Typha angustifolia*), and red-osier dogwood (*Cornus stolonifera*). The wetland is located underneath and to the east/southeast of the

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

existing bridge, on the shores of the Rainy and Baudette Rivers. The National Wetland Inventory (NWI) also indicates a freshwater emergent wetland at this location – see Figure 26 for the Wetland Location Map.

Two watercourses were identified adjacent to or within the Study Area and mapped. The rivers' edge (waterline) and estimated ordinary high water level (OHWL) were delineated in the Study Area using a sub-meter handheld GPS unit and mapped with GIS software. The OHWL was identified as defined by USACE Regulatory Guidance Letter (RGL) 05-05.

The delineated wetland boundaries were approved by MnDOT and Lake of the Woods County on November 19, 2015 (See WCA Notice of Decision in Appendix D). Aquatic Resource Boundaries were approved by the U.S. Army Corps of Engineers on January 11, 2016 (see letter of approval in Appendix D).

Wetlands and Watercourses are afforded federal protection under the Clean Water Act (Section 404, Executive Order 11990 – Protection of Wetlands). The Minnesota Wetland Conservation Act (WCA) regulates wetlands but does not regulate watercourses. The Minnesota Department of Natural Resources (MnDNR) regulates wetlands and watercourses if identified on the MnDNR Public Water Inventory maps (see Figure 24). The Baudette and Rainy Rivers are both shown as public waters on the MnDNR Public Water Inventory maps and thus are subject to MnDNR public water permits for the proposed temporary and permanent watercourse impacts. Impacts to the watercourse are discussed in Section 4.1.11.2.4.2 (Water Resources – Other Surface Waters). The laws protecting aquatic resources require projects to seek avoidance, then minimization, and finally mitigation for any potential impacts (referred to as “sequencing”).

Wetland Impacts

This project does not propose permanent impacts to wetlands. Permanent impacts to the watercourse are required for the placement of piers within the watercourse, which are discussed in Section 4.1.11.2.4.2 (Water Resources – Other Surface Waters).

However, temporary impacts to wetlands are anticipated due to the construction of the proposed bridge and temporary causeway. As discussed in Section 4.1.6.2.1 (Project Description – Construction: Potential Staging Areas), access to proposed Pier 1 on the U.S. side would require either construction of a temporary causeway from the U.S. shore or dredging of the river to allow barge access closer to the shore. The temporary causeway would be constructed at an elevation 1 foot above the 100-year water surface elevation (WSE) with a top width of approximately 50 feet.

The temporary wetland impacts that are under USACE jurisdiction are shown on Figure 27A. Temporary impacts to wetlands within the watercourse are shown on Figure 27A as “Wetland / Watercourse Impacts” and are approximately 0.71 acres.

The temporary wetland impacts that are under the Wetland Conservation Act (WCA) jurisdiction are shown on Figure 27B and are approximately 221.8 square feet.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Sequencing: Avoidance and Minimization Alternatives for the Temporary Wetland Impacts

No Build – The No Build Alternative would not impact wetlands; however, it does not address the project purpose and need.

Of the four Alignment Alternatives evaluated in this EA (see Section 3.2.4), Alignment Alternatives 1 and 3A have the lowest potential for wetland impacts. Both Alignment Alternative 1 and 3A's Temporary Modular Bridge are located approximately 52.1 feet downstream (north) of the existing alignment. This location creates separation from the field delineated wetland boundary (see Figure 26), which minimizes the potential for wetland impacts among the Alternatives considered.

Alignment Alternatives 2 and 3B have an increased potential for wetland impacts. Both Alignment Alternative 2 and 3B's Temporary Modular Bridge are located approximately 46.7 feet upstream (south) of the existing alignment, creating a greater overlap with the identified wetland area.

Complete avoidance of wetland impacts is not feasible with any of the four Alignment Alternatives considered in this EA. As discussed previously in Section 3.2 (Alignment Alternatives), all alignment alternatives were developed to meet the constraints posed by the FAA for airspace, USCG and Transport Canada for navigational clearances and were designed to tie into the existing Ports of Entry. Although Alignment Alternative 2 was selected for the Preferred Alignment, it provided the best possible balance between minimizing wetland and cultural resource impacts, cost, and meeting these constraints.

Sequencing: Preferred Alignment Alternative Minimization

Once the Preferred Alignment Alternative was selected, refinements were made to the roadway geometry (i.e. tightening the curves to pull in the curbline) which reduced the wetland impact footprint. As previously discussed in Section 3.3.2 (Evaluation of Bridge Type Alternatives), Bridge Type Alternative development/refinement and evaluation included successive efforts to minimize river bed impacts throughout the processes.

Additionally, the proposed project will attempt to minimize potential wetland footprint impacts by using several structural and non-structural BMPs. To estimate impacts in this EA, standard design features and preliminary construction limits were assumed. Possible minimization measures will be explored in final design and permitting.

Mitigation and Regulatory Context

The intent of the wetland mitigation plan will be to replace lost wetland functions and restore wetland area to fulfill the regulatory mitigation requirements. Replacement of lost wetlands will be in accordance with Section 404 of the Clean Water Act, Executive Order 11990: Protection of Wetlands, and all state wetland protection regulations (Minnesota Wetland Conservation Act, etc.).

However, under the Wetland Conservation Act (WCA) jurisdiction, there are no permanent wetland impacts resulting from existing bridge demolition and construction of the proposed bridge (including associated roadway approaches, construction staging activities, heavy equipment access, and tree

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

clearing). Similarly, under USACE jurisdiction, there are no permanent wetland impacts resulting from the existing bridge demolition and construction of the proposed bridge.

Prior to construction a detailed survey will be conducted to confirm existing topography within the wetland and watercourse. Upon construction completion, the temporary fill for the causeway will be removed to pre-construction contours as feasible. Vegetation within the wetlands will also be restored to pre-construction conditions as feasible using native seed mixes.

More details on wetland mitigation requirements will be known as the project proceeds into final design and wetland impacts can be more accurately quantified, and disclosed in the required wetland permits.

4.1.11.2.4.2 Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The proposed project will construct the Preferred Bridge over the Rainy River. The proposed 4-pier bridge configuration will replace an existing 7-pier configuration. No substantial changes to the river channel are proposed. Any temporary measures (e.g. dredging) employed during construction will be restored prior to the completion of the project. The shoreline will be repaired and stabilized.

As discussed in Section 4.1.6.2.2 (Project Description – Construction: Potential Staging Areas), a temporary causeway is proposed from the U.S. shore or dredging of the river to allow barge access closer to the shore. The temporary causeway would be constructed at an elevation 1 foot above the 100-year water surface elevation (WSE) and an approximate top width of 45 feet. To isolate the backwater effects of the proposed causeway, a temporary conditions model was created to compare the existing bridge conditions with the Preferred Alternative (with and without the causeway included). The model results summarized below further indicate the proposed bridge design will not result in stage increase in the Rainy River, even with the temporary causeway:

- Under temporary conditions with the causeway included: The causeway will produce an increased backwater effect over existing conditions (approximately 0.012 feet)
- Under temporary conditions without the causeway included: The causeway will produce an increased backwater effect over existing conditions (approximately 0.010 feet)
- Under final conditions, the Preferred Alternative will produce a decreased backwater WSE for the 100-yr storm event from that of existing conditions (approximately 0.004 feet).

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Other Water Impacts

Permanent impacts to the watercourse are required for placement of piers for the proposed bridge and are shown on Figure 27A. The placement of Proposed Piers 1 and 2 on the U.S. half of Rainy River will result in approximately 739.2 square feet of fill within the watercourse.

There are also temporary impacts to the watercourse that will result from the proposed bridge in addition to the temporary causeway necessary to construct the proposed bridge. The construction of the causeway results in approximately 0.25 acres of temporary watercourse impacts that are under USACE jurisdiction and approximately 0.98 acres of temporary watercourse impacts under the MnDNR jurisdiction. These impacts are shown on Figure 27A and Figure 27B.

Temporary structures such as cofferdams will be constructed to allow the pier footing and stem construction. The cofferdams will be removed when the pier structures have been completed. In-water BMPs will be provided as part of the project SWPPP.

Clearing and excavation of the river bank will be kept to a minimum. Regular inspection of erosion control practices at bridge abutments and slopes will be provided. The contractor will minimize the need for disturbing portions of the proposed project that have steep slopes and provide a slope maintenance plan for those slopes where disturbance cannot be avoided. The plan will address the maintenance of permanent BMPs installed to protect steep slopes. The plan will also address methods for stabilizing erosion-susceptible slopes.

Water pumped out of cofferdams may contain high concentrations of suspended solids. Adequate sediment control and, if necessary, treatment of water affected by construction activity must be provided before the pumped water is discharged. This includes filtered sump pits or other dewatering appropriate systems. Dewatering system must be inspected frequently and repaired or replaced if sediment buildup recurs or if the structure does not function as designed. The accumulated sediment that is removed from a dewatering device must be spread onsite and stabilized, used as fill, or disposed of at an approved disposal site. Dewatering discharge may be pumped directly to a settling basin or other treatment pond.

Moving water type flotation silt curtains will be utilized to isolate the active construction area within the river. The Project SWPPP will further identify BMPs to mitigate turbidity and sedimentation in the waterway.

Sequencing: Avoidance and Minimization Alternatives for the Permanent Fill from Proposed Piers

No Build – The No Build Alternative would not impact wetlands; however, it does not address the project purpose and need.

Several Bridge Type Alternatives for the proposed Alignment Alternative were evaluated with respect to potential environmental impacts. For all of the proposed Bridge Types, the footprint of each pier would be similar. However, the number of piers within the watercourse or the designated 100-year floodplain provided the basis for which impacts were assessed.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Early in the Bridge Type Alternative development process, five overall structure types were carried forward and evaluated: continuous steel I-girder (Alternative A, including Configurations A1 and A2), simple-span precast/prestressed I-girder (Alternative B), continuous steel box girder (Alternative C), segmental concrete box (Alternative D), and tied arch (Alternative E). The table below summarizes the total number of spans and the number of piers in the watercourse for each Bridge Type Alternative:

Bridge Type Alternatives Originally Considered¹⁰						
	A1	A2	B	C	D	E
# of Spans	5	3	9	5	4	8
# of Piers in watercourse	4	2	8	4	3	7

As explained in Section 3.3.2 (Bridge Type Alternatives – Evaluation of Bridge Type Alternatives), Alternatives B, C, D, and E were eliminated from consideration for various reasons. Among these reasons, the four alternatives had some of the largest number of piers. This is especially true for Alternatives B and E.

The Alternative Refinement process resulted in three configurations of Alternative A for final evaluation: continuous prismatic steel I-girder with five spans (Configuration A1.1), continuous haunched steel I-girder with four spans (Refined Configuration A2), and continuous haunched steel I-girder with five spans (Configuration A1.2).

Refined Bridge Type Alternative Configurations¹¹		
	Refined A2	A1.1 & A1.2
# of Spans	4	5
# of Piers in watercourse	3	4

As discussed in Section 3.3.3 (Preferred Bridge Type Alternative Determination), following the development of a preliminary erection plan, Refined Configuration A2 was found to require approximately eight temporary structures to support its bridge segments during construction. This would cause additional watercourse, floodplain, and navigable channel impacts. Therefore, Refined Configuration A2 was eliminated from consideration.

The remaining Configurations A1.1 and A1.2 have the same implied impacts to the watercourse and floodplain based on having the same number and location of piers.

Sequencing: Avoidance and Minimization Alternatives for Existing Bridge Abutment and Pier Removal

The existing Baudette Bridge low steel elevation is 1094.46 (NAVD 88). Existing CNRR Bridge low steel elevation is 1078.20 feet. The low steel elevation on the proposed bridge will be lower than that of the

¹⁰ Source: Table 23 and Table 24 in Appendix C – the preliminary and refined evaluation matrixes; dated January 20, 2016 and February 19, 2016, respectively.

¹¹ Source: Table 25 in Appendix C – the final evaluation matrix dated March 22, 2016.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

existing bridge, but the downstream CNRR Bridge will be the limiting factor for navigational clearance. The proposed conditions will reduce the number of bridge piers from seven (7) to four (4). The resulting pier array will not limit watercraft usage on the River.

The existing bridge is comprised of three different types of substructures. At both the U.S. and Canadian shores, the bridge rests on concrete abutments. Each of the six truss spans is supported by concrete piers which are founded on timber piles. There are short, 20-foot approach spans leading up to the truss spans that rest on pile bent piers. The pile bents consist of steel columns, beams, and bracing.

The concrete abutments will be removed using air tools such as pneumatic hammers and blunted chisel tools. The abutments will be removed to an elevation at least two feet below the final ground surface. All debris will be removed from the site.

The seven concrete piers supporting the six truss spans are located in the Rainy River, three of which are in the deepest part of the channel where recreational navigation will occur. The piers will be removed to the elevation of the stream bed, at a minimum, unless required to be removed deeper in accordance to the United States Coast Guard (USCG) Section 9 permit.

One method for pier removal involves the use of barges. This would include using an excavator with a hoe ram attachment for demolition. The hoe ram would be placed under water and used to demolish each pier. The caissons, and presence of the timber piles inside the caisson, make this a slow and challenging process, likely needing to be stopped and started multiple times to clean out debris inside the caisson. Additionally, there may be feasibility issues noting the depth of the river. Another method for pier removal involves the use of cofferdams. The piers can be encased, dewatered, and removed using traditional means inside a cofferdam. The final pier removal method will be selected during final design development.

The pile bent piers will be disassembled using cutting tools, such that the members are a manageable size. Once severed, the members will be removed from the site. Pile bent piers will be removed to an elevation at least two feet below the final ground surface unless located in the Rainy River. For pile bents located in the Rainy River, the piers will be removed to the elevation of the stream bed, at a minimum. These piers are located in shallow water prohibiting navigation, and need not be removed any lower unless specified by a governing agency.

Mitigation and Regulatory Context

As discussed in Section 4.1.11.2.4.1 (Water Resources – Wetlands), the intent of the wetland mitigation plan will be to replace lost wetland functions and restore wetland area to fulfill the regulatory mitigation requirements. Replacement of lost wetlands will be in accordance with Section 404 of the Clean Water Act, Executive Order 11990: Protection of Wetlands, and all state wetland protection regulations (Minnesota Wetland Conservation Act, etc.).

The approximate 739.2 square foot area of permanent watercourse fill (Figure 27A) from the proposed piers will be mitigated through the removal of existing structures when the existing bridge is demolished.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

The location of the existing structures (bents and piers) to be removed within the wetlands and watercourse are shown on Figure 27A. Approximately 373.4 square feet of existing structures will be removed from the wetland within the watercourse and approximately 415.8 square feet of structures will be removed from the watercourse for a total removal area of 789.2 square feet.

As discussed in Section 4.1.11.2.4.1 (Water Resources – Wetlands), a detailed survey will be conducted to confirm existing topography within the watercourse prior to construction. Upon construction completion, the temporary fill for the causeway will be removed to pre-construction contours as feasible. Vegetation within the watercourse will also be restored to pre-construction conditions as feasible using native seed mixes.

More details on wetland and watercourse mitigation requirements will be known as the project proceeds into final design and impacts can be more accurately quantified, and disclosed in the required permits.

4.1.12 Contamination, Hazardous Materials, and Wastes

4.1.12.1 Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

Potential environmental hazards were reviewed within the surrounding project area as part of the completed Phase I and Phase II Environmental Site Assessments (ESAs). Summaries of these ESAs are provided below. Complete Phase I and Phase II Environmental Site Assessment reports are available upon request from the MnDOT Project Manager.

Existing Contamination and Potential Environmental Hazards

The Phase I Environmental Site Assessment (ESA) for the project area was completed in August 2014. As a result, six areas of recognized environmental conditions (RECs) were identified within the project area. A map of the six RECs is provided in Figure 2 of Appendix G.

The Phase I ESA compiled data obtained from Environmental Data Resources, Inc. (EDR), city and county public records, onsite inspections (REC-1 only), representative interviews, public access point/right-of-way field observations, review of historical aerial photographs, and Mead & Hunt's January 2014 history survey report.¹² The RECs were designated as having a "low", "medium", or "high" potential for contamination. The RECs and their rankings are summarized in Table 8 as follows:

¹² Source: See Appendix B – Mead and Hunt 2014.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Table 8: Recognized Environmental Condition (REC) Area Rankings from Phase I Environmental Site Assessment (ESA)

REC #	Name	Address	Rank	Rank Rationale
1	U.S. Customs and Border Protection	600 International Drive NE	Medium	Resource Conservation and Recovery Act (RCRA) – Small to Minimal Hazardous Waste Generator and possible historical presence of bulk storage aboveground storage tanks (ASTs).
2	Peace Park / Rest Area	South of International Drive	Low	Former surface disturbances observed in historical aerial photographs.
3	City Former Power Plant	North of International Drive	High	Historical industrial use as a power plant, possible historical presence of bulk storage ASTs, former surface disturbances observed in historical aerial photographs.
4	Minnkota Power Coop	South of Railroad Line/Railroad Bridge over Rainy River	Medium	Current electrical substation, possible historical presence of bulk storage ASTs, former surface disturbances observed in historical aerial photographs. Oils likely used in association with the substation.
5	Canadian National Railroad Company	Railroad Track and Surrounding Land	Medium	Current railroad track and bridge, liquid propane storage and loading facility, former surface disturbances/land scarring observed in historical aerial photographs.
6	Trunk Highway 72 and Bridge 9412	Trunk Highway 72	Low	RCRA – Non-Generator of Hazardous Waste

Based on the results of the Phase I ESA, a Phase II ESA was recommended and completed in October 2014. The Phase II ESA involved eight Landmark Geoprobe (LGP-1 through LGP-8) taken at boring locations across the project area, specifically within RECs 1 through 3. A map with the LGP sample locations is provided in Figure 3 of Appendix G. As summarized in Table 9, The Phase II ESA tested for the following potential contaminants and compared contaminant concentrations to the following standards:

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Table 9: Phase II ESA Potential Contaminants and State Standards

Potential Contaminant	Soil State Standard	Groundwater State Standard
Volatil organic compounds (VOCs)	MPCA Industrial and Residential Soil Reference Values (ISRV and RSRV), and/or;	Minnesota Department of Health (MDH) Health Risk Limits (HRL)
Semi-volatile organic compounds (SVOCs)		
RCRA metals	MPCA Tier 1 Soil Leaching Values (SLV)	
Petroleum compounds (diesel- and gasoline range organics; DRO and GRO)	MPCA Best Management Practice (BMP) for DRO and GRO	MDH Concentration for Total Petroleum Hydrocarbons (TPH)

Table 10 summarizes the significant findings from the soil and groundwater sampling field investigation (i.e. only potential contaminants that exceed standards and/or indicate a contaminant release event). Additional Tables detailing the complete results of the Phase II ESA field investigation are provided in Appendix G.

Table 10: Summary Significant Findings from the Phase II ESA

REC #	Sample # / Media	Depth, feet below ground surface	Contaminants Exceeding Standards	Significant Findings
REC-1	LGP-1 Soil	4-6	Arsenic	Concentration is within the naturally occurring background range, therefore not indicative of a release event.
	LGP-1 Groundwater	18-23	Selenium	Likely naturally occurring since adjacent properties utilize municipal water for potable purposes.
REC-3	LGP-5 Soil	2-4	4 VOCs, 1 SVOC, DRO and GRO	The DRO concentration indicates a petroleum release to groundwater.
	LGP-5 Groundwater	19-24	2 VOCs, DRO and GRO	
	LGP-6 Groundwater	9-14	DRO	The DRO concentration indicates a petroleum release to groundwater.
	LGP-7 Soil	11-13	Arsenic	Concentration is within the naturally occurring background range, therefore not indicative of a release event.
			DRO and GRO	
LGP-8 Soil	10-12	DRO		

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

The results of the Phase II ESA investigation indicated petroleum impacts to soil and groundwater in the northern portion of the project area. Since the intended replacement of the Baudette / Rainy River International Bridge will involve earthwork activities (road construction, grading, drainage, etc.) potential fill material may be sourced from within the project area. Special provisions will be developed for properly handling contaminated soil and/or groundwater encountered during construction in accordance with all applicable state and federal regulations.

4.1.12.2 Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

An Asbestos and Regulated Waste Assessment Report¹³ was prepared in September 2013 following an inspection of the U.S. side of the existing bridge structure. The complete report is available upon request from the MnDOT Project Manager.

In the Asbestos and Regulated Waste Assessment Report, several regulated wastes were identified as part of the existing bridge structure. The identified waste included:

- 665 linear feet of 4-inch asbestos-containing transite pipe on the east side of the bridge, under the wooden pedestrian walkway (non-friable and in good condition);
- two Mercury-containing HID lights near the south approach of the bridge;
- two PCB-containing light ballasts near the south approach of the bridge; and,
- approximately 11,000 linear feet of treated lumber associated with the existing pedestrian walkway and south abutment under the bridge.

The asbestos containing material must be removed by a MnDOT approved contractor listed under 19.2 at: <http://www.dot.state.mn.us/consult/prequal/documents/pgbyworktype.pdf>. HID bulbs and light ballasts must be recycled through MnDOT's approved contractor, Green Lights Recycling. All treated wood must be disposed of at an MPCA permitted lined mixed municipal solid waste landfill or industrial landfill.

All regulated solid wastes generated by construction of the proposed project will be disposed of properly in a permitted, licensed solid waste facility or a similarly regulated facility elsewhere. Project demolition of concrete, asphalt and other potentially recyclable construction materials will be directed to the appropriate storage, crushing or renovation facility for recycling or reuse.

Materials anticipated to be present on-site during construction are those normally associated with the operation or maintenance of construction equipment including petroleum products such as gasoline and other engine fluids. Toxic or hazardous materials, such as fuel for construction equipment, and materials used in construction of bridges/roads (paint, contaminated rags, acids, bases, herbicides, and pesticides) will likely be used during site preparation and bridge/road construction. Although spills of these materials

¹³ Source: See Appendix B – Groundwater & Environmental Services, Inc., September 2013.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

are not planned, any spills or reportable quantities that occur will be reported to the Minnesota Duty Officer and the contractor will clean up spilled material according to state requirements.

4.1.12.3 Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location, and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

No other toxic or hazardous materials are anticipated during construction and none will be present following construction. No above- or below-ground storage tanks are planned for permanent use in conjunction with the bridge project. Temporary storage tanks for petroleum products may be located in the project area for refueling construction equipment during roadway construction activities. Appropriate measures will be taken during construction to avoid spills that could contaminate groundwater and/or surface water in the project area. In the event that a leak or spill occurs during construction, appropriate action to remedy the situation will be taken immediately in accordance with MPCA guidelines and regulations.

If a spill of hazardous/toxic substances should occur during or after the proposed project, it is the responsibility of MnDOT and their contractor(s) to notify the Department of Public Safety, Division of Emergency Services, to arrange for corrective measures to be taken pursuant to 6 MCAR 4.9005E. Any contaminated spills or leaks that occur during construction are the responsibility of the contractor and would be responded to according to MPCA containment and remedial action procedures.

4.1.12.4 Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

Any hazardous waste materials generated or encountered during construction would be disposed of in the manner specified by local or state regulation or by the manufacturer. Whenever possible, vehicle refueling and maintenance should not be performed on the construction site. However, any vehicle refueling or maintenance that must take place on the construction site must have proper spill prevention controls in place prior to commencing work. The Contractor's personnel shall be instructed in these practices and the Contractor's Erosion Control Supervisor shall be responsible for seeing that these practices are followed.

4.1.13 Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

4.1.13.1 Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The project area depicted in Figure 1 includes the confluence of the Baudette River and the Rainy River in the immediate vicinity of the existing international bridge and CN Railroad Bridge over the Rainy River between Baudette, Minnesota and Rainy River, Ontario. The Rainy River is a large riverine watercourse with fisheries resources that provide ecological and recreational value. The Rainy River has a coolwater thermal regime and its fish community can be characterized as having cool and warm-water fish.

Field investigations were conducted in 2015 within the 1,300 feet reach of the proposed project area and the Rainy River was observed to have an approximate average width of 1,030 feet with an average water depth of 20 feet in the middle of the channel and 8 feet along the shoreline habitats. Beyond the shallow nearshore areas, sand is the predominant bottom substrate in the Rainy River. On both sides of the river, nearshore substrate was dominated by sand with some coarse material. The coarse substrate (on both shorelines) consisted of cobble and gravel between the existing international bridge crossing and the CN Railroad Bridge. Upstream from the bridge on the east shore, there were boulders and concrete debris, likely from decommissioned docks at that location. Emergent vegetation (predominantly sedges and grasses) was prevalent along both shorelines. The average width of aquatic vegetation extending out into the river channel is 50 feet on the east bank and 165 feet on the west bank. On the east side of the Rainy River, nearshore habitat is similar on both sides of the existing bridge (i.e. upstream and downstream). On the west side of the river, there is a wider band of aquatic vegetation on the south side relative to the north side; therefore, a smaller area of wetland and in-water aquatic vegetation would be disturbed by the placement of a new bridge to the north of the existing structure.

Within the proposed project area, the Rainy River provides a migratory corridor to many resident fish species. During the 2007 to 2008 fisheries survey which was conducted in the Rainy River between river mile (RM) 0 and 40, 23 different species were recorded. The project area is located approximately 11 miles up-river of the Lake of the Woods and it is likely that the fish community in the Rainy River is similar to the fish community observed in Lake of the Woods (see Appendix B – MNRF 2015b). As many as 55 fish species have been documented in Lake of the Woods, including Northern Pike (*Esox lucius*), Walleye (*Sander vitrius*), Sauger (*Sander canadensis*), Yellow Perch (*Perca flavescens*), White Sucker (*Catostomus commersoni*) and Smallmouth Bass (*Micropterus dolomieu*) Lake Sturgeon (*Acipenser fulvescens*) and Shortjaw Cisco (*Coregonus zenithicus*) (see Appendix B – MnDNR 2015b and MNRF 2015b). Lake sturgeons have been observed in the Lake of the Woods and in the Rainy River fish surveys.

According to the Fort Frances District of the Ministry of Natural Resources and Forestry (MNRF), the areas around the abutments of the CN Railroad Bridge provide potential spawning habitat for Walleye, White Sucker, and Lake Sturgeon (see Appendix B – MNRF 2015a). Nearshore areas within the project area provide potential rearing habitat for a variety of species and potential spawning habitat for Northern Pike. Coarse substrates also provide potential spawning areas for Walleye, White Sucker, and Lake

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Sturgeon. According to MnDNR, Walleye move through the project area in late March to spawn in the Rainy River rapids at RM 40 upstream of the project area, northern pike spawn in the tributaries of the Rainy River, and lake sturgeon spawn in the Rapid River located upstream of the project area (see Appendix B – MnDNR 2015c). Those recreationally important species all move through the project area for their spawning migrations from approximately March through May (see Appendix B – MnDNR 2015c). These spawning migrations through the project area align with the proposed in-water exclusion dates from March 15th through June 15th in the U.S. (see Appendix B – MnDNR 2015a) and April 1st through July 15th in Canada per the Ontario Ministry of Natural Resources and Forestry (MNRF). Therefore, no in-water work is permitted from March 15th through July 15th for this project.

While overwintering likely occurs in the project area by some resident species, Lake of the Woods is approximately 11 RMs downstream and likely provides more suitable overwintering habitat than the Rainy River or Baudette River. Within the project area, the Baudette River provides a diversity of habitats with shallow water, slower velocity, and abundant emergent vegetation to support a variety of fish species. Maximum water depth in the middle of the channel at the mouth of the Baudette River is 8 feet. The mouth of the Baudette River was approximately 436 feet wide. However, dense aquatic vegetation characterized the area such that the open water area was limited to a 115 feet wide area. The emergent vegetation extended to 263 feet from shore on the southeast side of the Baudette River and 49 feet from shore on the northwest bank. Some of the vegetated areas along the Baudette River shoreline are within areas identified as wetlands in background data obtained from the National Wetland Inventory (see Appendix B – USFWS 2013).

Within the project area, the Baudette River flows into the Rainy River. The confluence is just upstream of the existing bridge on the south side of the river. The lower 2 miles of the Baudette River are known to support a healthy, warmwater aquatic community (see Appendix B – MPCA 2015). As the Baudette River nears the City of Baudette, the channel widens to form Baudette Bay, which is a popular area for sport fishing. During a Minnesota Department of Natural Resource electrofishing survey in 2005, total of 13 different fish species were captured in the Baudette River including Central mudminnow (*Umbra limi*), Northern Pike (*Esox Lucius*), Golden Shiner (*Notemigonus crysoleucas*), Common Shiner (*Notropis cornutus*), Creek chub (*Semotilus atromaculatus*), Brown bullhead (*Ictalurus nebulosus*), Yellow Perch (*Perca flavescens*) and Rock Bass (*Ambloplites rupestris*).

Trans-boundary effects and appropriate transboundary protection and mitigation measures will be confirmed during Detail Design. Protection and mitigation measures for potential impacts to fish and fish habitat (e.g. in-water construction timing restrictions with respect to spawning migrations as defined in this section) will be adhered to on both sides of the border. In addition, potential impacts to surface water and the stormwater management plan has been developed for the entire project and provides protection measures for both sides of the border.

4.1.13.2 Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-) and/or correspondence number (ERDB) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

The lake sturgeon (*Acipenser fulvescens*) is listed as a Species of Special Concern under Minnesota's Threatened and Endangered Species Statute, and is known to exist in the Rainy River in the vicinity of the project area as well as within Lake of the Woods, located 11 miles downstream. Lake sturgeon are most likely to be in the project area during their spawning migration in April and May from the Lake of the Woods upstream to the Rapid River (upstream of the project area) (see Appendix B – MnDNR 2015c). There is no known spawning habitat for lake sturgeon within the project area and the portion of the Rainy River within the proposed bridge project area is not critical habitat for the lake sturgeon. Because lake sturgeon is known to exist in the Rainy River, prevention, and control measures for stormwater, acoustic effects during construction and containment for debris and construction material are advised to be in place during construction. The proposed project is not anticipated to affect fish migrations or impact critical fish habitat for any other species. Additional Lake Sturgeon species-specific surveys conducted within the project area are unknown at the time of this report.

In addition to lake sturgeon, the Creek Heelsplitter (*Lamigona compressa*) mussel is also listed as a Species of Special Concern in Minnesota. The MnDNR identified the Creek Heelsplitter as occurring within a 5-mile radius of the project area. Best management practices for stormwater and accidental spill prevention and treatment procedures will be implemented during project construction activities to reduce the potential impacts to water quality in the project area. No additional Creek Heelsplitter species-specific surveys were conducted within the project area.

The northern long eared bat (*Myotis septentrionalis*), little brown bat (*Myotis lucifugus*), and tri-colored bat (*Perimyotis subflavus*) are also listed as a Species of Special Concern in Minnesota and may utilize forested habitat in or around the proposed project area; however, the Minnesota Natural Heritage Information System (NHIS) database query¹⁴ did not produce record of these species in the area. The current project schedule anticipates tree removal and clearing occurring during the winter months to minimize impacts to both bat species. A survey for the presence or absence of the bats may be required prior to the commencement of construction if project clearing occurs during the summer and pup rearing period.

The MnDOT Roadside Vegetation Management Unit was contacted via an Early Notification Memo dated July 11, 2013 to determine potential vegetation impacts caused by the proposed project. Resulting

¹⁴ Source: See Appendix D – Email from MnDNR dated June 19, 2015.

correspondence indicated that the project area was unlikely to contain rare species, rare native plant communities, trees, shrubs, or other notable vegetation.

4.1.13.3 Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Possible effects to fish, wildlife, plant communities, and known threatened and endangered species include possible acoustic and turbidity effects and associated habitat impacts from construction and clearing. Construction of the bridge will include direct and permanent impacts to the benthic habitat within the footprint of the proposed piers. Other permanent impacts include minimal tree clearing of terrestrial habitat on the southern side of the Rainy River and the removal of the existing bridge likely providing habitat to barn swallows (*Hirundo rustica*). Potential acoustic and water quality impacts will be temporary and limited to the period of bridge construction. Turbidity curtains will be installed around in-water work areas to reduce any elevated turbidity from demolition of the piers. Best management practices (BMPs) will be implemented during construction to minimize sedimentation including implementing stormwater controls. Stormwater BMPs include following the erosion prevention and stormwater control plan issued for the project presented in 4.1.11.2.2 (Water Resources – Stormwater). There is a large wetland complex located on the upstream of the existing bridge on the eastern shore that maybe effected by sedimentation from shoreline soil disturbance if there are any failures in stormwater controls. Acoustic impacts to resident fish during construction will be reduced with engineering controls outlined below in Section 4.1.13.4.

The Rainy River has been designated as infested with aquatic invasive species due to the known presence of the spiny water flea. Additionally, there are reports of zebra mussels having been introduced into the watershed. As a result, precautions to prevent the spread of zebra mussels into or out of the project area will be in place prior to project commencement. A memo dated August 26, 2013¹⁵ from the MnDOT Roadside Vegetation Management Unit states that there are not likely to be any impacts to rare species, rare native plant communities, trees, shrubs, or other notable vegetation from the project. However, typical erosion control and native reseeding practices should be implemented.

4.1.13.4 Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

To minimize impacts to spawning fish populations in the Rainy River (identified above in Section 4.1.13.1), the project activities will adhere to fisheries exclusion dates issued by MnDNR and will avoid in-water work and impacts from March 15th through June 15th in the U.S. and April 1st through July 15th in Canada per the Ontario Ministry of Natural Resources and Forestry (MNR). Conducting all in-water work before the above dates will avoid impacts to important recreational and state listed special of concern species (e.g. Walleye, Northern Pike, and Lake Sturgeon) during their spawning migrations through the project area.

¹⁵ Source: See Appendix D – MnDOT Roadside Vegetation Management Unit Response Memo. August 26, 2013.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

For resident species, during in-water work construction practices to minimize and mitigate acoustic effects during pile driving for the new piers will be implemented. These practices include “soft starts” (e.g. light initial hammering) and/or bubble curtains. Vibratory hammers as opposed to impact hammers will be used for pile driving, where at all possible. Typically, vibratory hammers have less of an acoustic effect than impact hammering. To minimize impacts to wildlife and threatened and endangered bats (including Northern Long-Eared Bats) the minimal tree clearing and terrestrial impacts will occur during the winter months.

To minimize any adverse effects to water quality for fish, wildlife, and plant communities, stormwater controls and best management practices as described in Section 4.1.11.2.2 (Water Resources – Stormwater) will be implemented during construction in accordance with the project’s National Pollutant Discharge Elimination System – Construction Stormwater. All best management practices to avoid potential effects from spills or contamination from project activities will be implemented on-site during bridge construction and replacement, as described in Section 4.1.12 (Contamination/Hazardous Materials/Wastes). These stormwater controls include implementing stabilization methods on exposed soils within 200 feet of the Rainy River immediately after construction activity has ceased. Revegetation of disturbed soils will include native seed mixes.

4.1.14 Historic Properties

4.1.14.1 Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

The project has undergone extensive historic properties assessment and coordination to help make decisions that meet objectives outlined in the project’s Purpose and Need as identified in Section 2.0. The project is being reviewed pursuant to Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the Department of Transportation Act of 1966 (Section 4(f) may apply if a historic property is adversely affected by the project). A Section 106 Memorandum of Agreement (MOA) has been accepted by all signatories and is in the process of being executed. The final agreement will be included in the Findings of Fact and Conclusions later in the environmental review documentation process. The review includes findings related to archaeological, historic, and architecturally significant properties (i.e., properties listed or eligible for listing on the National Register of Historic Places (NRHP)). Preliminary findings are discussed in the sections that follow.

The technical studies that are listed in Appendix B and informed the identification of historic properties and/or evaluation of impacts included:

1. *Bridge Rehabilitation Study Report for Baudette Bridge No. 9412*, (MnDOT 2013).
2. *Phase I and Phase II Architecture/History Survey Report: Trunk Highway 72 Area of Potential Effects, Baudette, Minnesota*, (Mead and Hunt 2014).

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

3. *Phase I Archaeological Investigations of Bridge 9412 and Phase II Archaeological Investigation of Site 21LW0026, Lake of the Woods County Minnesota*, (Mullholland 2015).
4. *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges – Baudette / Rainy River International Bridge (Bridge 9412)*, (see Appendix H).

The complete Reports 1 through 3 as listed above are available upon request from the MnDOT Project Manager. Appendix E includes correspondence related to historic and cultural resources.

4.1.14.1.1 Archaeology

Archaeological investigations performed for the project to date include Phase I and Phase II archaeological investigations (Mullholland 2015).

The Phase I study included shovel testing that identified portions of the project area of potential effect (APE) having the potential to contain intact archaeological resources. The Phase II investigation involved additional shovel testing and a ground penetrating radar (GPR) survey to assess the potential for deeply buried archaeological resources within the APE. The evaluations concluded with a recommendation to consider the site ineligible for the National Register of Historic Places (NRHP). Based on shovel tests, ground penetrating radar and excavations, the results indicated that cultural deposits with intact stratigraphic integrity are likely present. However, the artifact grouping was extremely sparse and no cultural period could be attributed to any undisturbed deposits.

Following the review of Phase I and Phase II studies, MnHPO recommended expanding the APE¹⁶ to include the riverbed of the Rainy River due to disturbance by the proposed project construction to the underwater surface. MnDOT confirmed the APE was revised to include the bed of the river within approximately 150 feet of the centerline of the existing bridge and terminating at the U.S. / Canadian border; determined that the revised APE contains no known historic properties other than Bridge 9412; and determined that it is unlikely for the revised APE to contain unidentified historic properties.¹⁷ MnHPO agreed that the revised APE is unlikely to contain unidentified archaeological resources and that Bridge 9412 is the only historic property that will be adversely affected by the project.¹⁸ MnHPO was consulted during the early notification process and determined that although the graves remain within the project boundary, the site is not eligible for the NRHP under any criteria of significance.

MnDOT is required to comply with Minnesota Statute 307.08 (“Minnesota Private Cemeteries Act”) because Peace Park is the site of the unplatted Old Town Cemetery, created in 1894. In 1909, the city relocated most of the burials to Elm Park Cemetery, located south of Baudette.¹⁹ However, two burials remained as the city was unable to contact any surviving relatives of the individuals for permission to relocate their remains. There is no documentation regarding the relocations other than anecdotal sources, which indicate that unmarked graves may remain within Peace Park. In compliance with the Minnesota Statute 307.08, MnDOT retained a consultant to determine whether graves were present within the project APE. This investigation was conducted in October 2016 under license from the Office of the State

¹⁶ Source: Letter from MnHPO to MnDOT CRU. April 23, 2015. See Appendix E.

¹⁷ Source: Letter from MnDOT CRU to MnHPO. September 9, 2015. See Appendix E.

¹⁸ Source: Letter from MnHPO to MnDOT CRU. December 10, 2015. See Appendix E.

¹⁹ Source: Works Progress Administration, “Old Town Cemetery,” WPA Cemetery Project, 1941.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Archaeologist as required by statute. No graves were identified within the project's APE. The report of the burial investigation will be completed in early 2017.

4.1.14.1.2 Historic Properties Overview

The information below focuses on Bridge 9412, the only historic property within the APE that will be adversely affected by the proposed project. The Minnesota & Manitoba (Canadian National) Railroad Corridor is a historic property also within the APE; however, MnDOT CRU has determined, and MnHPO has concurred, that the railroad will not be adversely affected by the project. The following properties evaluated to determine if they were eligible for listing in the NRHP and identified within the "Results" section of the *Phase I and Phase II Architecture / History Investigation* document²⁰ with the following determinations:

- Baudette Bridge (Bridge 9412): Eligible for listing in the NRHP under Criterion A (Transportation) and Criterion C (Engineering).
- Minnesota & Manitoba (Canadian National) Railroad Bridge: Not eligible for listing in the NRHP due to compromised integrity as a result of a major rehabilitation in 2005.
- Minnesota & Manitoba (Canadian National) Railroad Corridor: Eligible for listing in the NRHP under Criterion A (Transportation), however it was determined that the corridor will not be impacted by the proposed project.¹⁸ The following associated properties of the CN Railroad Corridor were also considered and found not eligible for listing in the NRHP:
 - c. 1962 switch house
 - c. 1962 station house
 - c. 1962 storage building
- Baudette Rest Area / Peace Park and Old Town Cemetery: not eligible for listing. The proposed project will impact part of the park both temporarily and permanently, however the overall use of the park will not be affected. Additional discussion of Peace Park and its impacts are available in Section 4.3.6.2 (Additional Federal Issues – Section 4(f) Resources – Peace Park).

4.1.14.1.3 Historic Properties: Bridge 9412 (US) / Bridge 45-110 (Canada)

The existing Bridge 9412 was completed in 1959 and spans the Rainy River by approximately 1,286 feet in length from Baudette, Minnesota to Rainy River, Ontario, Canada. It was the first structure of its kind at this location and symbolized the local transportation initiatives seeking to connect Minnesota and Canada. The bridge provides vehicular, bicycle and pedestrian access between Baudette and Rainy River. The bridge also serves as a connection between United States and Canadian with full-service, 24-hour Port of Entry facilities on both bridge approaches.

The bridge is eligible for listing in the National Register of Historic Places under Criterion A: Transportation and Criterion C: Engineering. Under these criteria, the bridge was found to be a significant example of major river crossings in Minnesota and an uncommon bridge type (Pennsylvania through-truss). The bridge consists of six 192.5-foot long Pennsylvania through-truss main spans and six steel-beam approach spans that were built between 1958 and 1959. On the U.S. side, there are four south approach spans and three south main spans; on the Canadian side, there are three north main spans and two north approach spans. The truss components include riveted built-up members and rolled members. Members are connected with riveted gusset plates. The open steel grate deck includes a two-lane, 24-

²⁰ Property determination is also confirmed in Source: Letter from MnHPO to MnDOT CRU. June 6, 2014. See Appendix E.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

foot wide roadway and a six-foot wide wooden sidewalk is cantilevered on the east side of the northbound bridge. The bridge also features a pair of international boundary plates that are mounted on the upstream and downstream railings or curb rails to delineate the international border between the U.S. and Canada.

The bridge does not exhibit physical alterations and it retains its historic integrity of location, design, materials, workmanship, setting, feeling and association. The only identified alteration is a potential change to the end portals to provide additional overhead clearance.

Since federal funds will be used to complete this project, effects to the NRHP-eligible Bridge must be evaluated through Section 106 of the National Historic Preservation Act process. The Section 106 process involves assessing effects of project activities to identified historic resources and avoiding, reducing, or mitigating adverse effects, if necessary.

Additionally, per Section 4(f) legislation, the FHWA may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that there is no feasible and prudent alternative to the use of land from the property and the action includes all possible planning minimize harm to the property resulting from such use.²¹

The proposed action of removing the existing Bridge 9412 and replacing it with the Preferred Alternative (a steel I-girder bridge structure) would result in an “adverse effect” under Section 106 (see the determination letter in Appendix E) and, therefore a Section 4(f) “use.” The Programmatic Section 4(f) Evaluation, located in Appendix H, determined there is no feasible and prudent alternative to the use (i.e., the removal) of the Bridge 9412 and its approaches. See the Programmatic Section 4(f) Evaluation for a more detailed discussion of Section 4(f) process decision-making and findings.

Although the Preferred Alternative results in an adverse effect to Bridge 9412 under Section 106 and results in a Section 4(f) use, the parties with jurisdiction over this resource have agreed that adequate measures were taken to minimize harm to the resources (to the extent possible), and that the mitigation measures are acceptable compensation for impacts. See the MnHPO letter of concurrence in Appendix E for additional information. Mitigation measures for impacting the existing Bridge 9412 will be documented in the MOA among the MnHPO, FHWA, and MnDOT.

4.1.15 Visual

4.1.15.1 Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The current bridge is an identifying feature for the towns of Baudette and Rainy River. This project will replace the existing bridge on a similar alignment and is therefore not introducing a new transportation element to the view shed. However, replacement of the steel truss structure will change the view from

²¹ Source: 23 CFR 774.3

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

land, particularly from the upstream side of the bridge. Downstream, the view of the existing roadway bridge is obscured for people on land by the CN Railroad Bridge located about 300 feet away.

As described in Section 5.2.5 (Agency Coordination & Meetings), a Project Advisory Committee (PAC) was formed consisting of local, municipal, provincial, federal, and international agencies and stakeholders. The PAC played an essential role in providing input related to aesthetics of the proposed bridge.

An Aesthetic Vision Report was prepared to document the context sensitive design process for the new Rainy River International Crossing, to synthesize input from the PAC, and to propose an aesthetic vision to guide designers during the next phase of the project. The report reviewed the aesthetic aspects of the overall form, appurtenances, and related structures for the bridge. The PAC provided input through open discussion and on-going surveys. The two themes that continued to resonate were:

1. International pride, mutual respect, and cooperation of two long-linked towns.
2. Outdoor recreation and natural resources, including water bodies that define the landscape.

Also, identification of the physical crossing from one nation to the other has been identified as an important component of the new bridge. Although the existing bridge merely notes the crossing with a plaque, more noticeable and substantive border delineation options are desired for the new bridge. Recommendations from the PAC will be used to make further refinements on the bridge in the areas of lighting, railing and border delineation.

4.1.16 Air

4.1.16.1 Stationary source emissions - Describe the type, sources, quantities, and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health, or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

This project will not have stationary source air emissions concerns because all of the emission sources are mobile.

4.1.16.2 Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

4.1.16.2.1 National Ambient Air Quality Standards (NAAQS) – Criteria Pollutants

Motorized vehicles affect air quality by emitting airborne pollutants. Changes in traffic volumes, travel patterns, and roadway locations affect air quality by changing the number of vehicles and the congestion levels in a given area. The air quality impacts from the project are analyzed by addressing criteria pollutants, a group of common air pollutants regulated by the EPA on the basis of criteria (information on health and/or environmental effects of pollution). The criteria pollutants identified by the EPA are ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. Potential impacts resulting from these pollutants are assessed by comparing projected concentrations to National Ambient Air Quality Standards (NAAQS).

In addition to the criteria air pollutants, the EPA also regulates air toxics. The FHWA provides guidance for the assessment of Mobile Source Air Toxic (MSAT) effects for transportation projects in the NEPA process. A qualitative evaluation of MSATs has been performed for this project as documented below. The scope and methods of the analysis performed were developed in collaboration with MnDOT and the MPCA.

4.1.16.2.1.1 Ozone

Ground-level ozone is a primary constituent of smog and is a pollution problem throughout many areas of the United States. Exposures to ozone can cause people to be more susceptible to respiratory infection, resulting in lung inflammation, and aggravating respiratory diseases, such as asthma. Ozone is not emitted directly from vehicles but is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. Transportation sources emit NOx and VOCs and can, therefore, affect ozone concentrations. However, due to the phenomenon of atmospheric formation of ozone from chemical precursors, concentrations are not expected to be elevated near a particular roadway.

The MPCA, in cooperation with various other agencies, industries, and groups, has encouraged voluntary control measures for ozone and has begun developing a regional ozone modeling effort. Ozone concentrations in the lower atmosphere are influenced by a complex relationship of precursor concentrations, meteorological conditions, and regional influences on background concentrations. MPCA states in *Air Quality in Minnesota: 2015 Report to the Legislature*²² that:

On November 24, 2014, the EPA announced proposed changes to the National Ambient Air Quality Standard for ozone. The proposal seeks to strengthen the ozone standard by lowering the standard from 75 ppb to a value between 65 ppb and 70 ppb. The proposal is based on scientific evidence that strongly indicates ozone impacts human health at levels below the existing standard of 75 ppb.

²² Source: <http://archive.leg.state.mn.us/docs/2015/mandated/150152.pdf>

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Based on 2013 ozone monitoring results, all areas of Minnesota will meet the revised ozone standard if it is set at 70 ppb. If the ozone standard is set at 66 ppb or lower, the Twin Cities metropolitan area will not meet the standard. The EPA is expected to finalize the revised ozone standard in October 2015. EPA plans to use monitoring data from 2014-2016 to determine compliance. The MPCA will closely monitor ozone levels over the summer of 2015 and 2016 to assess the likelihood of violating the revised ozone standard.

The project is located in an area that has been designated as an unclassifiable / attainment area for ozone. This means that the project area has been identified as a geographic area that meets the national health-based standards for ozone levels, and therefore is exempt from performing further ozone analyses.

4.1.16.2.1.2 Particulate Matter

Particulate matter (PM) is the term for particles and liquid droplets suspended in the air. Particles come in a wide variety of sizes and have been historically assessed based on size, typically measured by the diameter of the particle in micrometers. PM_{2.5}, or fine particulate matter, refers to particles that are 2.5 micrometers or less in diameter. PM₁₀ refers to particulate matter that is 10 micrometers or less in diameter.

Motor vehicles (i.e., cars, trucks, and buses) emit direct PM from their tailpipes, as well as from normal brake and tire wear. Vehicle dust from paved and unpaved roads may be re-entrained, or re-suspended, in the atmosphere. In addition, PM_{2.5} can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds. PM_{2.5} can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including²³:

- Premature death in people with heart or lung disease;
- Nonfatal heart attacks;
- Irregular heartbeat;
- Aggravated asthma;
- Decreased lung function; and,
- Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing.

On December 14, 2012, the EPA issued a final rule revising the annual health NAAQS for fine particles (PM_{2.5}). The EPA website states²⁴:

With regard to primary (health-based) standards for fine particles (generally referring to particles less than or equal to 2.5 micrometers (mm) in diameter, PM_{2.5}), the EPA is strengthening the annual PM_{2.5} standard by lowering the level to 12.0 micrograms per cubic meter (µg/m³). The existing annual standard, 15.0 µg/m³, was set in 1997. The EPA is revising the annual PM_{2.5} standard to 12.0 µg/m³ so as to provide increased protection against health effects associated with long- and short-term exposures (including

²³ Source: <https://www3.epa.gov/pm/health.html>

²⁴ Source: <https://www3.epa.gov/pm/actions.html>

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

premature mortality, increased hospital admissions and emergency department visits, and development of chronic respiratory disease), and to retain the 24-hour PM_{2.5} standard at a level of 35 µg/m³ (the EPA issued the 24-hour standard in 2006). The EPA is revising the Air Quality Index (AQI) for PM_{2.5} to be consistent with the revised primary PM_{2.5} standards.

The EPA also retained the existing standards for coarse particle pollution (PM₁₀). The NAAQS 24-hour standard for PM₁₀ is 150 µg/m³ which is not to be exceeded more than once per year on average over three years.

The Clean Air Act conformity requirements include the assessment of localized air quality impacts of federally-funded or federally-approved transportation projects that are located within PM_{2.5} nonattainment and maintenance areas and deemed to be projects of air quality concern. The project is located in an area that has been designated as an unclassifiable/attainment area for PM. This means that the project area has been identified as a geographic area that meets the national health-based standards for PM levels, and therefore is exempt from performing PM analyses.

4.1.16.2.1.3 Nitrogen Dioxide (Nitrogen Oxides)

Nitrogen oxides, or NO_x, are the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. The MPCA's *Air Quality in Minnesota: 2015 Report to the Legislature*²⁵ indicates that:

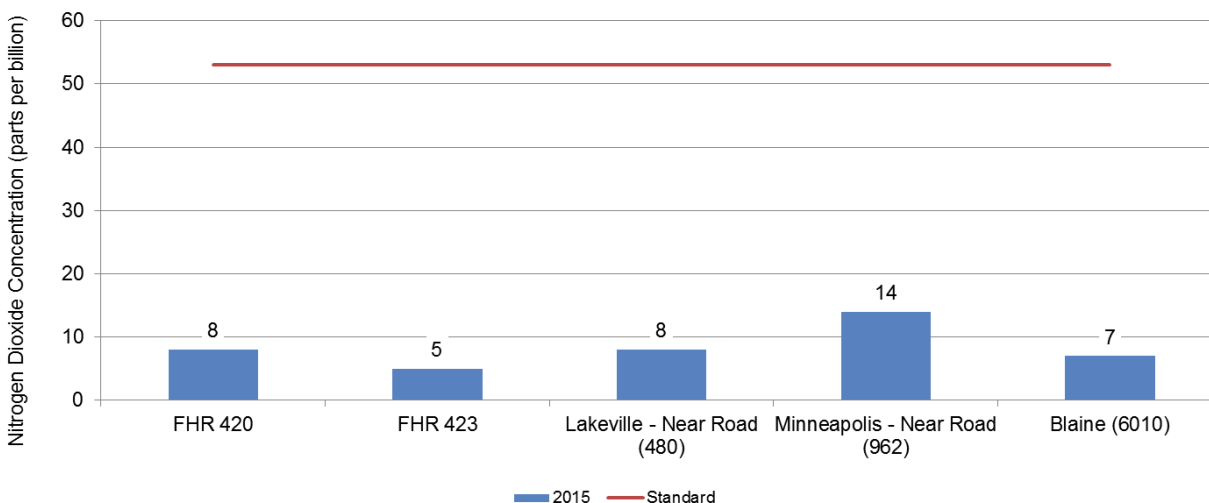
On road gasoline vehicles and diesel vehicles account for 40% of NO_x emissions in Minnesota. In additions to being a precursor to ozone, NO_x can worsen respiratory irritation, and increase risk of premature death from heart or lung disease.

Nitrogen dioxide (NO₂), which is a form of nitrogen oxide (NO_x), is regularly monitored. Minnesota currently meets federal nitrogen dioxide standards, according to the *2017 Annual Air Monitoring Network Plan*²⁶. A monitoring site meets the annual NAAQS for NO₂ if the annual average is less than or equal to 53 parts per billion (ppb). As shown in Figure 5, the 2015 Minnesota NO₂ monitoring site averages ranged from 5 ppb to 14 ppb; therefore, Minnesota currently meets the annual NAAQS for NO₂.

²⁵ Source: <https://www.pca.state.mn.us/sites/default/files/lraq-1sy15.pdf>

²⁶ Source: <https://www.pca.state.mn.us/sites/default/files/aq10-14a.pdf>

Figure 5: Annual Average NO₂ Concentrations Compared to the NAAQs



The EPA's December 1999 regulatory announcement, EPA420-F-99-051²⁷, describes the Tier 2 standards for tailpipe emissions, and states:

The new tailpipe standards are set at an average standard of 0.07 grams per mile for nitrogen oxides for all classes of passenger vehicles beginning in 2004. This includes all light-duty trucks, as well as the largest SUVs. Vehicles weighing less than 6000 pounds will be phased-in to this standard between 2004 and 2007.

As newer, cleaner cars enter the national fleet, the new tailpipe standards will significantly reduce emissions of nitrogen oxides from vehicles by about 74 percent by 2030. The standards also will reduce emissions by more than 2 million tons per year by 2020 and nearly 3 million tons annually by 2030.

According to *Air Quality in Minnesota: 2015 Report to the Legislature*, MPCA monitoring shows ambient NO₂ concentrations at 44 percent of federal standards in 2013, in other words consistently below state and federal standards. In the *2017 Annual Air Monitoring Network Plan for Minnesota*²⁸, it states the following with regard to NO₂:

On January 22, 2010, the EPA finalized revisions to the NO₂ NAAQS. As part of the standard review process, the EPA retained the existing annual NO₂ NAAQS, but also created a new 1-hour standard. This new 1-hour NAAQS will protect against adverse health effects associated with short term exposures to elevated NO₂. To meet this standard, the three-year average of the annual 98th percentile daily maximum 1-hour

²⁷ Source: <https://www3.epa.gov/tier2/documents/f99051.pdf>

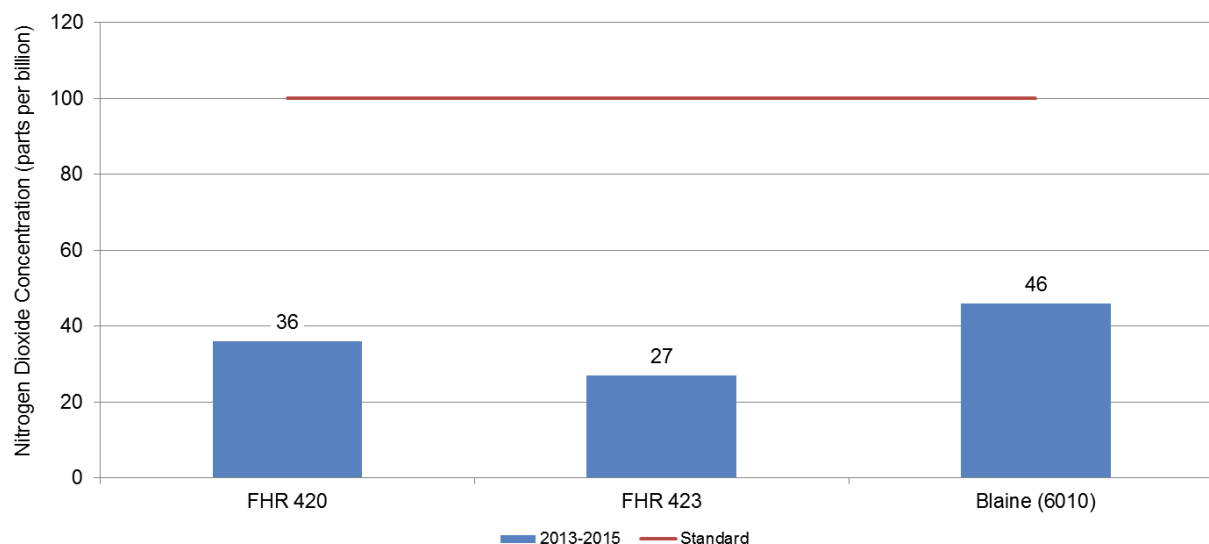
²⁸ Source: <https://www.pca.state.mn.us/sites/default/files/aq10-14a.pdf>

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

NO₂ concentration must not exceed 100 ppb. [Figure 6: 1-Hour NO₂ Concentrations Compared to the NAAQs below] shows the 2013-2015 average of the annual 98th percentile daily maximum 1-hour NO₂ concentrations at Minnesota sites and compares them to the 1-hour standard. Minnesota averages ranged from 27 ppb at Flint Hills Refinery 423 to 46 ppb at Blaine (6010); therefore, all Minnesota sites currently meet the 1-hour NAAQS for NO₂.

Figure 6: 1-Hour NO₂ Concentrations Compared to the NAAQs



Within the project area, it is unlikely that NO₂ standards will be approached or exceeded based on the relatively low ambient concentrations of NO₂ in Minnesota and on the long-term trend toward reduction of NO_x emissions. Because of these factors, a specific analysis of NO₂ was not conducted for this project.

4.1.16.2.1.4 Sulfur Dioxide

Sulfur dioxide (SO₂) and other sulfur oxide gases (SO_x) are formed when fuel containing sulfur, such as coal, oil, and diesel fuel is burned. Sulfur dioxide is a heavy, pungent, colorless gas. Elevated levels can impair breathing, lead to other respiratory symptoms, and at very high levels aggravate heart disease. People with asthma are most at risk when SO₂ levels increase. Once emitted into the atmosphere, SO₂ can be further oxidized to sulfuric acid, a component of acid rain. Emissions of sulfur oxides from transportation sources are a small component of overall emissions and continue to decline due to the desulfurization of fuels.

According to *Air Quality in Minnesota: 2015 Report to the Legislature*, MPCA monitoring shows ambient SO₂ concentrations at 19 percent of federal standards in 2013, in other words consistently below state and federal standards. The MPCA has concluded that long-term trends in both ambient air concentrations

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

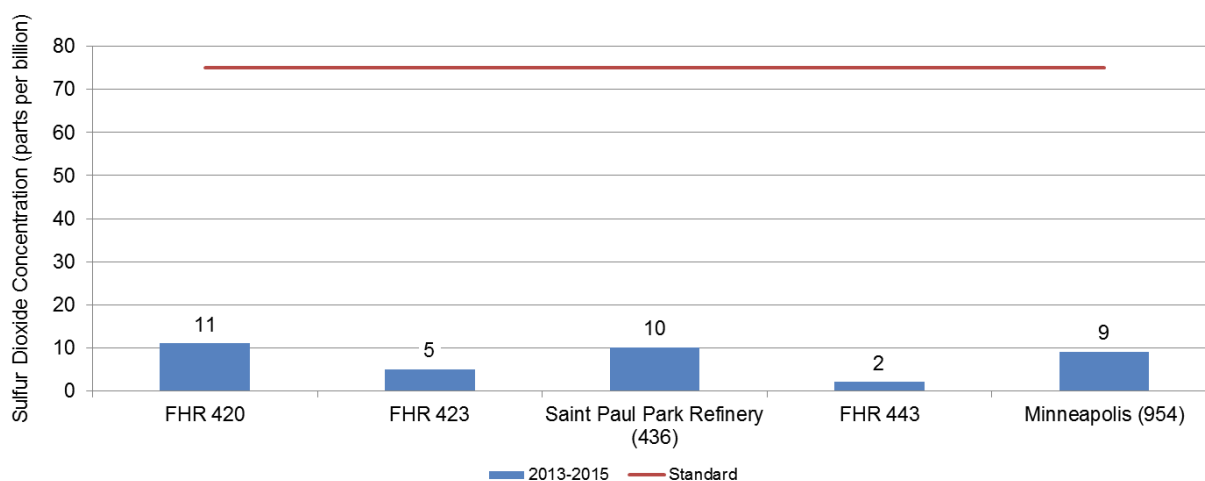
Social Economic and Environmental (SEE) Impacts

and total SO₂ emissions in Minnesota indicate steady improvement. In the *2017 Annual Air Monitoring Network Plan for Minnesota*²⁹, it states the following with regard to SO₂:

On June 2, 2010, the EPA finalized revisions to the primary SO₂ NAAQS. EPA established a new 1-hour standard which is met if the three-year average of the annual 99th percentile daily maximum 1-hour SO₂ concentration is less than 75 ppb. In addition to creating the new 1-hour standard, the EPA revoked the existing 24-hour and annual standards. [Figure 7: 1-Hour SO₂ Concentrations Compared to the NAAQs below] describes the 2013-2015 average 99th percentile 1-hour SO₂ concentration and compares them to the 1-hour standard. Minnesota averages ranged from 2 ppb at Flint Hills Refinery (FHR) 443 to 11 ppb at FHR 420; therefore, all Minnesota sites currently meet the 1-hour NAAQS for SO₂.

Because of these factors, an analysis for sulfur dioxide was not conducted for this project.

Figure 7: 1-Hour SO₂ Concentrations Compared to the NAAQs



4.1.16.2.1.5 Lead

Due to the phase out of leaded gasoline, lead is no longer a pollutant associated with vehicular emissions.

4.1.16.2.1.6 Carbon Monoxide

This project is not located in an area where conformity requirements apply, and the scope of the project does not indicate that air quality impacts would be expected. Furthermore, the EPA has approved a screening method to determine which intersections need a carbon monoxide (CO) hotspot analysis. The results of the screening procedure demonstrate that traffic volumes are below the threshold of 79,400 ADT and do not require a detailed hotspot analysis. Therefore, no further air quality analysis is necessary.

²⁹ Source: <https://www.pca.state.mn.us/sites/default/files/aq10-14a.pdf>

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Improvements in vehicle technology and in motor fuel regulations continue to result in reductions in vehicle emission rates. The EPA MOVES 2010b emissions model estimates that emission rates will continue to fall from existing rates through year 2030. Consequently, year 2030 vehicle related CO concentrations in the study area are likely to be lower than existing concentrations even considering any increase in development-related and background traffic.

4.1.16.2.2 Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources³⁰, and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS).³¹

In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National-Scale Air Toxics Assessment (NATA).³² These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

4.1.16.2.2.1 Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

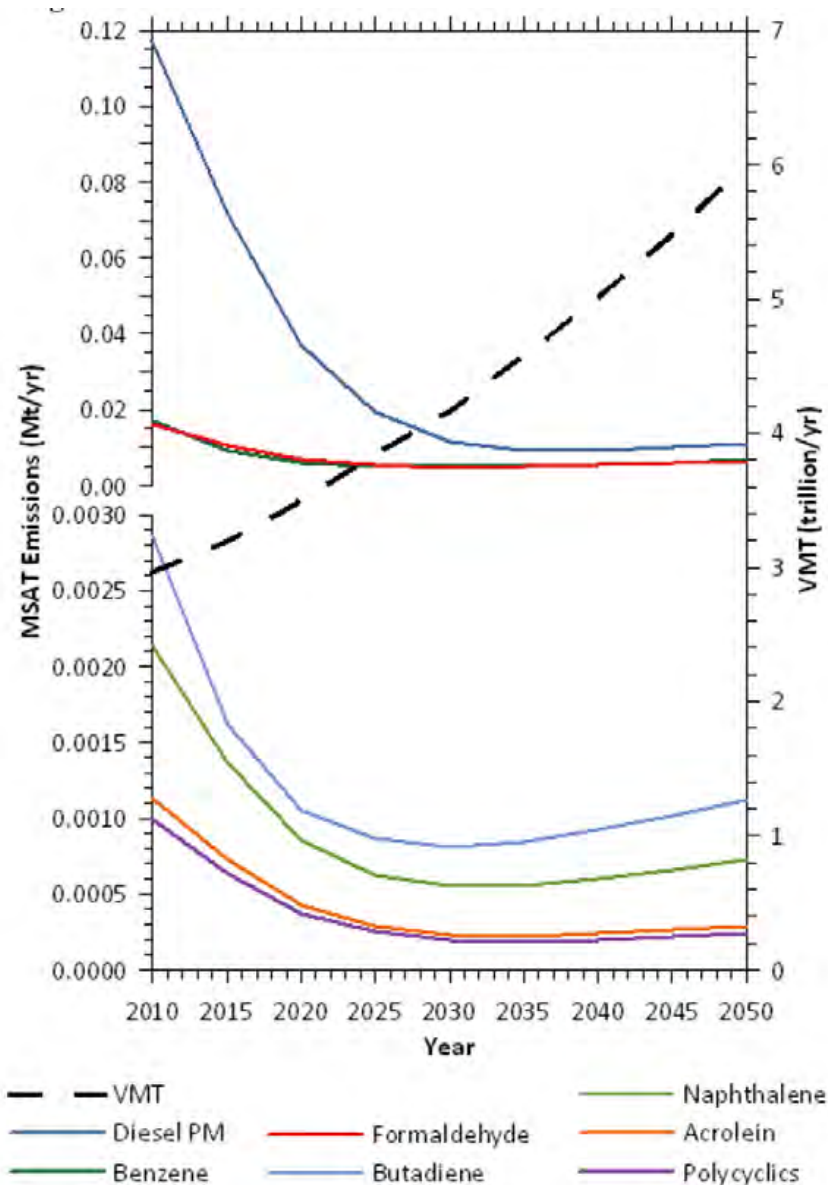
Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 8 below, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

³⁰ Source: Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007; <http://www.gpo.gov/fdsys/pkg/FR-2007-02-26/pdf/E7-2667.pdf>

³¹ Source: <http://www.epa.gov/iris/>

³² Source: <https://www3.epa.gov/air/sat/mobile.html>

Figure 8: National MSAT Emissions Trends 1999-2005 for Vehicles Operating on Roadways Using EPA's MOVES2010b Model³³



Source: EPA MOVES2010b model runs conducted during May - June 2012 by FHWA.
http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/nmsatetrends.cfm

Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.

³³ Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/airqintguidmem.cfm

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.³⁴

4.1.16.2.2.2 MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

4.1.16.2.2.3 NEPA Context

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.³⁵

4.1.16.2.2.4 Incomplete or Unavailable Information for Project Specific MSAT Health Impacts Analysis

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects."³⁶ Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

³⁴ Source: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/ajintguidmem.cfm

³⁵ Source: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title23/23cfr771_main_02.tpl

³⁶ Source: <http://www.epa.gov/iris/>

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA*.³⁷ Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations³⁸ or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI.³⁹ As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA and the HEI have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries.

The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory

³⁷ Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/agintquidmem.cfm

³⁸ Source: Health Effects Institute, *Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects*, 2007; <http://pubs.healtheffects.org/view.php?id=282>.

³⁹ Source: Health Effects Institute, *Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects*, 2007; <http://pubs.healtheffects.org/view.php?id=282>.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

4.1.16.2.2.5 Qualitative MSAT Analysis

For the Preferred Alternative, the amount of MSAT emitted would be proportional to the average daily traffic, or ADT, assuming that other variables such as fleet mix are the same. The ADT estimated for the Preferred Alternative does not differ from that for the No Build Alternative because the proposed project is intended to provide a structurally sound bridge crossing and provide acceptable mobility conditions, not to increase capacity. Since no change in ADT is expected through the project corridor, or along parallel routes, no changes in MSAT emissions are expected compared to the No Build Alternative. There is a potential for lower MSAT emission rates due to increased speeds and reduction in congestion/delays particularly in cases which over-sized loads require temporary one-directional traffic due to the limiting vertical clearance and lane/shoulder widths of the existing bridge. According to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The magnitude and the duration of potentially increased MSAT concentrations under the Preferred Alternative compared to the No Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT emissions. In summary, with the operational efficiencies and increased vertical clearance on the proposed bridge, the localized level of MSAT emissions for the Preferred Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

4.1.16.3 Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

The Preferred Alternative would not generate substantial odors during construction. Potential odors would include exhaust from diesel engines and fuel storage. Dust generated during construction will be minimized through standard dust control measures such as applying water to exposed soils and limiting the extent and duration of exposed soil conditions. Construction contractors will be required to control dust and other airborne particulates in accordance with MnDOT specifications. After construction is complete, dust levels are anticipated to be minimal because all soil surfaces exposed during construction would be in permanent cover (i.e., paved or revegetated areas).

4.1.17 Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

4.1.17.1 Noise During Construction

The construction activities associated with implementation of the Preferred Alternative may result in increased noise levels relative to existing conditions. These impacts will primarily be associated with construction equipment and pile driving. Table 11 shows peak noise levels monitored at 50 feet from various types of construction equipment. This equipment is primarily associated with site grading, site preparation, and roadway construction and is associated with the higher noise levels due to construction.

Table 11: Typical Construction Equipment Noise Levels at 50 Feet

Equipment Type	Manufacturers Sampled	Total Number of Models in Sample	Peak Noise Level (dBA)	
			Range	Average
Backhoes	5	6	74-92	83
Front Loaders	5	30	75-96	85
Dozers	8	41	65-95	85
Graders	3	15	72-92	84
Scrapers	2	27	76-98	87
Pile Drivers	N/A	N/A	95-105	101

Source: United States Environmental Protection Agency and Federal Highway Administration

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Elevated noise levels are to a degree unavoidable for this type of project. MnDOT will require that construction equipment be properly muffled and in proper working order. While MnDOT and its contractor(s) are exempt from local noise ordinances, it is the practice to require that the contractor(s) comply with applicable local noise restrictions to the extent possible. Advance notice will be provided to affected communities for any abnormally loud construction activities. It is anticipated that nighttime construction may sometimes be required to minimize traffic impacts and improve safety. However, construction will be limited to daytime hours as much as possible. This project is anticipated to be under construction for 12 months. Any proposed noise barriers will be constructed as early as the construction staging allows. Any associated high-impact equipment noise such as pile driving, pavement sawing, or jack hammering will be unavoidable with construction of the Preferred Alternative. Pile driving noise is associated with any sheet piling necessary for any retaining wall construction. The use of pile drivers, pavement sawing and jack-hammering equipment will be prohibited during nighttime hours.

4.1.17.2 Noise Impacts & Mitigation

Noise is defined as any unwanted sound. Sound travels in a wave motion and is measured as a sound pressure level. This sound pressure level is commonly measured in decibels. Decibels (dB) represent the logarithm of the ratio of a sound energy relative to a reference sound energy. For highway traffic noise, an adjustment, or weighting, of the high-and low-pitched sound is made to approximate the way that an average person hears sound. The adjusted sound levels are stated in units of “A-weighted decibels” (dBA). A sound increase of 3 dBA is barely noticeable by the human ear, a 5 dBA increase is clearly noticeable, and a 10 dBA increase is heard as twice as loud. For example, if the sound energy is doubled (i.e., the amount of traffic doubles), there is a 3 dBA increase in noise, which is just barely noticeable to most people. On the other hand, if traffic increases by a factor of ten times, the resulting sound level will increase by about 10 dBA and be heard to be twice as loud.

Traffic noise impacts in Minnesota are evaluated by measuring and/or modeling the traffic noise levels that are exceeded 10 percent and 50 percent of the time during the hours of the day and/or night that have the loudest traffic scenario. These numbers are identified as the L₁₀ and L₅₀ levels, respectively. The L₁₀ value is the noise level that is exceeded for a total of 10 percent, or 6 minutes, of an hour. The L₅₀ value is the noise level that is exceeded for a total of 50 percent, or 30 minutes, of an hour.

Table 12 provides a rough comparison of the noise levels of some common noise sources.

Traffic volume, types of vehicles, operating speed, topography, and distance from the road to the receptor influences the traffic noise level at the receptor. The sound level decreases as distance from a source increases. A rule of thumb regarding sound level decrease due to increasing distance from a line source (roadway) that is commonly used is: beyond approximately 50 feet from the sound source, each doubling of distance from the line source over hard ground (such as pavement or water) will reduce the sound level by 3 dBA, whereas each doubling of distance over soft ground (such as vegetated or grassy ground) results in a sound level decrease of 4.5 dBA.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Table 12: Decibel Level of Common Noise Sources

Sound Pressure Level (dBA)	Noise Source
140	Jet Engine (at 75 feet)
130	Jet Aircraft (at 300 feet)
120	Rock and Roll Concert
110	Pneumatic Chipper
100	Jointer/Planer
90	Chainsaw
80	Heavy Truck Traffic
70	Business Office
60	Conversational Speech
50	Library
40	Bedroom
30	Secluded Woods
20	Whisper

Sources:

“A Guide to Noise Control in Minnesota,” Minnesota Pollution Control Agency, <http://www.pca.state.mn.us/programs/pubs/noise.pdf>

“Highway Traffic Noise,” FHWA, <http://www.fhwa.dot.gov/environment/htnoise.htm>

Minnesota state noise standards have been established for daytime and nighttime periods. The state standards for residential land uses (identified as Noise Area Classification 1, or NAC-1) are 65 dBA L₁₀, daytime and 55 dBA L₁₀, nighttime. The L₅₀ standards are 60 dBA and 50 dBA for daytime and nighttime, respectively. The Minnesota Pollution Control Agency (MPCA) defines daytime as 7:00 a.m. to 10:00 p.m. and nighttime from 10:00 p.m. to 7:00 a.m. The state noise standards are depicted in Table 13.

Table 13: Minnesota State Noise Standard

Land Use	NAC: Noise Area Classification	Exterior Hourly Noise Level Limit, dBA			
		Daytime 7:00 am – 10:00 pm		Nighttime 10:00 pm – 7:00 am	
		L ₁₀	L ₅₀	L ₁₀	L ₅₀
Residential	NAC-1	65	60	55	50
Commercial	NAC-2	70	65	70	65
Industrial	NAC-3	80	75	80	75

Notes:

1. NAC-1 includes household units, transient lodging and hotels, educational, religious, cultural entertainment, camping and picnicking land uses.
2. NAC-2 includes retail and restaurants, transportation terminals, professional offices, parks, recreational and amusement land uses.
3. NAC-3 includes industrial, manufacturing, transportation facilities (except terminals), and utilities land uses.
4. Source: Minnesota Pollution Control Agency, Minn. Rules sec. 7030.0040.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

The State noise standards apply to the entire project length. Exemptions to State noise standard are found in Minnesota Statutes 2000, Section 116.07 subd. (2a). Minnesota State Statutes 2000, Section 116.07 subd. (2a) identifies the conditions and roadway types that are exempt from the State noise standards.

The Federal Highway Administration's (FHWA) Procedures for Abatement of Highway Traffic Noise and Construction Noise is presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 772). This regulation established the noise abatement criteria (NAC) for various land uses. Noise abatement measures will be considered when the predicted noise levels approach or exceed those values shown for the appropriate activity category in Table 14, or when the predicted traffic noise levels substantially exceed the existing noise levels. MnDOT has defined an increase over existing noise levels of 5 dBA or greater a substantial noise level increase.

Since the Residential NAC-1 MPCA L₁₀ noise level of 65 dBA in Table 13 is an absolute level and is lower than the FHWA NAC L₁₀ noise level of 70 dBA for Activity Category B land use (residential) shown in Table 14, the MPCA State Noise Standards supersede the FHWA's NAC.

Table 14: Noise Abatement Criteria – Hourly A-Weighted Sound Level-Decibels (dBA)

Activity Category	Activity Criteria ^(1,2) L ₁₀ (h), dBA	Evaluation Location	Activity Description
A	60	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the lands are to continue to serve their intended purpose.
B(3)	70	Exterior	Residential.
C(3)	70	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, place of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	55	Interior	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E(3)	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

Notes:

1. L₁₀(h) shall be used for impact assessment.
2. The L₁₀(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
3. Includes undeveloped lands permitted for this activity category.

Source: MnDOT Noise Policy, June 15, 2015.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.17.3 Methodology

4.1.17.3.1 Affected Environment

The purpose of this noise analysis is to determine the potential noise impacts from the proposed reconstruction of the Baudette / Rainy River International Bridge. The noise analysis presents the existing and future acoustical environment at various receptors located throughout the study area. The determination of noise impact and potential abatement measures and locations is in compliance with MnDOT's Noise Policy for Type I Federal-aid Projects and MPCA's State Noise Standards.

Noise level measurements were conducted on Wednesday, June 17, 2015, at a picnic table in Peace Park adjacent to the approach to the Rainy River Bridge and in a residential area southeast of Peace Park across the Baudette River. The 2 Field Sites (FS) were selected in representative areas of outdoor human activity (i.e., residential and recreational land uses) in the areas adjacent to the Peace Bridge. The daytime noise measurements were taken three times at each site: (1) once in the morning between 8:30 a.m. and 10:00 a.m., (2) once in the afternoon between 12:00 p.m. and 1:00 p.m., and (3) once in the afternoon between 2:30 p.m. and 4:00 p.m. Each measurement was taken for a twenty-minute time period. The locations of the field sites are described in Table 15 and shown on Figure 35 in Appendix I. The L₁₀ noise levels ranged from 48.0 to 53.0 dBA and are presented in Table 16. The results of computer modeling for daytime and nighttime noise conditions are presented in Table 27 in Appendix I.

Table 15: Noise Measurement Locations

Field Site #	Site Description	Figure #
FS-1	Peace Park, picnic table 55 ft southeast of northbound International Drive and 30 ft northeast of parking lot.	Figure 35 in Appendix I
FS-2	Residence, 63 ft northwest of intersection of Tower Drive and 4 th Street North along utility corridor.	

4.1.17.3.2 Comparison of Measured vs. Modeled Noise Levels

MINNOISEV31, a version of the FHWA's "STAMINA" model adapted by MnDOT was used to model traffic count data from the two measurement sites. MINNOISEV31 uses traffic volumes, speed, vehicle classes, and the typical characteristics of the roadway being analyzed (e.g., roadway horizontal and vertical alignment). The results of the MINNOISEV31 modeling were then compared to the measured noise levels. Comparing the modeled noise levels to the measured noise levels confirms the applicability of the computer model to the specific project. The site by site comparison is presented in Table 16.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Table 16: Comparison of Measured and Modeled Noise Levels

Location	Date	Time	L ₁₀ (dBA) Monitored	L ₁₀ (dBA) Modeled	Difference
FS-1a	6/17/2015	8:40 am	52.5	50.2	-2.3
FS-1b	6/17/2015	12:00 pm	53.0	52.2	-0.8
FS-1c	6/17/2015	3:17 pm	50.5	48.0	-2.5
FS-2a	6/17/2015	9:28 am	48.0	45.3	-2.7
FS-2b	6/17/2015	12:41 pm	48.3	46.0	-2.3
FS-2c	6/17/2015	2:30 pm	48.7	45.9	-2.8

The comparison indicated that FS-1 modeled -2.3, -0.8, and -2.5 dB for the morning, noon, and afternoon measurements, respectively. FS 2 modeled -2.7, -2.3, and -2.8 dB for the morning, noon, and afternoon measurements, respectively. Traffic passing through plaza was very light with less than a vehicle per minute to only 2 vehicles per minute. Vehicles leaving the US come through the plaza at 15 mph or so. Vehicles entering the plaza from the bridge coast to the plaza. The tire bridge noise on the bridge's open metal deck was unique with a tonal quality unlike any typical tire pavement noise. There were instantaneous increases in the noise level of 4-8 dB when traffic left the pavement for the bridge deck, and a 4-5 dB decrease when transitioning from the bridge deck to the plaza pavement. In addition, 6 freight trains crossed the railroad bridge paralleling the Rainy River Bridge during the 7 hours on site. When possible, the train noise was eliminated from the measurements. However, distant train noise, audible to the human ear was not apparent in the one-second noise data.

4.1.17.3.3 Noise Modeling

Traffic noise impacts were assessed by modeling noise levels at 6 representative locations along the Peace Bridge project area in Baudette, Minnesota. These receptors were selected to model the noise levels at 5 picnic tables within Peace Park and a residential area adjacent to Baudette River. The locations of the receptors are shown on Figure 35 in Appendix I. Land uses (residential, commercial, etc.) are listed for each modeled receptor location in Table 27 in Appendix I.

Noise modeling was done using the noise prediction program "MINNOISEV31", a version of the FHWA's "STAMINA" model adapted by MnDOT. This model uses traffic volumes, speed, vehicle classes, and the typical characteristics of the roadway being analyzed (e.g., roadway horizontal and vertical alignment). Noise model input files were developed based on the following assumptions:

- Traffic data used in the MINNOISEV31 noise model included existing 2013 and future No Build and Build 2038 forecasted traffic volumes.
- Five years of MnDOT traffic counts were reviewed to determine the loudest daytime and nighttime hours of the day. The mid-day hour from 12:00 p.m. to 1:00 p.m. was identified to be the loudest hour of the daytime period and the period from 6:00 a.m. to 7:00 a.m. was identified as the loudest

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

nighttime hour due to overall volumes and commercial truck volumes compared to other times of the day.

- The 6:00 a.m. to 7:00 a.m. period, just prior to the start of the morning rush hour, was identified as the loudest nighttime hour.
- An acoustically “soft” surface ($\alpha=0.5$) was utilized between the roads approaching the plaza and the receptors in Peace Park, while a “hard” surface ($\alpha=0.0$) was utilized between the bridge and all receptors along with roads and FS-2 across the Baudette River in the noise model input files.

4.1.17.3.4 Noise Modeling Results

The results of the noise modeling are presented in Table 26 (daytime – loudest hour from 12:00 p.m. to 1:00 p.m.) and Table 27 (nighttime – loudest hour from 6:00 a.m. to 7:00 a.m.; not all night) in Appendix I. The tables present the receptor identifications, the land use, the number of units per receptor, the L_{10} and L_{50} noise levels measured at each field site, the modeled Existing (2013), No-Build and Build (2038) L_{10} and L_{50} noise levels, the dBA difference between No-Build and Existing, the difference between Build and Existing, and the MPCA Noise Standards, and the FHWA NAC.

Existing (2013) daytime L_{10} noise levels at the 6 receptors range from 53.9 to 58.2 dBA. None of the 6 receptors are exposed to noise levels that exceed the MPCA L_{10} and L_{50} Standards. The L_{50} noise levels range from 46.5 to 50.2 dBA. None of the receptors noise levels would exceed the MPCA L_{50} Standards. The existing nighttime L_{10} noise levels are 4.0 to 4.2 decibels less than daytime noise levels. Since the MPCA Nighttime Standards are more stringent than the Daytime Standards, the nighttime noise levels during the 6:00 a.m. to 7:00 a.m. period would not exceed the 55 dBA L_{10} Nighttime Standard. None of the receptors would exceed the Nighttime L_{50} Standard of 50 dBA.

The 2038 daytime No-Build L_{10} noise levels would increase 0.4 decibels above existing conditions. The resulting daytime noise levels would range from 54.3 dBA to 58.6 dBA L_{10} . None of the receptors would be exposed to noise levels that exceed the daytime L_{10} MPCA Standard. The L_{50} noise levels would increase from 0.5 to 0.6 decibels over existing conditions with the noise levels ranging from 47.1 to 50.8 dBA. None of the receptors would be exposed to noise levels that exceed the L_{50} MPCA Standard. The 2038 nighttime No-Build noise levels would range from 45.8 to 52.3 dBA L_{10} while the L_{50} noise levels would range from 41.8 to 45.5 dBA. None of the nighttime noise levels would exceed the L_{10} and L_{50} MPCA Standards.

The modeled 2038 design year Preferred Alternative daytime noise levels would range from 49.7 to 56.4 dBA L_{10} . These noise levels would be 1.6 to 5.2 dBA less than existing conditions. The daytime MPCA L_{10} Standard would not be exceeded by any receptor. The L_{50} noise levels would range from 43.6 to 48.2 dBA. None of the receptors would exceed the L_{50} MPCA Standards. Nighttime L_{10} and L_{50} noise levels would decrease 1.3 to 4.6 and 1.5 to 3.7 dBA, respectively, from existing conditions. As with the 2038 build conditions, none of the receptors would exceed the MPCA nighttime L_{10} and L_{50} Standard.

4.1.17.3.5 Conclusions

This project will move the bridge alignment southeast slightly, and propose to use a concrete bridge deck versus the existing open metal deck. This change in bridge decks will create a reduction in traffic noise levels compared to existing conditions. Changes in daytime traffic noise levels from existing to future (2038) build conditions are projected to see a total decrease ranging from 1.6 to 5.2 dBA. The modeled

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

2038 design year Preferred Alternative daytime noise levels would range from 49.7 to 56.4 dBA L₁₀. The daytime MPCA L₁₀ Standards would not be exceeded by any receptor. The L₅₀ noise levels would range from 43.6 to 48.2 dBA. None of the receptors would exceed the L₅₀ MPCA Standards. Nighttime L₁₀ and L₅₀ noise levels would decrease 1.3 to 4.6 dBA and 1.5 to 3.7 dBA, respectively, from existing conditions. As with the 2038 No-Build conditions, none of the receptors would exceed the Nighttime L₁₀ and L₅₀ Standards.

The modeled 2038 design year Preferred Alternative daytime and nighttime noise levels do not exceed the MPCA L₁₀ or L₅₀ standards in Table 13. Likewise, none of the noise levels approach or exceed the FHWA's NAC in Table 14. Therefore, a noise mitigation analysis was not required.

4.1.18 Transportation

4.1.18.1 Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

Parking spaces (if project involves expansion): 0

Estimated total average daily traffic generated: NA.

Estimated maximum peak hour traffic generated and time of occurrence: NA.

Traffic will not be generated by the proposed project. A Traffic Count Data, Projection and Summary Report (Appendix B) was prepared which summarizes existing and future traffic operations in the study area. The analysis identified that the existing traffic counts across the bridge are approximately 1,200 vehicles per day.

Transit service is not currently available in the project area in either the City of Baudette or the Town of Rainy River and no transit is planned. No adverse impact to transit will occur.

4.1.18.2 Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>) or a similar local guidance.

The Traffic Count Data, Projection and Summary Report (Appendix B) indicates a declining AADT history and suggests that lower traffic volumes will occur in the future compared to existing values. However,

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

MnDOT policy is to project minimal increases in traffic into the future, providing a conservative estimate of future traffic demands. For Lake of the Woods County, MnDOT's minimum growth rate is 0.5 percent annually. This produces a 2018 AADT estimate of 1,350 vehicles per day and a 2038 estimate of 1,450 vehicles per day.

Existing and projected traffic volumes are well below 2,500 trips per day, therefore a traffic impact study was not prepared.

4.1.18.3 Identify measures that will be taken to minimize or mitigate project related transportation effects.

Negative transportation effects are not anticipated to occur from this project. As mentioned previously, some over-dimensional loads require travel down the center of the bridge structure where the vertical clearance is maximized, prohibiting two-way traffic, and causing delays for on-coming traffic. The proposed steel I-girder bridge type eliminates all above-deck bridge elements, removing traffic vertical restrictions, and eliminating this delay.

4.1.19 Cumulative Potential Effects

4.1.19.1 Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

Cumulative impacts are defined as "impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or persons undertakes such actions". The geographic areas considered are those areas directly adjacent to and near the Baudette Rainy River Bridge. The project impacts described in this document for the Baudette Rainy River Bridge include impacts to wetlands, floodplains, cultural resources and increased stormwater runoff.

Past actions in the project vicinity include decades of agricultural, residential, institutional, industrial, and commercial development and transportation infrastructure improvements. All these have resulted in the current built environment surrounding the Baudette Rainy River Bridge, which is generally urban development. No future development opportunities in the surrounding area have been identified.

Planning documents utilized to identify applicable projects include Minnesota's final 2016-2019 State Transportation Improvement Plan (STIP), and existing city and county comprehensive plans and capital improvement plans.

4.1.19.2 Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The following projects are listed in Minnesota's Final State Transportation Program (STIP) for 2016-2019 for the City of Baudette:

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

- Construction of a Pedestrian Bike Path in east Baudette, 2016
- Mill and Overlay of TH 11 from 7.6 miles west of TH 172 to TH 72, 2016

A proposed Rainy River gold mine project (owned by NewGold), proposed to be located approximately 40 miles northwest of Fort Frances, which is currently undergoing a separate environmental assessment through the Canadian federal environmental process.

4.1.19.3 Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

4.1.19.3.1 Wetlands

4.1.19.3.1.1 Existing Conditions and Impacts from Proposed and Future Actions

Existing wetland conditions consist of floodplain, emergent marsh wetlands and watercourse impacts. Impacts to wetlands within the project area are described in Section 4.1.11.2.4 (Water Resources – Surfaces Waters). Wetlands in the project vicinity may be affected by the foreseeable future actions. However, these impacts will be mitigated, as required by state and federal regulations.

4.1.19.3.1.2 Cumulative Potential Effects

Wetlands are afforded protection under Federal (the Clean Water Act – Section 404, Executive Order 11990 – Protection of Wetlands) and State (Minnesota Wetland Conservation Act (WCA) in Minnesota) laws that mandate “no net loss” of wetland functions and values. These Federal and State laws require the avoidance of wetland impacts when possible, and when avoidance is not possible, impacts must be minimized and mitigated. Both Federal and State laws require permits. Given the requirements in place, negative impacts would be mitigated, and no adverse cumulative wetland impacts are anticipated to result from the project.

4.1.19.3.2 Stormwater

4.1.19.3.2.1 Existing Conditions and Impacts from Proposed and Future Actions

Prior to construction, under existing conditions, stormwater runoff from the bridge is discharged directly to the river through the open-grate bridge deck. Impacts to stormwater from the proposed action are described in Section 4.1.11.2.2 (Water Resources – Stormwater). Identified foreseeable actions may result in increased impervious surfaces and stormwater effects. However, these projects will be required to provide mitigation in conformance with NPDES and/or watershed regulations, minimizing surface water impacts.

4.1.19.3.2.2 Cumulative Potential Effects

Federal, state, and local surface and groundwater regulations require mitigation be provided in conjunction with proposed actions. Given the design standards and management controls available for protecting the quality of surface waters, it is likely that potential impacts of the project, along with other future actions, will be minimized or mitigated to a substantial degree. Therefore, substantial adverse cumulative effects on stormwater are not anticipated.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.1.19.3.3 Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

4.1.19.3.3.1 Existing Conditions and Impacts from Proposed and Future Actions

Existing conditions and impacts from the proposed action are outlined in Section 4.1.13 (Fish/Wildlife/Ecological Resources). Possible effects to fish, wildlife, plant communities, and known threatened and endangered species include possible acoustic and turbidity effects and associated habitat impacts from construction and clearing. Construction of the bridge will require substantial in-river work within the footprint of the proposed piers. Fisheries and other aquatic species may be impacted. Other permanent impacts include minimal tree clearing of terrestrial habitat on the southern side of the Rainy River and the removal of the existing bridge potentially providing habitat to barn swallows.

None of the foreseeable future actions are anticipated to result in substantial impacts to other wildlife, existing facilities and do not expand capacity or substantially change existing alignments, thus limiting anticipated impacts to wildlife habitats.

4.1.19.3.3.2 Cumulative Potential Effects

Impacts to fisheries and other aquatic species resulting from in-river work of foreseeable future actions will be minimized through project coordination with the U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources. Substantial cumulative effects to wildlife are not anticipated.

4.1.19.3.4 Contamination, Hazardous Materials, and Wastes

4.1.19.3.4.1 Existing Conditions and Impacts from Proposed and Future Actions

Existing conditions and impacts from the proposed action can be found in Section 4.1.12 (Contamination/Hazardous Materials/Wastes). Regulated materials are present on the existing bridge and would be disposed of per State and Federal rules and regulations when the existing bridge is removed. Two areas of recognized environmental condition or contamination are also located within the project area. Construction activities related to the foreseeable future actions listed above may encounter existing hazardous materials, regulated waste, or contaminated properties.

4.1.19.3.4.2 Cumulative Potential Effects

Hazardous materials and regulated waste encountered as part of the proposed and future actions would be handled and disposed of according to applicable state and federal rules and regulations. As a result, substantial cumulative effects resulting from hazardous materials or regulated waste are not anticipated within the project.

4.1.19.3.5 Cultural Resources

4.1.19.3.5.1 Existing Conditions and Impacts from Proposed and Future Actions

Cultural resources in the project area include the Baudette Bridge, CN Railroad Bridge, Railroad corridor and the Old Town Cemetery. See Section 4.1.14 (Historic Properties) for a description of the existing conditions and potential impacts. Removal of the Baudette River Bridge would result in an adverse effect to Bridge 9412 under Section 106.

4.1.19.3.5.2 Cumulative Potential Effects

Substantial cumulative impacts to cultural resources are not anticipated in conjunction with the identified foreseeable future actions. A Memorandum of Agreement (MOA) has been accepted by all signatories

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

and is in the process of being executed to document mitigation of the adverse effect. Given the requirements in place and that the negative impacts would be mitigated, no adverse cumulative cultural resource impacts are anticipated to result from the project. If federal funds, licenses, or permits are required on future actions, the Section 106 process and associated federal requirements would apply.

4.1.19.3.6 Section 4(f) Resources

4.1.19.3.6.1 *Existing Conditions and Impacts from Proposed and Future Actions*

Section 4(f) resources in the project area include the Baudette Rainy River Bridge and Peace Park. See Sections 4.1.14 (Historical Properties) and 4.3.6 (Additional Federal Issues – Section 4(f) Resources) for descriptions of the existing conditions and potential impacts.

4.1.19.3.6.2 *Cumulative Potential Effects*

Impacts to Peace Park in the City of Baudette will be temporary and will be documented through the Section 4(f) process. Substantial cumulative effects to Peace Park are not anticipated. Removal of the bridge will be mitigated through the Section 106 process and documented through the use of a Programmatic 4(f) for Historic Bridges. See Appendix H for the Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges for Bridge #9412.

4.1.19.3.7 Conclusion

Based on the information known through the development of this EA/EAW, there is little potential for substantial cumulative impacts to the resources directly or indirectly impacted by the project. The potential impacts to resources identified can be avoided or minimized through existing regulatory controls, as described above. Therefore, no potentially substantial cumulative potential effects to the resources affected by this project have been identified.

4.1.20 Other Potential Environmental Effects

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

Not applicable.

4.2 RGU CERTIFICATION

(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages, or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature 

Date 01/30/2017

Title Chief Environmental Officer

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-201-2492, or <http://www.eqb.state.mn.us>

4.3 ADDITIONAL FEDERAL ISSUES

Discussed below are the federal issues not discussed in the EAW.

4.3.1 Right-of-Way and Relocation

Approximately 0.45 acres of temporary right-of-way (0.26 acres from the City of Baudette; 0.19 acres from General Services Administration (GSA)) will be required for this project as shown on Figure 30. No people, homes or businesses will be relocated with this project.

4.3.2 Economics

No business/economic activity is anticipated to be negatively affected by this project; however, minor impacts may occur with minor traffic delays related to bridge construction and the movement of heavy equipment.

Beneficial economic impacts include the increased height and width of the replacement bridge allowing overweight and over-dimensional loads to cross the bridge without delaying traffic as previously discussed in Section 2.2.2 (Secondary Needs).

4.3.3 Social Impacts

The project is not expected to cause any adverse impact to any sensitive groups within the nearby communities and neighborhoods. No categories of people uniquely sensitive to transportation will be unduly impacted. The project is located adjacent to schools, churches, and recreational activities; however, the existing bridge will remain open during the construction of the new bridge so as not to disturb the exchange of resources and community cohesion.

4.3.4 Transit

See Section 4.1.18 (Transportation). The project is not anticipated to affect potential public transit routes because the existing bridge will remain open during the construction of the new replacement bridge. Additionally, transit service is not currently available in the project area in either the City of Baudette or the Town of Rainy River and no transit is planned. No adverse impact to transit will occur.

4.3.5 Considerations Relating to Pedestrians and Bicycles

The Preferred Alternative will provide a 6-foot wide pedestrian/bicyclist facility on the south (upstream) side of the bridge and two 8-foot wide shoulders.

Pedestrian and bike traffic is not anticipated to be affected during construction as the existing bridge will remain open during construction. Provisions for pedestrian and bike traffic are included in the design of the replacement bridge.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.3.6 Section 4(f) Resources

Section 4(f) legislation, as established under the Department of Transportation Act of 1966, provides protection for publicly owned parks, recreation areas, historic sites, wildlife, and/or waterfowl refuges from conversion to transportation use. The FHWA may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and/or waterfowl refuge, or any significant historic site unless a determination is made that there is no feasible and prudent alternative to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from such use.

4.3.6.1 Baudette / Rainy River International Bridge

The proposed action of removing and replacing the Baudette / Rainy River International Bridge would result in an 'adverse effect' under Section 106 and, therefore, a Section 4(f) 'use'. The Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges, located in Appendix H, determined there is no feasible and prudent alternative to the use (i.e., the removal and replacement) of the Baudette / Rainy River International Bridge and its approaches. See the Programmatic Section 4(f) Evaluation for a more detailed discussion of Section 4(f) process decision-making and findings.

As discussed in Section 4.1.14 (Historic Properties), through the Section 106 review process, MnDOT CRU on behalf of FHWA has determined that the project would not have an adverse effect on other historic properties. It furthermore describes that, as plans are further reviewed, if an adverse effect to one or more historic properties is identified, mitigation measures will be developed in accordance with the Section 106 Memorandum of Agreement (MOA) which is in the process of being executed. In addition, if an adverse effect is identified, the proposed action would be reviewed to determine if it constitutes a Section 4(f) use, and if so, would be evaluated per Section 4(f) regulations.

4.3.6.2 Peace Park

4.3.6.2.1 De Minimis Impact Finding

Peace Park is located in Baudette, Minnesota on City-owned land adjacent to the existing bridge. MnDOT would have temporary and permanent easements over the park for the purposes of construction, staging access, and long term access to the bridge. Use of the park is unavoidable due to its adjacent location to the existing and proposed bridges. Based on consultation with City of Baudette, a Section 4(f) De Minimis Impact Finding to Peace Park is proposed since the impact does not adversely affect the activities, features, and attributes of the resource. See the Section 4(f) De Minimis Impact Finding for Peace Park below.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amendment to the Section 4(f) requirements allows the U.S. DOT Federal Highway Administration (FHWA) to determine that certain uses of Section 4(f) land are de minimis.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

An impact may be determined to be de minimis if the transportation use of the Section 4(f) resource, including consideration of impact avoidance, minimization, and mitigation or enhancement measures, is so minor in nature that it does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f). Such a finding will be conditioned upon:

- the official(s) with jurisdiction over the resource indicating, in writing, that the proposed action, including consideration of the mitigation, will not adversely affect the activities, features and attributes that are important to the resource, and
- the public has been afforded an opportunity (by public notice) to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource, and
- implementation of the mitigation measures.

When this is the case, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete. The official(s) with jurisdiction (City of Baudette Public Works Department) over the resource will be informed of FHWA's intent to make the de minimis impact finding.

Based on consultation with the City of Baudette Public Works Department, a de minimis impact finding to Peace Park is proposed. The FHWA will make a final determination regarding the proposed de minimis finding following the public comment period for the EA/EAW. See correspondence in Appendix D.⁴⁰

Information providing the basis for the proposed Section 4(f) de minimis impact finding is provided below:

1. **Description of the 4(f) Property.** See Figure 1 and Figure 29 for the overall size of Peace Park and the relative size of the impact area, respectively.

Name: Peace Park (Baudette Rest Area)

Size (acres): 7.32

Location: As shown in Figure 1, the park is bounded mainly by the Baudette River to the south and TH 72 to the north. The park begins near 3rd St NE in Baudette, Minnesota and ends along the Rainy River.

Ownership: City of Baudette

Type of Section 4(f) Property: Peace Park includes a public rest area (Baudette Rest Area), and historical event markers.

Function of Property and Available Activities: Peace Park includes a public rest area, roadside parking areas, and a dock and boat launch area available to travelers between the U.S. and Canada. The park also includes a number of historical markers and gravesites.

Description and Location of All Existing and Planned Facilities: The park currently includes circular cast concrete picnic tables, a restroom building and seasonal water fountain which were

⁴⁰ Source: See Appendix D – Draft de minimis impact finding of Peace Park Letter seeking concurrence from City of Baudette dated January 18, 2017.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

constructed by MnDOT in 1969. The park also currently features four parking areas, the largest of which provides dock and boat launch access into Baudette River along the southern edge of the park.

The storage building adjacent to the roadway along the northeast section of the park was added by MnDOT in 1980. Additionally, the park features two historical event markers along its northern edge which were erected by the Minnesota Historic Society and Minnesota Historic Sites and Markers Commission in 1966. The markers contain texts that address the Great Fire of 1910 and Massacre Island. Lastly, the park area contains the former location of the Old Town Cemetery, established in 1894. Many burials were moved to Elm Park Cemetery in 1909 by the City with permission from surviving relatives of the deceased; however, two unclaimed gravesites with headstones dated 1904 and 1907 remain in Peace Park.

Access: Peace Park can be accessed by pedestrians, bicyclists, and motorized vehicles. Minnesota Trunk Highway (TH) 72 and Highway 11 provide vehicular, bicycle and pedestrian access to and from Baudette, Minnesota and Rainy River, Ontario. The bridge also serves as a connection between United States and Canadian full-service, 24-hour Port of Entry facilities in each country.

Usage: Peace Park receives regular use during the summer months as well as some winter use. Park visitors include a mix of neighborhood residents as well as those traveling between the U.S. and Canada.

Relationship to Other Similarly Used Lands in the Vicinity: None.

Applicability Clauses Affecting the Ownership: There is no known lease, easement, covenants, restrictions, or other condition affecting ownership.

Unusual Characteristics Reducing or Enhancing the Value of the Property: Baudette River and Rainy River form the south and east boundaries of Peace Park. Portions of the park are susceptible to flooding during large storm events.

LAWCON Section 6(f) Impacts: Not applicable.

2. Impacts to the Section 4(f) Property.

Amount of Land Impacted: Approximately 0.22 acres.

Permanent R/W Acquisition/Easement: No permanent right-of-way or easements will be required for this project.

Temporary Easements: Approximately 0.22 acres of temporary easement area (see Figure 29 in Appendix A) will involve tree removal to accommodate construction movements and equipment; approximately four of which will be removed within the Peace Park boundary. This temporary impact area also includes possible minor excavation activities and the proposed temporary causeway (See Sections 4.1.6.2.2 and 4.1.11.2.4, Project Description – Construction: Potential Staging Areas and Water Resources – Surface Waters, respectively).

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Functions Affected: Functions of Peace Park would not be affected as a result of the proposed project.

Facilities Affected: The existing facilities within Peace Park would not be affected as a result of the proposed project.

- 3. Coordination with Responsible Official with Jurisdiction over the Section 4(f) Property:** The City of Baudette Public Works Department is the official with jurisdiction over Peace Park and was consulted along with the FHWA to discuss and solicit approval for the proposed activities. Letters of concurrence from the City of Baudette and FHWA are in Appendix D.

4. Considerations.

Impact Avoidance: The proposed replacement bridge and approaches have been designed to minimize, to the greatest extent possible, use of Peace Park.

Planning to Minimize Harm: The proposed roadway design minimizes encroachment to Peace Park and other neighboring entities as detailed by the following:

- None of the existing park facility structures will be removed, relocated, or temporarily disturbed.
- None of the historical markers or graves will be removed, relocated, or temporarily disturbed.
- Upon construction completion, vegetation and landscaping will be restored as feasible.
- No impacts to the Canadian National Railroad corridor or the Minnkota Power Coop, both of which are located adjacent to the existing Bridge #9412.

Mitigation: As discussed above, upon construction completion, Peace Park land will be restored as feasible and its existing facilities will not be impacted.

Enhancement: The proposed roadway design includes a sidewalk that will provide continued pedestrian access between the park and the bridge.

- 5. Public Notice:** Park impacts will be reviewed by the public in conjunction with the public review of this EA. A 45-day comment period will follow. Comments will become part of the official record and will be considered when making future project related decisions.
- 6. Conclusion:** The proposed action includes all possible planning to minimize harm to the resource, and is not anticipated to adversely affect the activities, features and attributes of Peace Park.

4.3.6.2.2 Temporary Occupancy

Additionally, contractors may request to use a portion of Peace Park during construction for staging purposes including the proposed temporary causeway, storage of materials or equipment in the parking lot, and using the boat launch to provide access to Rainy River through the Baudette River; see Figure 29: Peace Park – 4(f) Impacts. If contractors utilize the park for staging in this manner, a temporary occupancy of Peace Park will occur. In this case, the City of Baudette would retain ownership over Peace Park throughout the duration of construction. This temporary occupancy will last for a shorter timeframe than the two construction seasons required for construction and removal of the existing bridge. No changes within Peace Park would result from the use of the parking lot, dock and boat landing and the

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

amenities would be fully restored to its prior use upon construction completion. These amenities would generally remain open to the public during construction, however limited closures may be needed to address safety concerns. Coordination between MnDOT and the City of Baudette is currently underway to document the determination of temporary occupancy. See the temporary occupancy letter for concurrence from the City of Baudette in Appendix D.

4.3.7 Section 6(f) Resources

The project has been reviewed for potential Section 6(f) involvement.⁴¹ The project will not cause the conversion of any land acquired, planned, or developed with funds from the Land, and Water Conservation Fund (LAWCON). Therefore, there is no Section 6(f) involvement on this project.

Additionally, MnDNR was contacted to confirm the project would not impact any Section 6(f) properties. MnDNR provided a list of Section 6(f) properties near the project area which confirmed that no Section 6(f) properties will be affected⁴².

4.3.8 Section 106 Process

See Section 4.1.14 (Historic Properties) for information regarding the Section 106 process and project impacts to historic resources and MnHPO coordination regarding determination of effects and other Section 106 process issues.

4.3.9 Environmental Justice

Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations," dated February 1, 1994, requires that environmental justice be addressed in all federal planning and programming activities. The purpose of EO 12898 is to identify, address, and avoid disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations. The proposed project has potential federal permit requirements and will utilize federal funding. As such, it is considered a federal project for the purpose of compliance with this Executive Order. EO 12898 requires that the proposed actions be reviewed to determine if there are "disproportionately" high or adverse impacts on minority or low income populations. "Disproportionate" is defined in two ways: the impact is "predominantly borne" by the minority or low-income population group, or the impact is "more severe" than that experienced by non-minority or non-low-income populations. The steps for defining environmental justice impacts include the following:

- Step 1: Determine if an identifiable low income and/or minority population exists in the project area;
- Step 2: Determine if there are potentially high and adverse environmental impacts disproportionately borne and appreciably greater for the low income and/or minority populations;

⁴¹ MnDNR, "Parks and Natural Areas Subject to Permanent Land Use Requirements through Grant Agreements Administered by the MN Dept. of Natural Resources," Page 10, June 15, 2015, http://files.dnr.state.mn.us/aboutdnr/lawcon/lawcon_1.pdf.

⁴² Source: Email from MnDNR confirming no Section 6(f) involvement. January 20, 2016. See Appendix D.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

- Step 3: If the determination in Step 2 is ‘Yes’, then determine if further mitigation is possible to avoid or reduce the adverse effect to the population; or are other alternatives to avoid or reduce impacts practicable?

4.3.9.1 Step 1: Assessment of Project Area Demographics

The first step in the environmental justice determination process is to determine whether any minority and/or low-income populations are present within the project area. For the purposes of environmental justice, a low-income population or minority population is defined as a population of people or households located in close geographic proximity meeting the racial or income criteria set forth in Department of Transportation Order 5610.2(a) and FHWA Order 6640.23A.

Information on population characteristics of the project area was obtained from 2010 Census data and the 2010-2014 American Community Survey data. The project area is located in one Census Tract (4603) and one Census Block Group (1), both of which are located within Lake of the Woods County, Minnesota and encompass the entire project area. See Figure 31 in Appendix A for the location of Census Tract 4603, Block Group 1 with respect to Lake of the Woods County and the project location.

4.3.9.1.1 Identification of Minority Populations

The term “minority” is defined using race and ethnicity definitions from the 2010 Census. Minority communities are generally defined as one where the minority population is either 10 percentage points higher than the county average; or greater than 50 percent of the total geographic unit; or determined based on input for local officials or stakeholders. For this analysis, the presence of minority populations was assessed using block group level data. Table 17 outlines population and race information for Census Block Groups.

According to the minority criteria definition outlined above, Census Tract 4603, Block Group 1 indicates minority populations are not located in the project vicinity. Based on this data, for the purpose of this environmental justice assessment, it has been determined that a minority population does not exist in the vicinity of the proposed U.S. approach portion of the project.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Table 17: Population and Race

Demographic Group	Lake of the Woods County: Census Tract 4603, Block Group 1	% of Population	Lake of the Woods County	% of Population
Households	729	N/A	1,700	N/A
Population	1,694	100%	4,045	100%
White	1,599	94%	3,863	96%
Minorities	71	4%	147	4%
African American	6	0%	13	0%
American Indian	14	1%	27	1%
Asian	9	1%	32	1%
Pacific Islander	0	0%	0	0%
Some Other	0	0%	2	0%
Two or More	42	2%	73	2%
Hispanic / Latino	24	1%	35	1%

Sources: P9 and QT-P11, 2010 U.S. Census SF1 100% Data.

4.3.9.1.2 Identification of Low-Income Populations

For the purposes of this study, the term “low-income” is defined as persons with income below the 2014 poverty level. Data for Table 18 came from the 2010-2014 American Community Survey five-year estimates.

Census Tract 4603, Block Group 1 suggests the presence of low-income families (8 percent) and persons (8 percent) in the project area, as they exceed Lake of the Woods County’s percentages for families (3 percent) and persons (7 percent). Given the data presented above, it is reasonable to conclude that low-income populations exist within Census Tract 4603, Block Group 1 and possibly in the vicinity of the project on the U.S. side. However, based on coordination with the City of Baudette and familiarity of project staff⁴³ with the local landowners indicate an absence of a low-income population within the project area. Therefore, it is reasonable to conclude that low-income populations do not exist in the vicinity of the proposed project.

⁴³ City of Baudette Clerk, personal communication, January 12, 2017.

Table 18: Income and Poverty

Demographic Group	Lake of the Woods County: Census Tract 4603, Block Group 1
Total Households	1,616
Total Families	367
Median Household Income (2014 inflation adjusted dollars)	\$43,611
Median Family Income (2014 inflation adjusted dollars)	\$60,625
Per Capita Income in 2014 (dollars)	\$21,660
% of families whose income in the past 12 months is below poverty level	8%
% of people whose income in the past 12 months is below poverty level	8%

Source: 2010-2014 American Community Survey 5-Year Estimates.

4.3.9.2 Step 2: Determination of Effect

The determination of effect includes two steps:

- Is there an anticipated adverse impact high, and if so, is it high?
- Is the high and adverse impact anticipated to fall disproportionately on low income or minority populations?

If no high levels of adverse impacts are anticipated the consideration of potential disproportionate impacts does not apply.

4.3.9.2.1 Is there an anticipated adverse impact, and if so, is it high?

This EA documents the range of beneficial and adverse impacts associated with the Preferred Alternative along with proposed mitigation measures to address adverse effects. The following subject areas were considered when determining whether the collective adverse impacts to the identified low-income population is high:

- Right-of-Way and Relocation
- Economics
- Social Impacts
- Visual
- Air
- Noise
- Transportation & Transit

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

- Pedestrians & Bicycles
- Cultural Resources

Right-of-Way and Relocation – The Preferred Alternative requires only the acquisition of City and MnDOT right-of-way. No people, homes or businesses will be relocated with this project.

Economics – No business/economic activity is anticipated to be negatively affected by this project – See Section 4.3.2 (Economics). No adverse economic impacts are anticipated.

Social Impacts – The project is not expected to cause any adverse impact to sensitive groups within the nearby communities and neighborhoods – See Section 4.3.3 (Social Impacts). There are no adverse social impacts to be predominantly borne by the identified low-income population.

Visual – Visual impacts from the proposed project will be minimal. The current bridge is an identifying feature for the towns of Baudette and Rainy River. This project will replace the existing bridge on a similar alignment and is therefore not introducing a new transportation element to the view shed. However, replacement of the steel truss structure will change the view from land, particularly from the upstream side of the bridge. Downstream, the view of the existing roadway bridge is obscured for people on land by the CN Railroad Bridge located about 300 feet away. Recommendations from Public Involvement Meetings and the PAC will continue to be used to make design refinements in the areas of lighting, railing and border delineation (see Section 4.1.15, Visual). Therefore, there are no adverse visual impacts to be predominantly borne by the identified low-income population.

Air – No air quality impacts are expected to result from the proposed project.

Noise – A detailed traffic noise analysis was conducted for the Preferred Alternative (see Section 4.1.17, Noise). The analysis concluded that the proposed project would result in slight reductions in traffic noise levels compared to existing conditions. The analysis also found that daytime and nighttime MPCA L₁₀ and L₅₀ Standards would not be exceeded by the Preferred Alternative (the No Build Alternative also does not exceed these standards). For these reasons, no adverse noise impact is anticipated.

Transportation & Transit – As discussed previously in Sections 4.1.18 (Transportation) and 4.3.4 (Additional Federal Issues – Transit), the project is not anticipated to affect public transportation or transit routes because the existing bridge will remain open during the construction of the new replacement bridge. Additionally, transit service is not currently available within the project area in either the City of Baudette or the Town of Rainy River, and no transit is planned. No adverse impacts to transportation or transit are anticipated.

Pedestrians & Bicycles – Pedestrian and bike traffic is not anticipated to be affected during construction as the existing bridge will remain open during construction. Additionally, provisions for pedestrian and bike traffic are included in the design of the replacement bridge – See Section 4.3.5 (Considerations Relating to Pedestrians and Bicycles). Therefore, there are no adverse pedestrian/bike impacts to be predominantly borne by the identified low-income population.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

Cultural Resources – A small area of Peace Park will involve temporary construction impacts (0.22 acres) and minor tree removal. The amenities of Peace Park (i.e. public rest area facilities, parking lots, and a boat launch area/dock) will remain open throughout construction. As suggested in Section 4.3.6 (Additional Federal Issues – Section 4(f) Resources), there is a chance that contractors may request to use the boat launch/dock and some parking lot areas for construction staging purposes. Additionally, a field review for any potential unmarked graves will be completed by a MnDOT-approved contractor prior to construction (Section 4.1.14 – Historic Properties). Both scenarios have the potential for temporarily restricting access to park amenities during construction. However, potential impacts will be shared by the overall community and not predominantly borne by the identified low-income population. No adverse social impacts borne predominantly by the identified low-income population are anticipated.

Based on consideration of the direct and indirect impacts (both beneficial and adverse), the net adverse impact of the Preferred Alternative on the identifiable low-income population will not be disproportionately high or adverse. Given this conclusion, the remainder of Step 2 and Step 3 do not need to be addressed.

4.3.9.3 Environmental Justice Finding

The proposed action will not introduce high levels of adverse impacts that would have disproportionately high and adverse human health or environmental effects to any minority population or low income population.

4.3.10 Aviation

The proposed project is located southeast of Baudette International Airport in Baudette, Minnesota and within the MnDOT Office of Aeronautics area of influence⁴⁴. To protect aircrafts approaching the Baudette International Airport, MnDOT Aeronautics stated that the replacement bridge must stay under a 50:1 slope from 200 feet beyond the east end of the runway across the span of the bridge⁴⁵. MnDOT Aeronautics later added that the replacement bridge must also stay under a 40:1 slope from the east end of the runway across the span of the bridge to protect aircrafts departing Baudette International Airport.⁴⁶ These critical approach areas are depicted in Appendix D⁴⁷.

Given the proximity to the Baudette International Airport and use of cranes for construction, the Federal Aviation Administration (FAA) will be notified to complete an airspace obstruction analysis and the required FAA Form 7460-1 will be submitted for review. Terrain height will factor into whether the project affects the navigable airspace.

MnDOT will continue coordination with the FAA and the Baudette International Airport as needed as the design progresses.

⁴⁴ Source: <http://www.dot.state.mn.us/aero/documents/airportinfluence/District2/BaudetteInternationalAirport.pdf>

⁴⁵ Source: Appendix D – Email from MnDOT Aeronautics. December 15, 2015.

⁴⁶ Source: 14 CFR 77.19(d)(2)iii.

⁴⁷ Source: Appendix D – BDE Airspace, Baudette / Rainy River Figure. June 16, 2015.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

4.3.11 Rainy River and Baudette River Navigational Traffic Impacts

The United States Coast Guard (USCG) conducted a preliminary review of the project prior to meeting with MnDOT and MTO on November 13, 2015. The USCG determined that the use of the Rainy River was almost entirely recreational due to the absence of large commercial or marine facilities in the area. Therefore, the USCG considers the CN Railroad Bridge to be a controlling structure by which the navigational channel should align. The USCG also discussed the following requirements on the U.S. side of the Proposed Project:

- The low steel elevation of the proposed bridge structure needs to be higher than the low steel of the current CN Railroad Bridge, if possible, by 5-6 feet.
- A horizontal navigational channel of 100 feet or wider needs to be provided beneath the proposed bridge, if possible, in the deepest area of the river. A specific location and offset of the international border are not required.
- The navigational channel does not need to line up with the CN Railroad Bridge, but attempts should be made to align the openings.
- The navigational channel under the proposed bridge will likely not match the navigational channel of the existing bridge, which will cause a disruption to navigational activity until the existing bridge is removed. The USCG did not feel this was an issue since it is a temporary condition.
- No agreements between the USCG and Canada are required related to the navigational channel.

Coordination with USCG is still underway as needed. The USCG has indicated that it would adopt this EA/EAW upon approval from the FWHA and will issue its own FONSI.

4.3.12 Construction Impacts

See Section 4.1.17.1 (Noise During Construction) for noise impacts during construction. While MnDOT and its contractor(s) are exempt from local noise ordinances, it is MnDOT's practice to require contractor(s) to comply with applicable local noise restrictions and ordinances to the extent that it is reasonable. Public notices and outreach will be conducted within any areas that may experience abnormally loud construction activity. Construction will be limited to daytime hours as much as possible; however, night construction may be required. The project is anticipated to last two construction seasons.

See Section 4.1.16.3 (Dust and Odors) for dust and odor impacts during construction. Dust will be generated by normal construction activities and will be minimized through standard dust control measures such as watering. Post-construction dust levels are anticipated to be minimal as all exposed soil surfaces will receive permanent cover.

See Section 4.1.19 (Cumulative Potential Effects) for additional discussion on construction impacts.

4.3.13 Federal Threatened and Endangered Species

Section 7 of the Endangered Species Act of 1973, as amended, requires each federal agency to review any action that it funds, authorizes, or carries out to determine whether it may affect threatened, endangered, or proposed species, or affect listed critical habitat.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Social Economic and Environmental (SEE) Impacts

See Appendix D for Section 7 correspondence from MnDOT to the U.S. Fish and Wildlife Service dated March 1, 2016 that describes MnDOT's determinations made on behalf of FHWA, and the rationale for those determinations, including:

- A determination that project impacts are not of a magnitude that would result in jeopardizing the continued existence of the northern long-eared bat, a species proposed for federal listing as endangered at the time of EA/EAW publication; and
- Determination of No Effect for the Canada lynx, Gray wolf, and Piping plover since there are no known occurrences of these species in the project area.

The northern long eared bat (NLEB) has been officially listed by the USFWS since May 4, 2015. The USFWS accepted public comments on the interim 4(d) rules regarding activities in NLEB habitat from January 14, 2016 through February 16, 2016.

4.3.14 Farmland Protection Policy Act

The Farmland Protection Act (FPPA) is intended to minimize the extent to which federal activities contribute to the unnecessary and irreversible conversion of agricultural land to nonagricultural uses. The policy also seeks to ensure that federal policies are administered in a manner that will be compatible with state, local, and private policies that protect farmland.

The project is not anticipated to cause any adverse impact to agricultural land or operations. No agricultural land will be acquired; no farm will be severed or triangulated. The project will not affect agricultural production in Lake of the Woods County. See Section 4.1.9 (Land Use) for additional information.

4.3.15 Accessibility Requirements

The proposed project must comply with provisions set by the Americans with Disabilities Act of 1990 or by state or local access codes if they contain more stringent requirements. The project would comply with Americans with Disabilities Act requirements for the new bicycle and pedestrian facility on the new bridge and all crosswalk improvements. Crosswalks were specifically designed to meet current Americans with Disabilities Act (ADA) standards.

See Section 4.3.5 (Considerations Relating to Pedestrians and Bicycles) for additional information on the new bridge's fully accessible shared used facility.

4.3.16 Indirect Effects and Cumulative Impacts

See Section 4.1.19 (Cumulative Potential Effects) for information regarding cumulative impacts.

Since this project would provide infrastructure improvements that allow for continued functioning of TH 72 and Highway 11 between Baudette, Minnesota and Rainy River, Ontario, and therefore, would not introduce any new roadways that would affect/induce development patterns in the project vicinity, no potential indirect effects have been identified.

5.0 PUBLIC AND AGENCY INVOLVEMENT (AND PERMITS/APPROVALS)

The study process for this project, including the consultation program, has been developed with coordinated efforts from MnDOT and MTO to effectively coordinate the U.S. and Canadian study processes.

The consultation plan for this project has been developed in conjunction with the Canadian Transportation Environmental Study Report (TESR) and consultation process. The public meetings for this project have been scheduled concurrently in Rainy River and Baudette to make sure the same information is shared with the public and local stakeholders at the same time throughout the duration of the project. The U.S. consultation component of the project is documented in the Canadian Transportation Environmental Study Report (TESR) Document and is on file with the MTO.

5.1 PUBLIC INVOLVEMENT PLAN

A public involvement plan was developed and implemented early in the project development process. This plan has helped to establish communication between MnDOT and the public and has given MnDOT a better understanding of the concerns that the public and agencies have about the proposed project. It has also given the public and agencies knowledge about what it is that MnDOT is trying to accomplish with the project, and the standards, procedures, and constraints that MnDOT needs to consider while developing the project. Elements of the public involvement plan include coordination and contact meetings, advisory groups, newsletters, a web-site, public hearings, and the public comment period on the Environmental Assessment.

5.2 AGENCY COORDINATION & MEETINGS

Several public and agency meetings were held and newsletters sent out between March 2015 and August 2016. Coordination with the agencies listed in the following Sections was conducted throughout project development. The preparation of this EA develops the basis of understanding regarding project impacts, mitigation, and future coordination described in this EA.

Copies of agency comments received as a result of coordination meetings can be found in Appendix D and Appendix E. Significant issues and comments are discussed throughout this EA.

5.2.1 Project Advisory Committee

A Project Advisory Committee (PAC) was formed to help provide community input into the project process and to encourage communications between the MnDOT and the affected communities. The purpose of a PAC is to provide a comprehensive and orderly means of involving local interests in a transportation project. The role of the PAC is to advise MnDOT and MTO on community sentiment about a project. To do so equitably, the PAC must be democratic and representative of opposing points of view, with equal

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

status for each participant in presenting and deliberating the views of their interests. By providing for representation of many different interests, a PAC can help to resolve conflicts between those interests.

The PAC is composed of representatives from each county, city and township directly affected by the proposed project. There are also members representing the following organizations:

- City of Baudette
- Town of Rainy River
- Baudette Chamber of Commerce
- Rainy River & District Chamber of Commerce
- Lake of the Woods County
- General Services Administration (GSA)
- U.S. Coast Guard (USCG)
- Transport Canada
- U.S. Customs and Border Protection (CBP)
- Canada Border Services Agency (CBSA)
- International Rainy-Lake of the Woods Watershed Board (U.S. and CA)
- EMS Rainy River
- EMS Baudette

The following agencies and stakeholders were invited to join the PAC, but declined membership:

- Lake of the Wood Land & Water Planning
- Department of Foreign Affairs, Trade and Development
- CN Railroad

PAC members provide collaborative input on the project by following nine objectives:

1. advise MnDOT and MTO on issues
2. convey the concerns of local organizations, governments, and businesses to the study team
3. relay information presented by the study team back to citizens and community groups
4. identify transportation deficiencies and needs
5. strengthen public understanding of the study process and its regulatory framework
6. discuss progress, work efforts, and activities
7. provide input on a preferred course of action
8. ensure that information is understandable to the public seeing it for the first time
9. provide continuing visibility and credibility for the public involvement program

The PAC held four meetings between September 2015 and July 2016 and is expected to continue involvement throughout final design. Table 19 provides a summary of the important decisions and notable items from each of the PAC meetings to date.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

Table 19: Important Decisions Summary (PAC Meetings)

PAC Meeting #	Date	Summary of Meeting
1	September 1, 2015	<p>The first PAC meeting was held in the City of Baudette, MN. Fifteen people attended. Notable items include:</p> <ul style="list-style-type: none"> • PAC Membership conducted introductions and reviewed PAC requirements. • Few issues identified with the proposed new bridge. • The PAC suggested extending membership to include the hospitals on both sides of the river and Dawson Township. • Hospital in Rainy River uses airport in Baudette and needs quick access across the bridge. This needs to be a consideration during construction. • Aesthetics of the bridge don't seem to be a concern as voiced at the PAC, most just want a functional bridge. • The PAC was interested in placing an indicator on the bridge to show when you are crossing the border. • Advertisements for Public Meeting were discussed (Radio, local paper, local television channel). Several outreach methods will be used.
2	October 28, 2015	<p>PAC Meeting #2 was held in the City of Baudette, MN. The main focus of this meeting was to gather input on bridge aesthetics. The project team presented to the PAC on potential aesthetic treatment and provided a survey to collect opinion.</p>
3	May 25, 2016	<p>PAC meeting #3 was held in the City of Baudette, MN. Fifteen people attended. Notable items include:</p> <ul style="list-style-type: none"> • The PAC was shown alignment options and aesthetics for the bridge • PAC Members wanted to see more aesthetics above deck vs focusing on the piers. The PAC expressed interest in providing open railing options to allow for less obstructed views while driving. • PAC members were interested in seeing aesthetic options for the bridge that add interest. (Stamping concrete, including signs indicating when you are crossing to each country, adding decorative features to add interest to the exterior of the bridge). • Results of the PAC 2 survey were presented. Railing was a very high importance on the ballot. Railing types were reviewed and discussed for aesthetic and safety benefits.
4	July 6, 2016	<p>PAC meeting #4 was held in the Town of Rainy River, Ontario. Eight people attended. Visualizations for the proposed bridge were presented to the PAC for consideration and comment. The PAC was also presented with options for delineating the border.</p> <p>Notable comments include:</p> <ul style="list-style-type: none"> • Comments from meeting participants focused on safety of the bridge as it relates to aesthetics.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

5.2.2 Technical Advisory Committee

A Technical Advisory Committee (TAC) was created to communicate project status, outstanding issues, problems and recommended solutions, and next steps. The TAC consists of professional and technical staff from MnDOT, professional and technical staff from MTO, and the consulting team. To date, a total of 20 TAC meetings have been held. The important decisions from these meetings are outlined in Table 20 below.

Table 20: Important Decisions Summary (TAC Meetings)

TAC Meeting #	Date	Summary of Important Discussions
1	March 13, 2015	<ul style="list-style-type: none"> The project delivery method will need to be determined through MnDOT and MTO management Funding: <ul style="list-style-type: none"> MnDOT may use Chapter 152 Funding which has a sunset date of June 2018. MTO project funding will not impact the project schedule. Existing Schedule
2	April 23, 2015	<ul style="list-style-type: none"> Known Environmental Issues were summarized: <ul style="list-style-type: none"> MnDOT has conducted a soil investigation that identified contaminated soils in the project area. Canada does site screening for contaminants if ROW is required. No major contamination impact is anticipated. CRU has finished the initial investigation. Archaeology sent to SHPO for bridge, nothing significant was found.
3	May 21, 2015	<ul style="list-style-type: none"> Environmental Documentation: <ul style="list-style-type: none"> PIM/PIC meetings will be held simultaneously. Project Advisory Committee (PAC) membership invitee list created. MindMixer as a Public Involvement Tool:
4	June 25, 2015	<ul style="list-style-type: none"> International Coordination Meetings was scheduled for the fall. Meeting coordination and logistics will be reviewed. Public Involvement Plan was developed. Bridge Engineer on the project team presented 12 Bridge Type Alternatives and narrowed this list to the 5 most feasible alternatives, as agreed by the TAC.
5	July 21, 2015	<ul style="list-style-type: none"> PIP Update: <ul style="list-style-type: none"> A detailed agency list will not be included in the plan as it is dedicated to public involvement, and does not address agency coordination. USCG Permit Information <ul style="list-style-type: none"> Permit is required, so a decision was made to involve the USCG prior to submittal to make the process as smooth as possible. Environmental Update: <ul style="list-style-type: none"> Federal Funds will be used on the project; therefore, Section 4(f) is applicable for the Historic Bridge and Park.
6	September 1, 2015	<ul style="list-style-type: none"> Section 4(f) Process for the Bridge was reviewed. The FWHA will require the current bridge be put up for 'sale'. The bridge should be offered to the public agencies first who would have the ability to maintain the historic nature of the truss bridge, and then it will be put to the public. Review and Confirm Revised Geometric Standards Request: <ul style="list-style-type: none"> The roadway needs to be reconsidered with an 8' shoulder. MTO would agree to recommend larger shoulders if it were to deter future maintenance costs. Alignment Alternatives were reduced from 5 to the 2-3 most feasible alternatives.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

Table 20: Important Decisions Summary (TAC Meetings) (Continued)

TAC Meeting #	Date	Summary of Important Discussions
7	October 29, 2015	<ul style="list-style-type: none"> • Schedule Status: <ul style="list-style-type: none"> – Public Meetings will be increased from 3 to 4. • Stakeholder and Agency Coordination: <ul style="list-style-type: none"> – Agency Consultation Plan – a quarterly webinar is proposed to keep agencies up to date. – A critical path schedule was created to show the critical links between the approvals and permits needed for construction. • Facilitated Bridge Discussion Meeting #2 Review: <ul style="list-style-type: none"> – The 5 alternatives will be reduced to 2-3 by the December TAC meeting. • Environmental Update: <ul style="list-style-type: none"> – State Archaeologist wants to do a field study covering the area that could be impacted from the upstream alignment alternative.
8	November 19, 2015	<ul style="list-style-type: none"> • Project overview: <ul style="list-style-type: none"> – Starting 12/10/15, agency webinars will be held quarterly. – Bridge types have been narrowed from 12 to 5, and will soon be narrowed again to 2 or 3 options. • USCG Meeting Update: <ul style="list-style-type: none"> – No commercial traffic and bridge should ideally span the deepest part of the river. – Bridge cannot be lower than the CN rail bridge.
9	December 17, 2015	<ul style="list-style-type: none"> • Schedule Status: <ul style="list-style-type: none"> – The Bridge Engineer on the project team will reassess dismissed structure options to confirm that they still are not relevant. – The 5 current options will be redesigned to fit the new navigational channel requirements and to minimize piers in the water. • Procurement Options Report: <ul style="list-style-type: none"> – MTO and MnDOT should provide comments on the report as soon as possible to allow changes to be incorporated and to address comments. • Alignment Alternative Selection: <ul style="list-style-type: none"> – Draft evaluation was narrowed down to 4 options.
10	January 28, 2016	<ul style="list-style-type: none"> • Structure Type Selection: <ul style="list-style-type: none"> – Bridge options narrowed to Alternate 1 and Alternate 2. • Confirmation of Alignment Alternative Selection: <ul style="list-style-type: none"> – A contingency plan will be developed in case Alternative 2 is not buildable due to archeological or environmental issues. – A due diligence field review is scheduled for the spring to allow for a visual inspection for any unknown graves in the alignment corridor. • Watershed Update: <ul style="list-style-type: none"> – Watershed Board can act as a forum for disagreement between agencies. – Agencies with stormwater permitting authority will continue to be contacted.
11	February 25, 2016	<ul style="list-style-type: none"> • Structure Type Analysis Update: <ul style="list-style-type: none"> – It was generally agreed that haunched girders will provide an aesthetic advantage over prismatic beams. – Profiles will be reviewed to keep the high point as close to the international border as practical. • International Construction Issues: <ul style="list-style-type: none"> – Calais/St. Stephen project can be used as a reference for permitting and documentation that is needed when moving forward. – Work with the local FHWA division staff to establish what is needed and what level of involvement they would like to have with this project.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

Table 20: Important Decisions Summary (TAC Meetings) (Continued)

TAC Meeting #	Date	Summary of Important Discussions
12	March 24, 2016	<ul style="list-style-type: none"> • VE Study Status: <ul style="list-style-type: none"> – TAC members may be invited to provide information for other consideration. – Information provided to the VE participants will include previous decisions on alignment, structure type and procurement options. • Structure Type Analysis: <ul style="list-style-type: none"> – TAC members decided that the 4-span option should be dropped from further consideration. • Agency Coordination: <ul style="list-style-type: none"> – The GSA will review the preferred design layout with the CBP and provide comments regarding impacts to their services and property. – The GSA will provide their design guidelines for use in plan development. • Public Meeting #3: <ul style="list-style-type: none"> – At the next PIM/PIC, the preferred alternative for the alignment and the bridge will be presented to the public for comments.
13	May 4, 2016	<ul style="list-style-type: none"> • Structure Type Analysis: <ul style="list-style-type: none"> – Preferred bridge type refinement discussion included advantages and disadvantages for three bridge types. – Technical decisions to be made by TAC; aesthetic decisions to be decided by PAC members. – TAC members decided to drop the 4-span option from further consideration. – Hydraulics - No significant issues with water levels and no significant differences found between 5-span and 4-span option. • Agency Coordination: <ul style="list-style-type: none"> – Remaining in contact with Rainy Lake of the Woods Watershed District/MnDNR/MPCA. – Meeting with GSA staff brought GSA up-to-speed on the project and provided the opportunity to ask questions. GSA raised concerns about site lines and potential implications regarding landscape. – CEAA will review draft project description. Different permits and processes should be included in project description. – Decision to be made on whether a Federal EA needs to be completed. • Public Meeting #3: <ul style="list-style-type: none"> – Preferred alternative for alignment will be presented to the public for comments.
14	May 4, 2016	<ul style="list-style-type: none"> • Design Standards: <ul style="list-style-type: none"> – List of design criteria to be combined from different sources and will be sent to MTO/MnDOT for review. • Agency Coordination: <ul style="list-style-type: none"> – Meeting with City of Baudette to discuss park impacts and potential tree removal. De minimis approach will be used whenever possible. – Park may be open during construction, or may be used as a staging area for construction.
15	June 22, 2016	<ul style="list-style-type: none"> • Design Criteria: <ul style="list-style-type: none"> – Review of concrete, steel and decks within the MnDOT and MTO material requirements technical memorandum. • Border Delineation Package Ideas: <ul style="list-style-type: none"> – Three concepts will be presented to the PAC. • Geotechnical Permit Requirements: <ul style="list-style-type: none"> – USACE and MnDNR will not be issuing permits for the project, but will review EA and other documents as they are available.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

Table 20: Important Decisions Summary (TAC Meetings) (Continued)

TAC Meeting #	Date	Summary of Important Discussions
16	August 2, 2016	<ul style="list-style-type: none"> • Updates on Aesthetics/PAC <ul style="list-style-type: none"> – Aesthetics were reviewed with the PAC and recommendations will be carried into final design • Final Design Decision Discussion and Requirements • Operations and Maintenance Tech Memo Outline • Contractor Pre-Qualification and Coordination • Buy America Status • Upcoming Agency Webinar
17	September 14, 2016	<ul style="list-style-type: none"> • Final Design Status • Hydraulic Analysis Discussion • Bridge and Approach Lighting • Operations and Maintenance Tech Memo • Agency Coordination <ul style="list-style-type: none"> – Lighting standards and fixtures will be sent to MnDNR for review and sent to MnDOT Aeronautics – U.S. Army Corps of Engineers will be looking for hydraulic report and wetland impact memo • Webinar Summary • Update on Aesthetics • Buy America Status
18	October 27, 2016	<ul style="list-style-type: none"> • Final Design Process and Status • Update on the Contractor Information Guide • Update on Environmental Assessment Documents
19	December 8, 2016	<ul style="list-style-type: none"> • Bridge Aesthetics Discussion • Final Design Process and Status • Contractor Information Guide & Pre-Qualifications • Update on Environmental Assessment Documents • Preliminary Bridge Plans • Bridge Standard Items • Foundation Review/Report • Coast Guard Update • Operations and Maintenance Memo Review Update • Stormwater Management/Hydraulics
20	January 11, 2017	<ul style="list-style-type: none"> • Bridge Aesthetics Discussion • Final Design Process and Status • Contractor Pre-Qualification Update • Update on Environmental Assessment Documents • Update on Preliminary Bridge Plans • Construction Materials • Port of Entry Construction “Wish Lists” • Foundation Report Status • Coast Guard Update • Operations and Maintenance Memo Review Update • Stormwater Management/Hydraulics • Lighting Update

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

5.2.3 Facilitated Bridge Discussions

Facilitated Bridge Discussions (FBD) were used as part of the alternative development process to coordinate with specialized agency staff and allow the TAC meetings to focus on decision-making information. The FBD were attended by project team members; specifically, MnDOT, MTO, and consultant Bridge Engineers. To date, a total of 3 FBD meetings have been held. The important decisions from these meetings are outlined in Table 21 below.

Table 21: Important Discussions Summary (FBD)

FBD #	Date	Summary of Important Discussions
1	June 19, 2015	<ul style="list-style-type: none">The objective of the meeting was to define the alternative evaluation criteria:<ul style="list-style-type: none">Potential evaluation criteria presented included navigational clearance (vertical and horizontal), scour, aeronautical clearance, Peace Park (Section 4(f)) impacts, constructability, Ports of Entry operations, procurement and delivery method, equipment required, and cost.Bridge Engineer on the project team presented 12 Bridge Type Alternatives and narrowed this list to the 5 most feasible alternatives.
2	October 15, 2015	<ul style="list-style-type: none">The objective of the meeting was to present up to 5 alternatives.<ul style="list-style-type: none">The 5 alternatives from the alternative screening process (See Section 3.3.2 Evaluation of Bridge Type Alternatives) were presented so that a recommendation could be made at TAC 7 regarding which 2-3 alternatives would be moved into the alternative refinement phase.Guidance from the USCG and Transport Canada was discussed regarding navigational channel constraints on the bridge design.
3	January 20, 2016	<ul style="list-style-type: none">The objective of the meeting was to select 2-3 alternatives for additional evaluation.<ul style="list-style-type: none">Updates to the evaluation matrix were discussed which led to the:<ul style="list-style-type: none">elimination of Bridge Type Alternatives C, D, and E, anddevelopment of new evaluation criteria for Phase 3: Alternative Refinement for the remaining alternatives, Alternatives A and B.

5.2.4 Federal Highway Administration (FHWA)

In addition to participating in the PAC/TAC meetings, the FHWA has been actively engaged throughout the process to discuss ongoing federal considerations, share relevant information, and to ensure all Federal regulations and guidelines were appropriately accounted for and incorporated into the project development process.

5.2.5 Other Agency Coordination & Meetings:

5.2.5.1 U.S. Army Corps of Engineers

See Section 4.1.11 (Water Resources) regarding wetland delineation approval and permitting coordination.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

5.2.5.2 U.S. Customs and Border Protection

The U.S. Customs and Border Protection assisted the proposed project effort by participating in representative interviews and onsite inspections (see Section 4.1.12, Contamination/Hazardous Materials/Wastes), and providing traffic data. The U.S. Customs and Border Protection also actively participated in the TAC.

5.2.5.3 U.S. Coast Guard (USCG)

See Section 4.3.11 (Rainy River and Baudette River Navigational Traffic Impacts) for information on the November 13, 2015 meeting with USCG.

The project team also met with the USCG on November 16, 2016 to discuss the USCG Section 9 permit and its July 2016 update. As a result of this meeting, the USCG agreed to let the project team apply for the previous version of the Section 9 permit.

5.2.5.4 U.S. State Department

A tele-conference meeting with the U.S. State Department was held on February 23, 2016 to identify and discuss future agreements between the U.S. and Canada that would be needed to facilitate construction, operation, and maintenance of the proposed bridge.

The U.S. State Department is also coordinating with Global Affairs Canada to determine the need to pursue approval through the International Joint Commission (IFC).

5.2.5.5 City of Baudette

The City of Baudette is the official with jurisdiction over Peace Park. MnDOT and the City have discussed the proposed project's impacts to the Park and are currently coordinating the Section 4(f) De Minimis Impact Finding. See Section 4.1.14 (Historic Properties) and Section 4.3.6.2 (Additional Federal Issues – Section 4(f) Resources – Peace Park).

5.2.5.6 The State of Minnesota Historic Preservation Office (MnHPO)

See Section 4.1.14 (Historic Properties).

5.2.5.7 Federal Aviation Administration (FAA)

See Section 4.3.10 (Aviation).

5.2.5.8 Tribal Coordination

On behalf of FHWA's Section 106 review process, MnDOT contacted Tribal Representatives to determine whether the proposed project would have any historical, cultural, and/or archaeological impact. As a result, it was determined that there are no native tribes associated with the U.S. side of the project.

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

5.2.5.9 International Joint Commission (IJC)

The Project falls under the *International Boundary Waters Treaty Act* which is internationally administered by the International Joint Commission (IJC). The Act is intended, in part, to address disputes regarding water quality and quantity in boundary waters. The governments of Canada and the U.S. have a mutual obligation with respect to implementing the Act. Through meetings and correspondence, a Special Agreement between governments will be prepared to cover all of the potential effects and mitigation of changes to levels and flow of the Rainy River as a result of the project and construction. This Special Agreement would circumvent the IJC review process and no further approvals would be required from the IJC.

5.2.5.10 International Boundary Commission (IBC)

Through discussions with officials of the International Boundary Commission (IBC), it was determined that authorization and approval from the IBC is required for work within 10 feet (3 m) of the border and a construction permit application will be submitted to the IBC during the Detail Design stage of this Project.

5.2.5.11 MnDNR

See Section 4.1.13 (Fish/Wildlife/Ecological Resources) and Section 4.3.13 (Federal Threatened and Endangered Species).

5.2.5.12 Baudette City Council

5.2.5.13 Emergency Service Providers (Both Rainy River and Baudette)

Emergency service providers and agencies will be notified of start of Detail Design (i.e., staging etc.) and construction phases to minimize impacts to emergency response times during and after construction. Providers and agencies to be contacted include local police and fire departments, emergency medical personnel (i.e., ambulances and Baudette Regional Airport for medical airlift support), and local hospitals.

5.3 EXTERNAL AGENCY COORDINATION

5.3.1 International Stakeholder Webinar #1

International Stakeholder Webinar (ISW) 1 was held on Thursday, December 10, 2015. The purpose of the ISW 1 was to:

- Introduce the project to key stakeholders and agencies;
- Review project bridge and alignment alternatives;
- Discuss status of U.S. and Canadian permits and approvals; and,
- Provide an opportunity for agencies to provide input to the study and for interagency discussion.

5.3.2 International Stakeholder Webinar #2

ISW 2 was held on Wednesday, March 2, 2016. The purpose of ISW 2 was to:

- Provide an update of project bridge and alignment alternatives;
- Review the evaluation of alternatives and tentatively preferred alternatives;
- Discuss status of U.S. and Canadian permits and approvals; and,
- Provide an opportunity for agencies to provide input to the study and for interagency discussion.

5.3.3 International Stakeholder Webinar #3

ISW 3 was held on Thursday, August 11, 2016. The purpose of ISW 3 was to:

- Provide project updates to key stakeholders and agencies;
- Clarify U.S. and Canadian permits and approval requirement; and,
- Provide an opportunity for agencies to provide input to the study and for interagency discussion.

5.4 PUBLIC PARTICIPATION

5.4.1 Public Involvement Meeting #1

Public Involvement Meeting 1 (PIM1) was held on June 24, 2015 in the Lake of the Woods Ambulance Garage. The purpose of the PIM was to:

- Display and seek input on the existing conditions in the project area (i.e. natural, social, economic, and cultural);
- Provide study background information; and
- Answer questions about the project and the study.

The PIM was held in an Open House format. Representatives of the project team were available to discuss the study, answer questions, and receive input on the study. Attendees included representatives from Lake of the Woods County, MnDOT, Northern Light Region newspaper, the Mayor of Baudette, and private citizens. Items discussed at PIM1 included:

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

- Welcome
- Introduction
- Coordination
- Study Process
- Background
- Need for the Project
- Existing Conditions
- Evaluation Process
- Investigations
- Your Input is Important

Two comment forms were received after the meeting, discussing bridge aesthetic concerns, impacts to local businesses, and impacts to traffic using the bridge.

5.4.2 Public Involvement Meeting #2

Public Involvement Meeting 2 (PIM2) was held on Wednesday, October 28, 2015 in the Lake of the Woods Ambulance Garage. The purpose of the PIM was to:

- Provide an opportunity to review the preliminary evaluation criteria;
- Provide an opportunity to review preliminary alignment and structure alternatives;
- Provide comments; and,
- Address questions or concerns directly with representatives of the project team.

Items discussed at PIM2 included:

- Welcome
- Objectives
- Background
- Study Process
- Coordination
- Need and Justification
- Alignment Alternative 1
- Alignment Alternative 2
- Alignment Alternative 3
- Bridge Alternatives
- Existing Conditions
- Investigations
- Preliminary Evaluation Criteria
- Your input is important

One comment form was received after the meeting, discussing bridge alignment and structure alternative preferences.

5.4.3 Public Involvement Meeting #3

The third Public Meeting was held on Wednesday, May 25, 2016 at the Lake of the Woods Ambulance Garage. The purpose of Public Meeting 3 (PIM3) was to:

- Display and seek input on the Preferred Plan;
- Present and seek input on the results of the evaluation of alternatives; and
- Answer questions about the study.

The Public Meeting was advertised in the Northern Light Region newspaper on Wednesday, May 18, 2016. In addition, notification letters were mailed to external agencies, stakeholders, impacted property owners and the general public on Friday, May 20, 2016.

The following information was displayed at the Public Meeting:

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Public and Agency Involvement (and Permits/Approvals)

- Welcome
- Objectives
- Background
- Study Process
- Coordination
- Need and Justification
- Existing Conditions
- Alignment Alternatives Evaluation
- Bridge Alternatives Evaluation
- Investigation
- Preferred Plan
- Preferred Plan Visualizations
- Historic Bridge Construction and Proposed Video
- Mitigation and Protection Commitments
- Your input is Important

Two comments were received after the meeting discussing preferences over bridge aesthetic, international boundary monument, and bridge lookout.

5.5 ONGOING COMMUNICATION

5.5.1 Website

A project website was established and maintained on the MnDOT website, located here: (www.dot.state.mn.us/baudette-bridge). Website materials include a project overview and schedule, updated status reports, maps, graphics, design concepts, PAC/TAC meeting notes and presentations, opportunities for public comment, and other elements as appropriate to build understanding of the proposed project. MTO, the City of Baudette and the Town of Rainy River also have webpages about the project on their home sites, which links to the MnDOT website.

5.5.2 Newsletters, Project Updates, and Fact Sheets

Project updates in the form of e-newsletters, printed newsletters and flyers, and fact sheets were provided to key stakeholders, the media, and general public. Newsletters were made available through the project website, the PIC/PIM meetings, PAC/TAC members, and other public locations where they could be posted for viewing. Mailings were sent to local residents and business owners which included detailed project updates and upcoming public meeting information.

These documents informed stakeholders about the project needs and goals, kept stakeholders apprised of new information and milestones, announced upcoming project meetings and events, and shared project conclusions and decisions.

5.6 PERMITS AND APPROVAL REQUIREMENTS

See Section 4.1.8 (Permits and Approvals Required).

5.7 PUBLIC COMMENT PERIOD AND PUBLIC HEARING

Comments from the public and agencies affected by this project are requested during the public comment period described on the transmittal letter distributing this Environmental Assessment. A combined public informational meeting/public hearing will be held after this Environmental Assessment has been distributed to the public and to the required and interested federal, Native American Tribes, state, and local agencies for their review.

At the informational meeting/public hearing, preliminary design layouts for the alternatives under consideration along with other project documentation will be available for public review. The public will also be given the opportunity to express their comments, ideas, and concerns about the proposed project. These comments will be received at the hearing and during the remainder of the comment period, and will become a part of the official hearing record.

5.8 REPORT DISTRIBUTION

Copy(ies) of this document have been sent to agencies, local government units, libraries, and others as per Minnesota Rule 4410.1500 (Publication and Distribution of an EAW).

5.9 PROCESS BEYOND THE HEARING

Following the comment period, MnDOT and the FHWA will make a determination as to the adequacy of the environmental documentation. If further documentation is necessary it could be accomplished by preparing an Environmental Impact Statement (EIS), by revising the Environmental Assessment, or clarification in the Findings of Fact and Conclusion, whichever is appropriate.

When the environmental documentation is determined adequate, MnDOT will choose a project alternative, either the No Build or one of the alternatives under consideration.

If an EIS is not necessary, MnDOT will prepare a "Negative Declaration" for the state environmental requirements. MnDOT will also prepare a request for a "Finding of No Significant Impacts" (FONSI) that will be submitted to the FHWA. If the FHWA agrees that this finding is appropriate, it will issue a FONSI.

Notices of the federal and state decisions and availability of the above documents will be placed in the Federal Register and the Minnesota Environmental Quality Boards (MEQB) Monitor. MnDOT will also distribute the Negative Declaration and FONSI to the Environmental Assessment Worksheet (EAW) distribution list.

APPENDICES

Appendix A– FIGURES

Figure 9: Location Options Overview

Figure 10: Alignment Alternative 1 (Downstream of Existing Alignment)

Figure 11: Alignment Alternative 2 (Upstream of Existing Alignment)

Figure 12: Alignment Alternative 3 (Same Location Alignment as Existing)

Figure 13: Bridge Type Example Photos

Figure 14: Alternative A1 Plans – Continuous Steel I-Girder, 5 Spans

Figure 15: Bridge Type Alternative Selection Flow Chart

Figure 16: Preferred Alternative – United States Approach Plan

Figure 17: Preferred Alternative – Canada Approach Plan

Figure 18: Preferred Alternative – Plan and Profile

Figure 19: Preferred Alternative – Typical Sections

Figure 20: Flood Zones

Figure 21: Soils Map (USCS)

Figure 22: Depth to Bedrock (MGS)

Figure 23: Bedrock Elevation (MGS)

Figure 24: Public Waters

Figure 25: Impaired Waters

Figure 26: Wetland Location Map

Figure 27: Aquatic Impacts

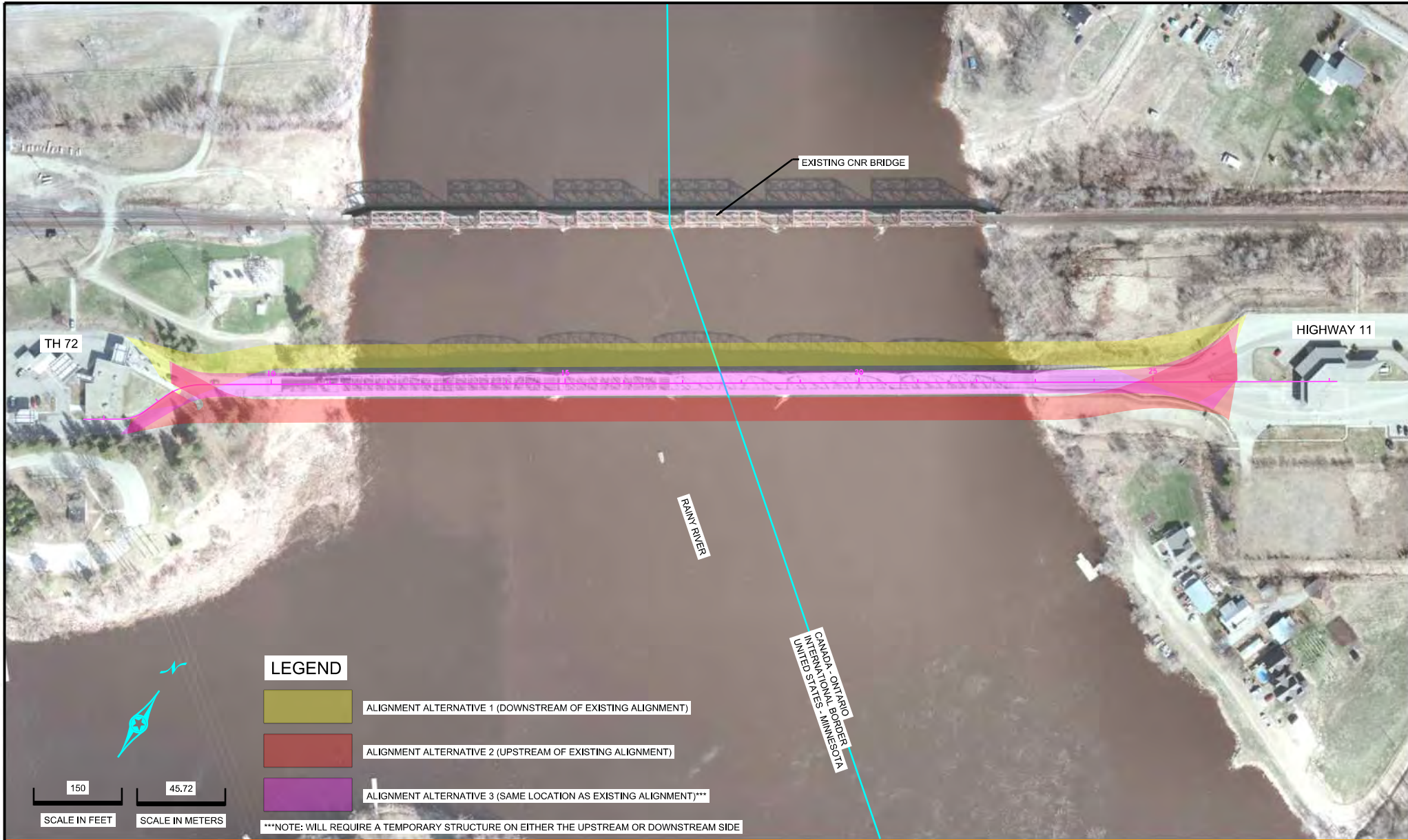
- Figure 27A – Aquatic Impacts – USACE Section 404
- Figure 27B – Aquatic Impacts – MnDNR Protected Waters & WCA

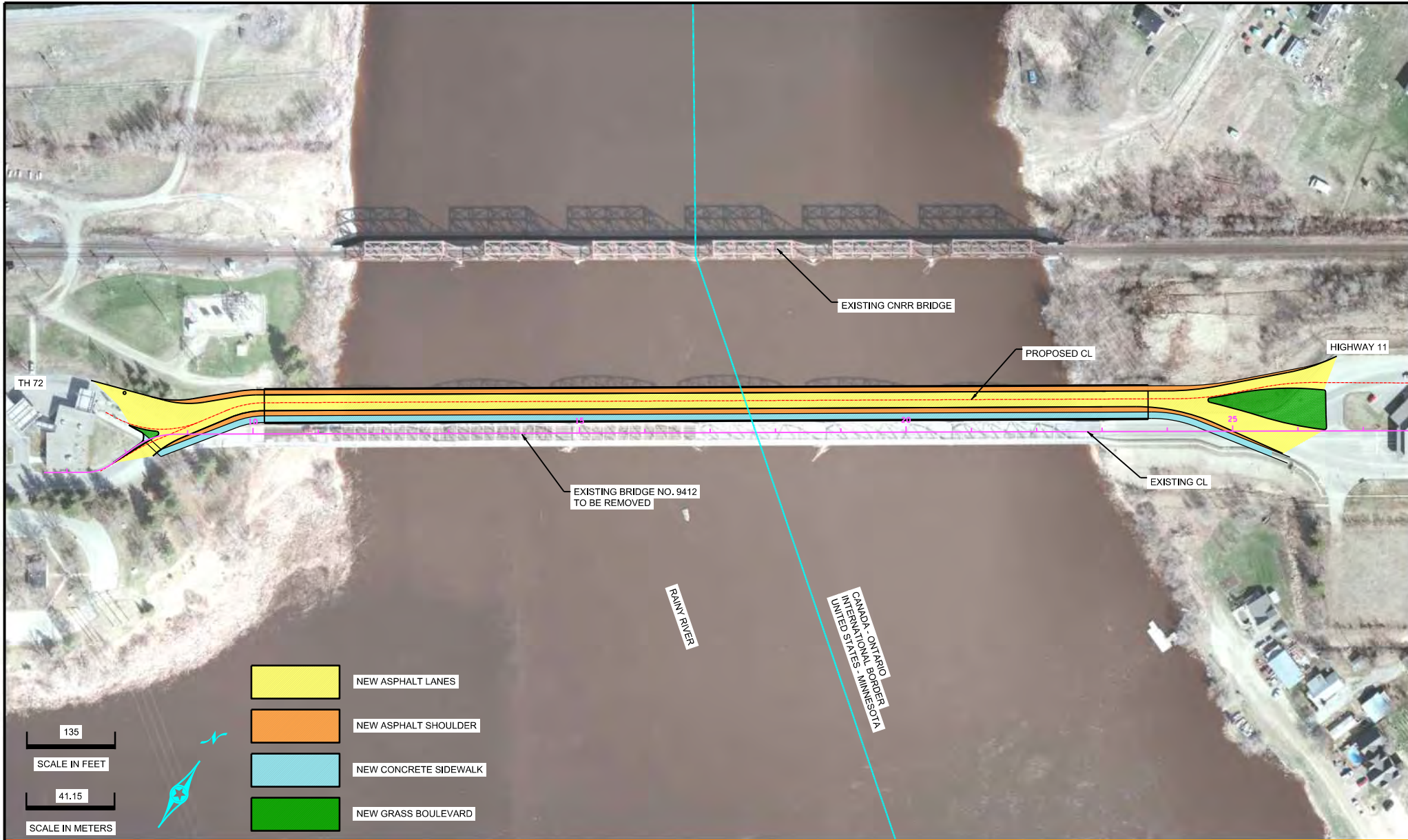
Figure 28: Land Cover Types (NLCD 2011)

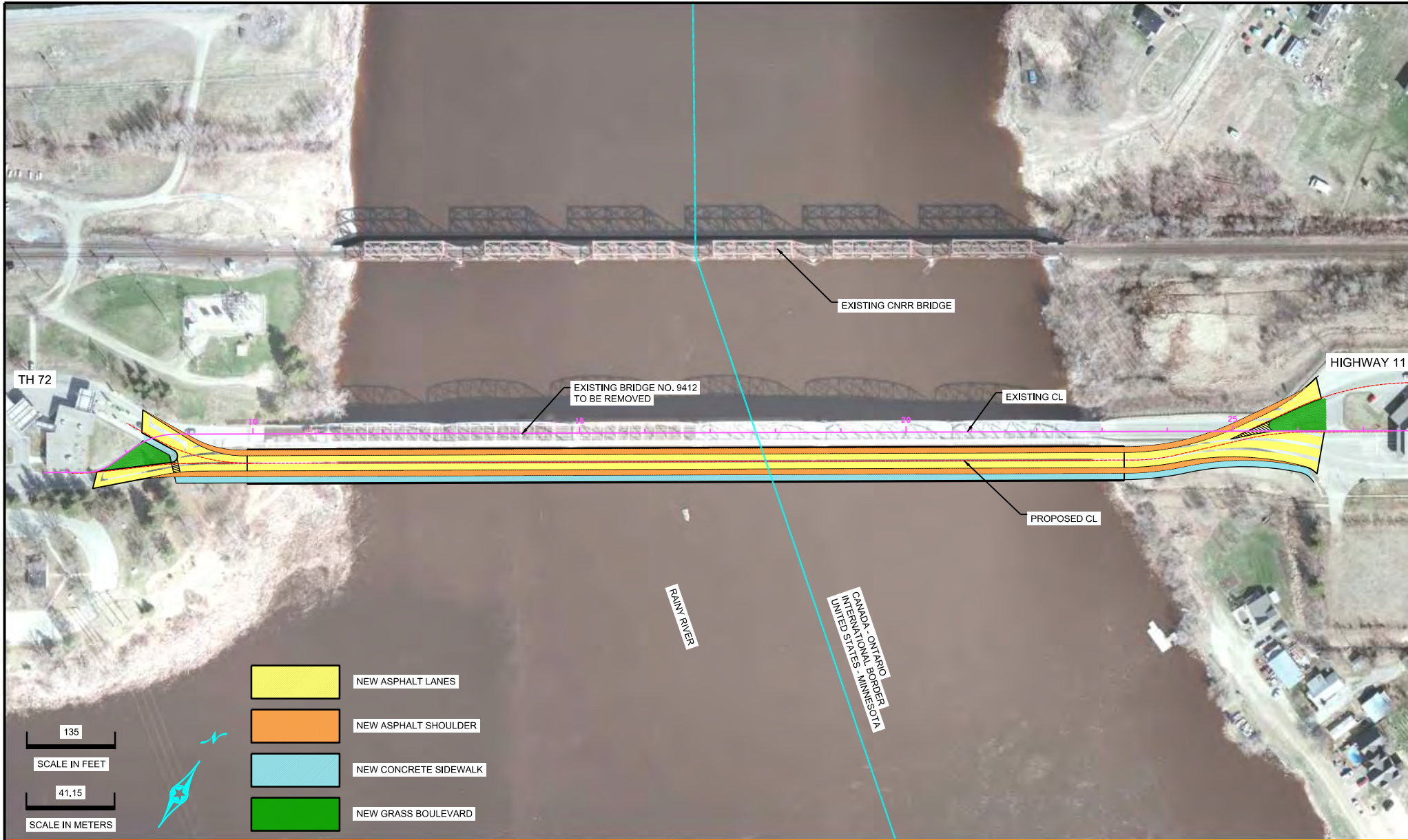
Figure 29: Peace Park – 4(f) Impacts

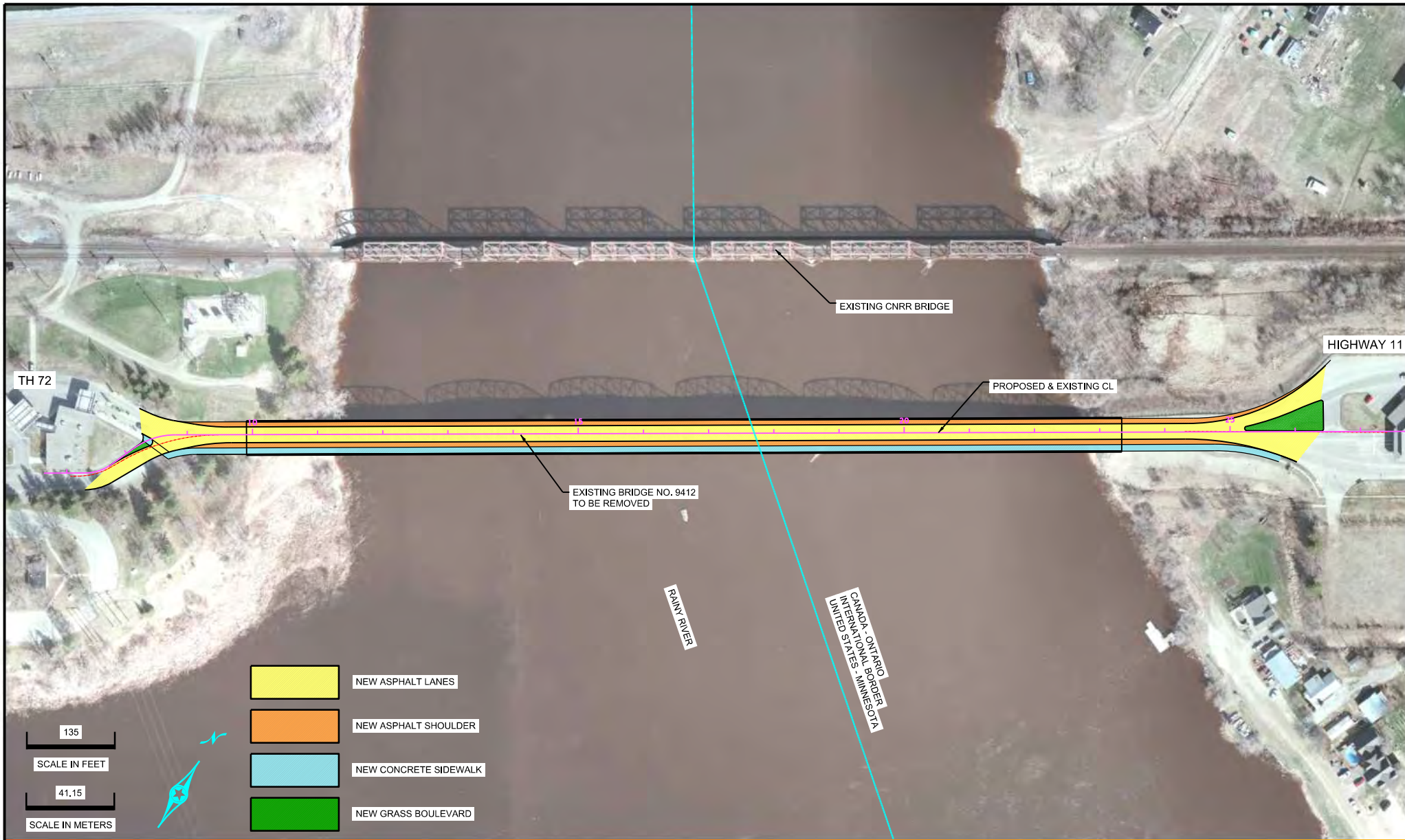
Figure 30: Right of Way Map

Figure 31: Environmental Justice Study Area









MINNESOTA DEPARTMENT OF TRANSPORTATION AND MINISTRY OF TRANSPORTATION ONTARIO
 BAUDETTE/RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT
 ALIGNMENT ALTERNATIVE 3 (SAME LOCATION ALIGNMENT AS EXISTING)

FIGURE 12

DATE: 05/04/2016

PROJ. NO. 193802870



Camden Bridge, Minneapolis, MN

Characteristics:

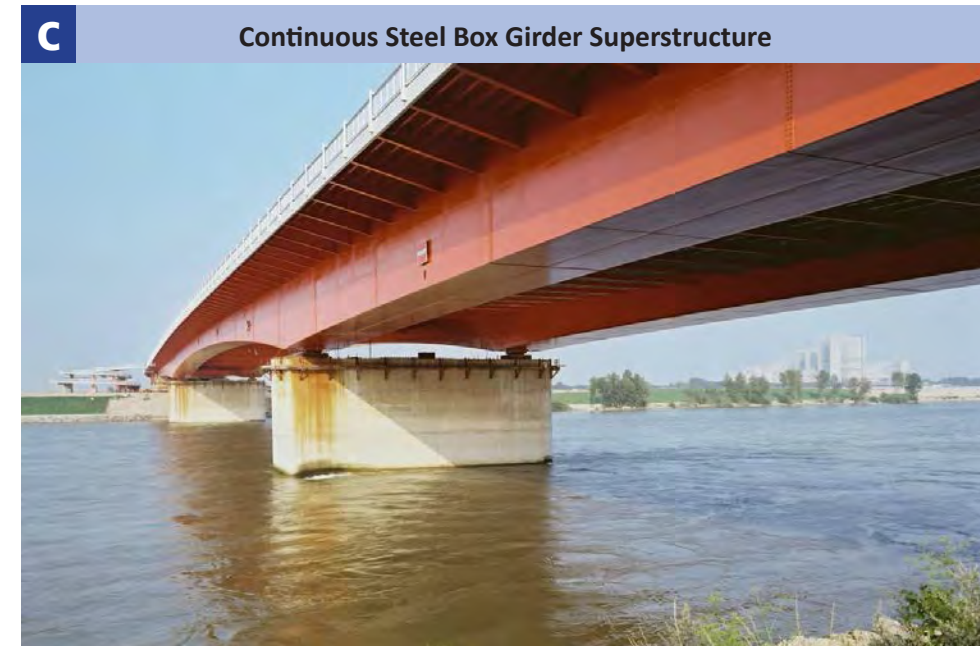
- a. Structural elements below deck require a higher roadway elevation
- b. Structure type is common in Minnesota and Ontario
- c. Construction can be performed using common techniques



Belleair Beach Causeway Bridge, Belleair Beach, FL

Characteristics:

- a. Structural elements below deck require a higher roadway elevation
- b. Structure type is common in Minnesota and Ontario and standardized shapes exist
- c. Construction can be performed using common techniques



Brigittenauer Bridge in Vienna Austria built 1982

Characteristics:

- a. Structural elements below deck require a higher roadway elevation
- b. Shape allows for construction of longer spans
- c. Construction can be performed using common techniques



I-35W Saint Anthony Falls Bridge, Minneapolis, MN

Characteristics:

- a. Structural elements below deck require a higher roadway elevation
- b. Shape allows for construction of longer spans
- c. May require a specialty contractor to construct and/or inspect

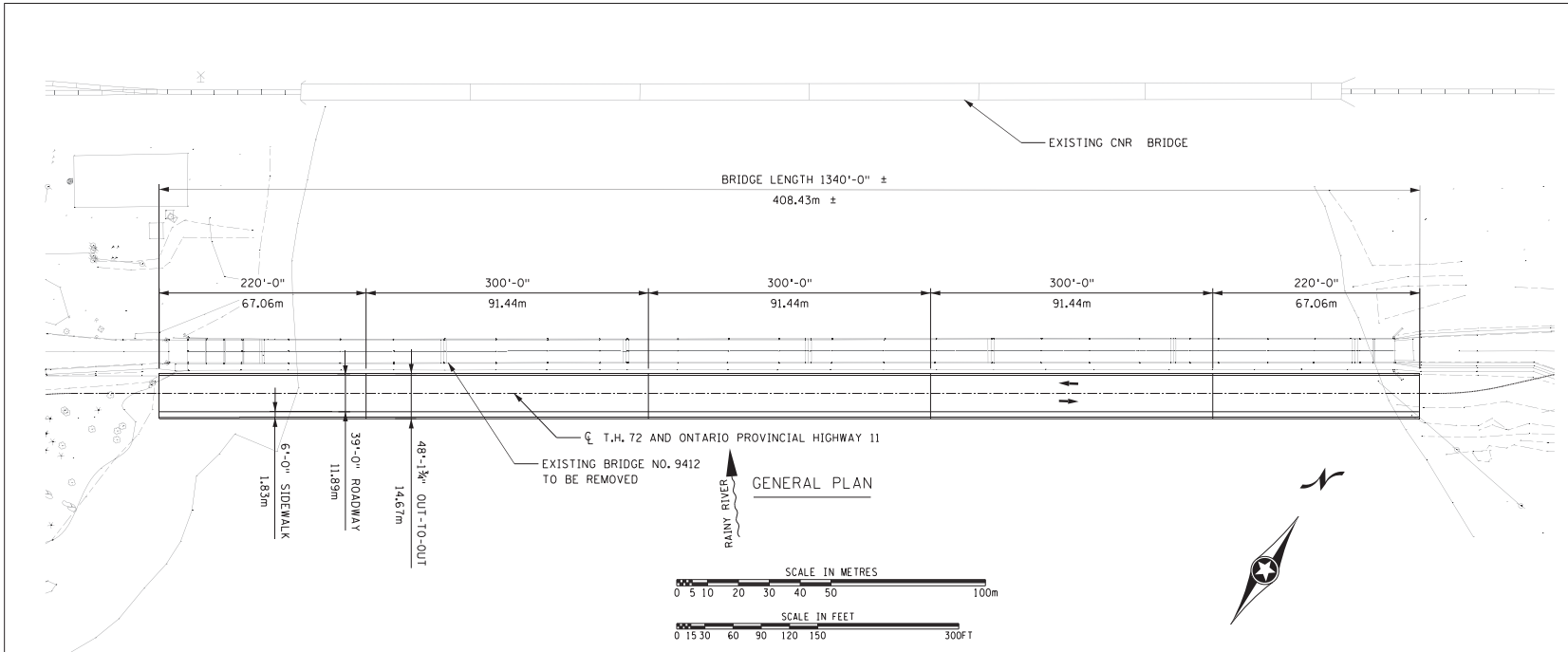


Blennerhassett Bridge, Belpre, OH & Parkersburg, WV

Characteristics:

- a. Structural elements above deck allow for a lower roadway elevation
- b. May result in the most piers in the river
- c. May require a specialty contractor to construct and/or inspect

BRIDGE TYPE EXAMPLE PHOTOS



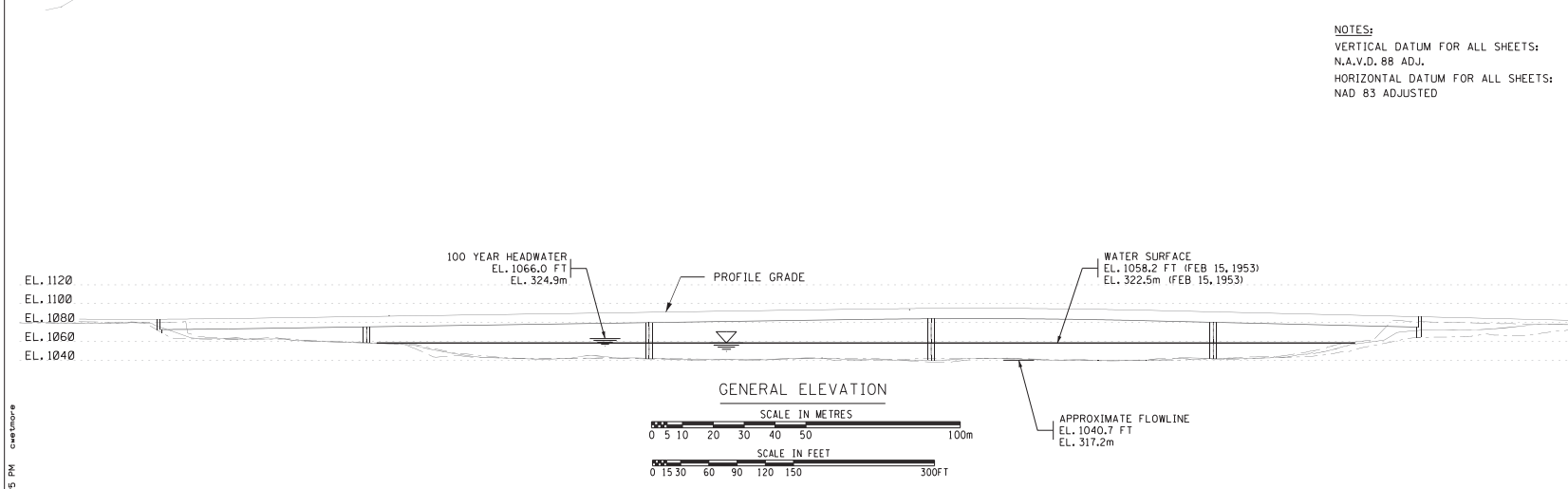
DESIGN DATA	
2014 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS CHBDC 2006 (CAN/CSA S6-06)	
LOAD AND RESISTANCE FACTOR DESIGN METHOD HL93 LIVE LOAD (CL-625-ONT LIVE LOAD)	
DEAD LOAD INCLUDES 20 PSF (1.0 KN PER SQ. METRE) ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS	
MATERIAL DESIGN PROPERTIES*:	
REINFORCED CONCRETE:	n = 8
f _c = 4 KSI OR 30 MPA	f _y = 60 KSI OR 400 MPA REINFORCEMENT
PRESTRESSED CONCRETE:	n = 1
f _c = 9 KSI OR 60 MPA	f _{pu} = 270 KSI OR 1,860 MPA LOW RELAXATION STRANDS 0.75 f _{pu} FOR INITIAL PRESTRESS
STRUCTURAL STEEL:	
f _y = 50 KSI OR 350 MPA SPEC 3309 (PAINTED)	
DESIGN SPEED:	
OVER = 35 MPH (56 KPH)	
APPROXIMATE DECK AREA 64,515 SQ FT (5,994 SQ METRES)	

2038 PROJECTED TRAFFIC VOLUMES	
ROADWAY OVER	
1,450	A.D.T.
287	D.H.V.
109	A.D.T.T.

LIST OF SHEETS	
SHEET NO.	DESCRIPTION
1	GPE (PRISMATIC)
2	GPE (HAUNCHED)
3	TYPICAL BRIDGE CROSS SECTION
4	BEAM ELEVATION
5	NAVIGATION SPAN
6	PIER DETAILS

* U.S. CUSTOMARY AND METRIC MATERIAL PROPERTIES PROVIDED. DESIGN SHALL ALLOW FOR EITHER MATERIAL

PROPOSED TYPE OF STRUCTURE	
DECK:	
109" (2,77m) STEEL PLATE GIRDER	
10 1/4" (260mm) CONCRETE DECK	
SUBSTRUCTURE:	
PARAPET ABUTMENTS SUPPORTED ON XXX CONCRETE PIERS SUPPORTED ON XXX	



NOTES:
VERTICAL DATUM FOR ALL SHEETS: N.A.V.D. 88 ADJ.
HORIZONTAL DATUM FOR ALL SHEETS: NAD 83 ADJUSTED

EXISTING GROUND PROFILE	
20' LT. - - - - -	
℄ T.H. 72 - - - - -	
20' RT. - - - - -	

DEPTH OF STRUCTURE:	
10'-8 3/4" (3.27m) GUTTER TO LOW BRIDGE	
109" (2,77m) STEEL PLATE GIRDER	
4 LINES	



MINNESOTA DEPARTMENT OF TRANSPORTATION
MINISTRY OF TRANSPORTATION - ONTARIO

NEW RAINY RIVER INTERNATIONAL CROSSING

RAINY RIVER UNDER T.H. 72/ ONTARIO PROVINCIAL HIGHWAY 11

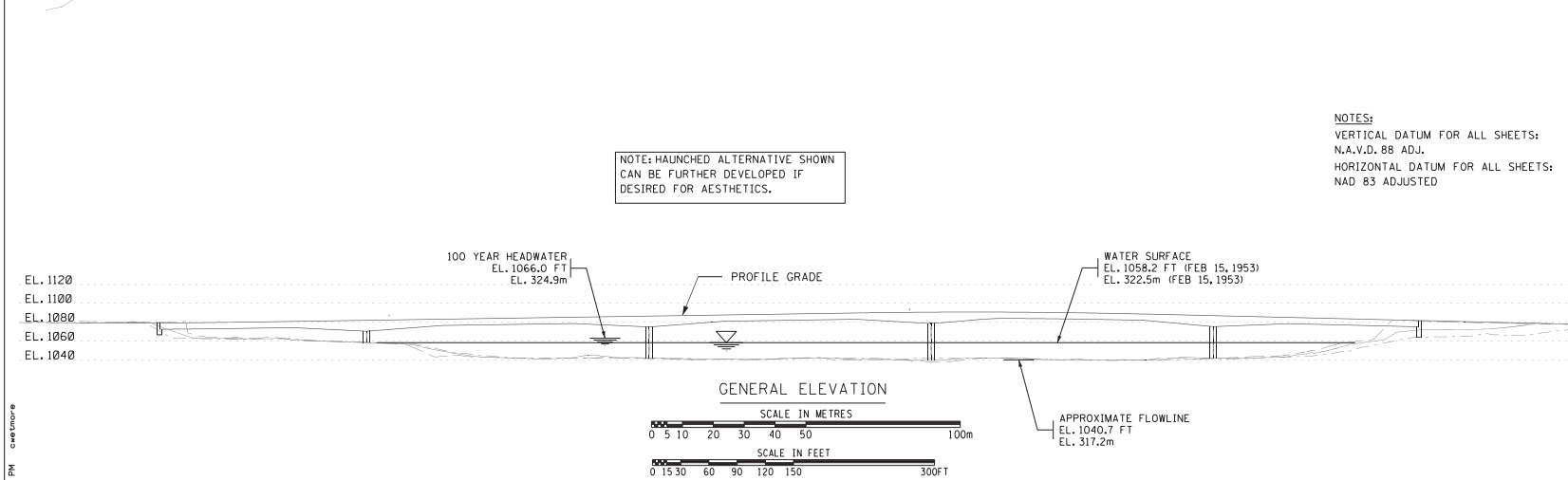
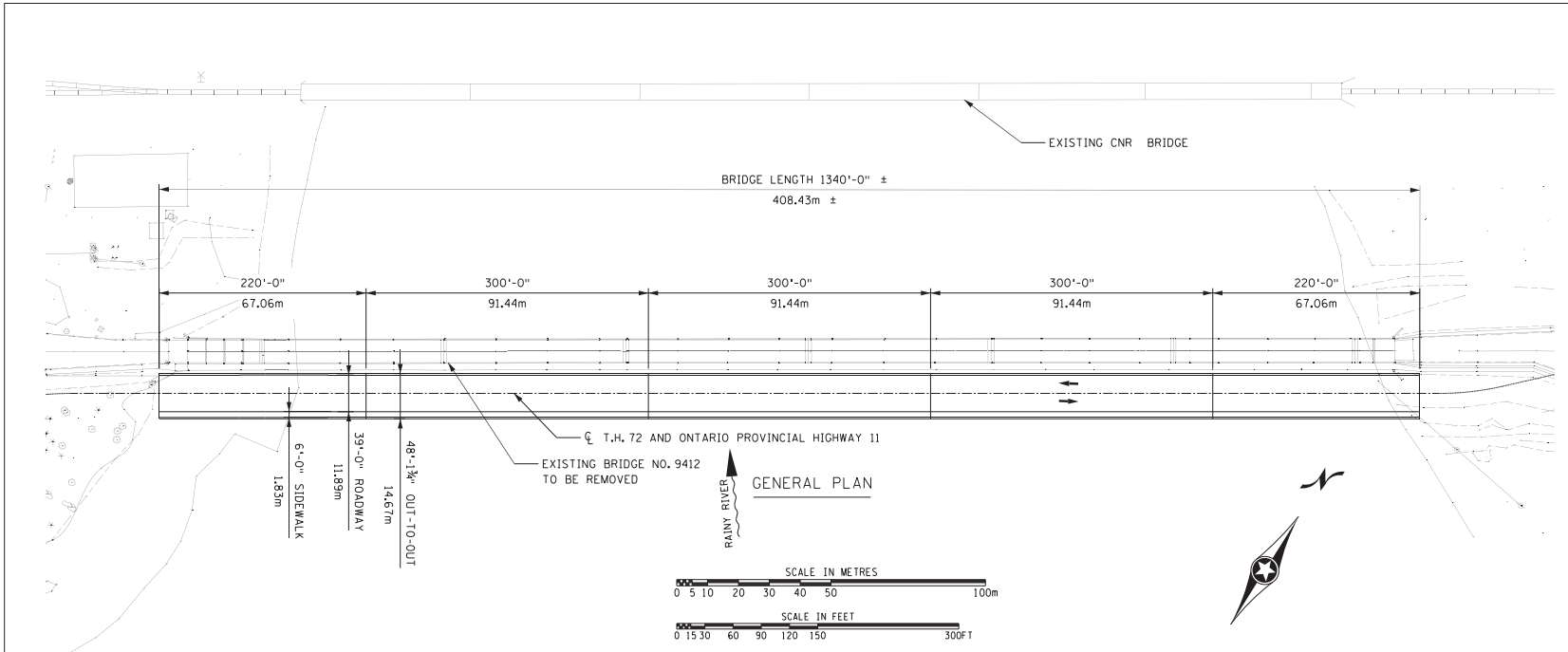
MTO SITE 45-110
STATE PROJECT NO. 3905-09

ALTERNATE A1
CONTINUOUS STEEL I-GIRDER
5 SPANS

FIGURE 14 - SHEET NO. 1 OF 6 SHEETS

MX CTW
TFK AJN

2/19/2016 2:21:25 PM c:\est\more



EXISTING GROUND PROFILE		DEPTH OF STRUCTURE:	
20' LT.	-----	13'-1 1/2" (4.00m)	GUTTER TO LOW BRIDGE
CL T.H. 72	-----	80" (2.03m) TO 140" (3.56m)	VARIABLE DEPTH WELDED STEEL PLATE GIRDER 4 LINES
20' RT.	-----		

NOTE: HAUNCHED ALTERNATIVE SHOWN CAN BE FURTHER DEVELOPED IF DESIRED FOR AESTHETICS.

NOTES:
VERTICAL DATUM FOR ALL SHEETS: N.A.V.D. 88 ADJ.
HORIZONTAL DATUM FOR ALL SHEETS: NAD 83 ADJUSTED

DESIGN DATA

2014 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS CHBDC 2006 (CAN/CSA S6-06)

LOAD AND RESISTANCE FACTOR DESIGN METHOD HL93 LIVE LOAD (CL-625-ONT LIVE LOAD)

DEAD LOAD INCLUDES 20 PSF (1.0 KN PER SQ. METRE) ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES*
REINFORCED CONCRETE:
f_c = 4 KSI OR 30 MPA n = 8
f_y = 60 KSI OR 400 MPA REINFORCEMENT

PRESTRESSED CONCRETE:
f_c = 9 KSI OR 60 MPA n = 1
f_{pu} = 270 KSI OR 1,860 MPA LOW RELAXATION STRANDS 0.75 f_{pu} FOR INITIAL PRESTRESS

STRUCTURAL STEEL:
f_y = 50 KSI OR 350 MPA SPEC 3309 (PAINTED)

DESIGN SPEED:
OVER = 35 MPH (56 KPH)

APPROXIMATE DECK AREA 64,515 SQ FT (5,994 SQ METRES)

2038 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER	
1,450	A.D.T.
287	D.H.V.
109	A.D.T.T.

LIST OF SHEETS

SHEET NO.	DESCRIPTION
1	GPE (PRISMATIC)
2	GPE (HAUNCHED)
3	TYPICAL BRIDGE CROSS SECTION
4	BEAM ELEVATION
5	NAVIGATION SPAN
6	PIER DETAILS

* U.S. CUSTOMARY AND METRIC MATERIAL PROPERTIES PROVIDED. DESIGN SHALL ALLOW FOR EITHER MATERIAL

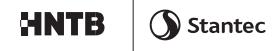
PROPOSED TYPE OF STRUCTURE

DECK:
VARIABLE DEPTH STEEL PLATE GIRDER
10/4" (260mm) CONCRETE DECK

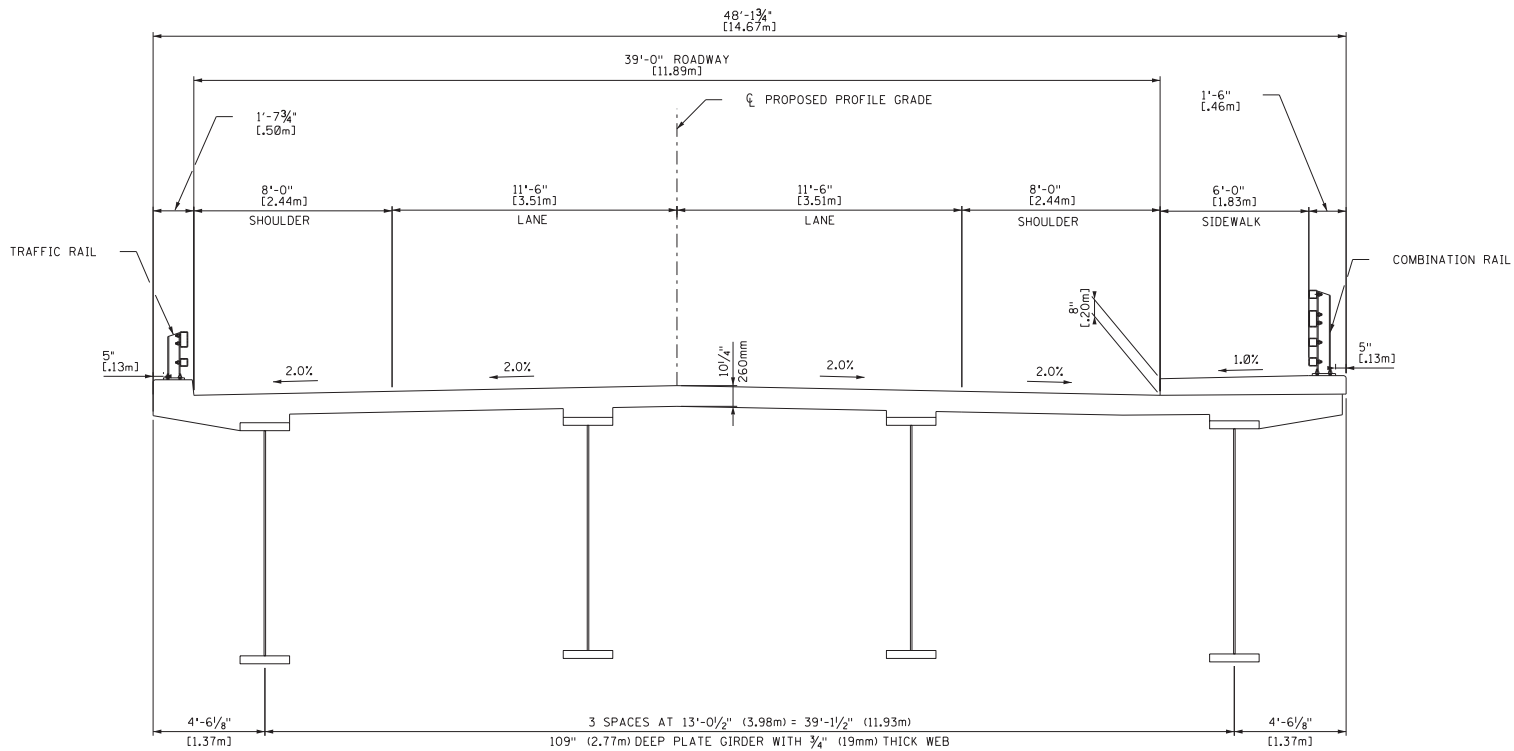
SUBSTRUCTURE:
PARAPET ABUTMENTS SUPPORTED ON XXX
CONCRETE PIERS SUPPORTED ON XXX

MINNESOTA DEPARTMENT OF TRANSPORTATION
MINISTRY OF TRANSPORTATION - ONTARIO

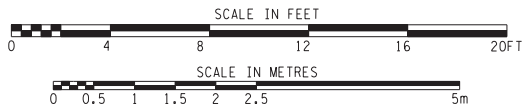
NEW RAINY RIVER INTERNATIONAL CROSSING
RAINY RIVER UNDER T.H. 72/ ONTARIO PROVINCIAL HIGHWAY 11
MTO SITE 45-110
STATE PROJECT NO. 3905-09
ALTERNATE A1.2
CONTINUOUS STEEL I-GIRDER
5 SPANS



2/19/2016 2:21:38 PM c:\estmore



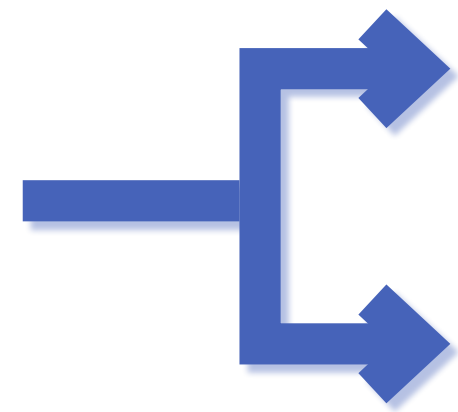
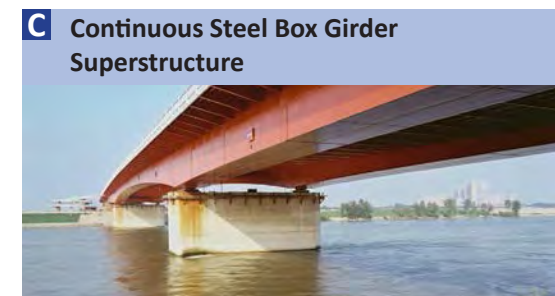
TRANSVERSE SECTION



2/19/2016 2:21:52 PM c:\w\p\p

TYPICAL BRIDGE CROSS SECTION		DR: CTW	CHK: AJN	NEW RAINY RIVER
SHEET NO. 3 OF 6 SHEETS			INTERNATIONAL CROSSING	

A wide range of initial bridge structure types were selected for review.
 A preliminary analysis determined 5 alternatives to carry forward.



Reasons Not Carried Forward:

- a. Has minimal advantages over the continuous steel I-girder alternative
- b. Higher design complexity
- c. Increased construction risk

Reasons Not Carried Forward:

- a. Deepest structure depth, resulting in increased grades and reduced sight distance on bridge compared to other alternatives
- b. Higher design complexity
- c. Specialized construction/increased construction risk

Reasons Not Carried Forward:

- a. Reduced sight distance compared to other alternatives
- b. Requires the most piers in the water compared to other structures, increasing risk in construction and environmental impacts
- c. Increased complexity in design and maintenance



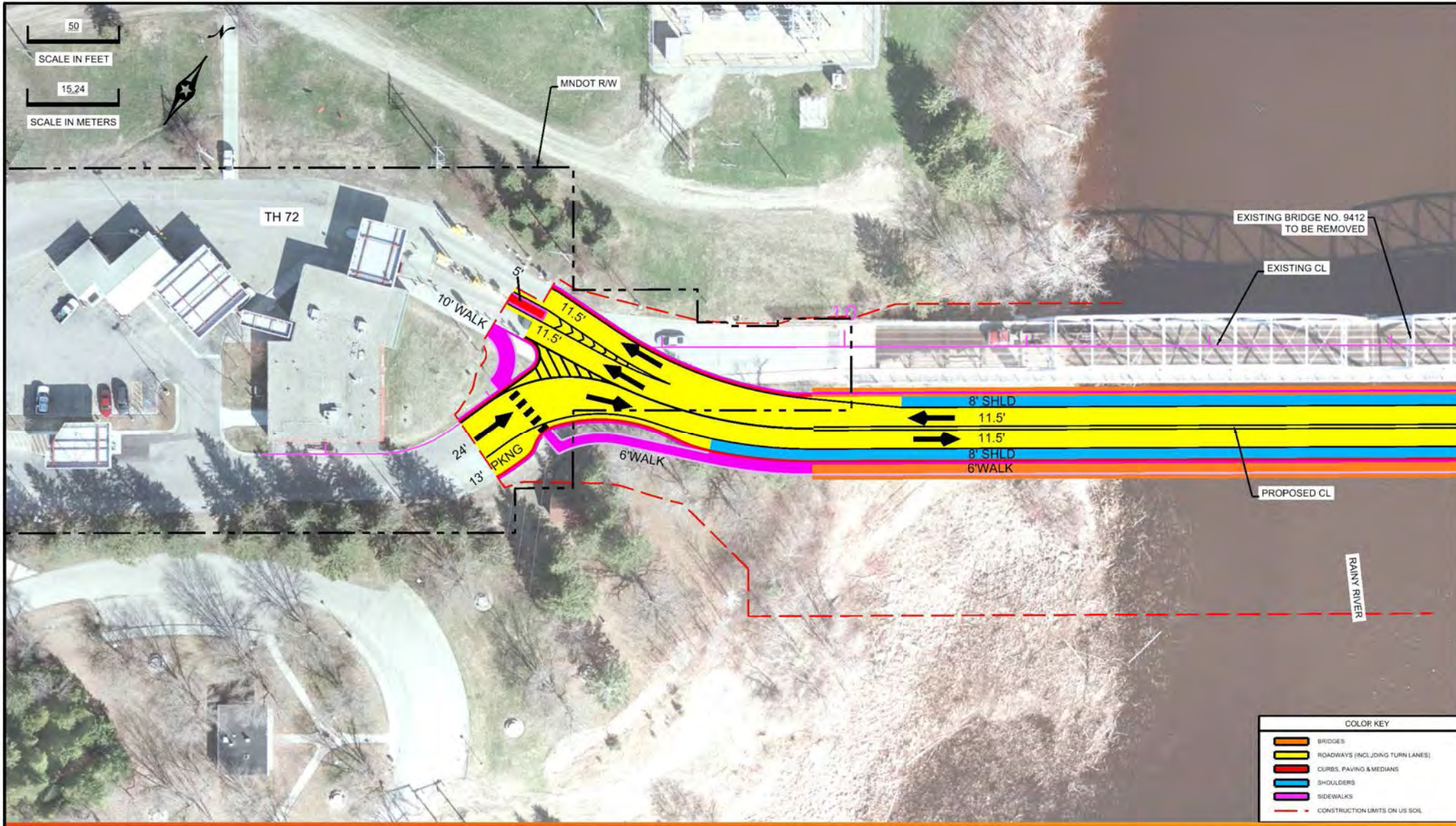
Reasons Not Carried Forward:

- a. Increased construction complexity and risk compared to 5 span alternative
- b. Would likely require eight temporary structures to support bridge segments during construction, compared to four segments with the 5 span alternative
- c. The location of temporary structures would greatly reduce the navigational opening below the bridge during construction

Reasons Not Carried Forward:

- a. Required the most substructures of remaining alternatives
- b. Could limit the number of potential fabricators because of long beams required for structure

BRIDGE TYPE ALTERNATIVE SELECTION FLOW CHART



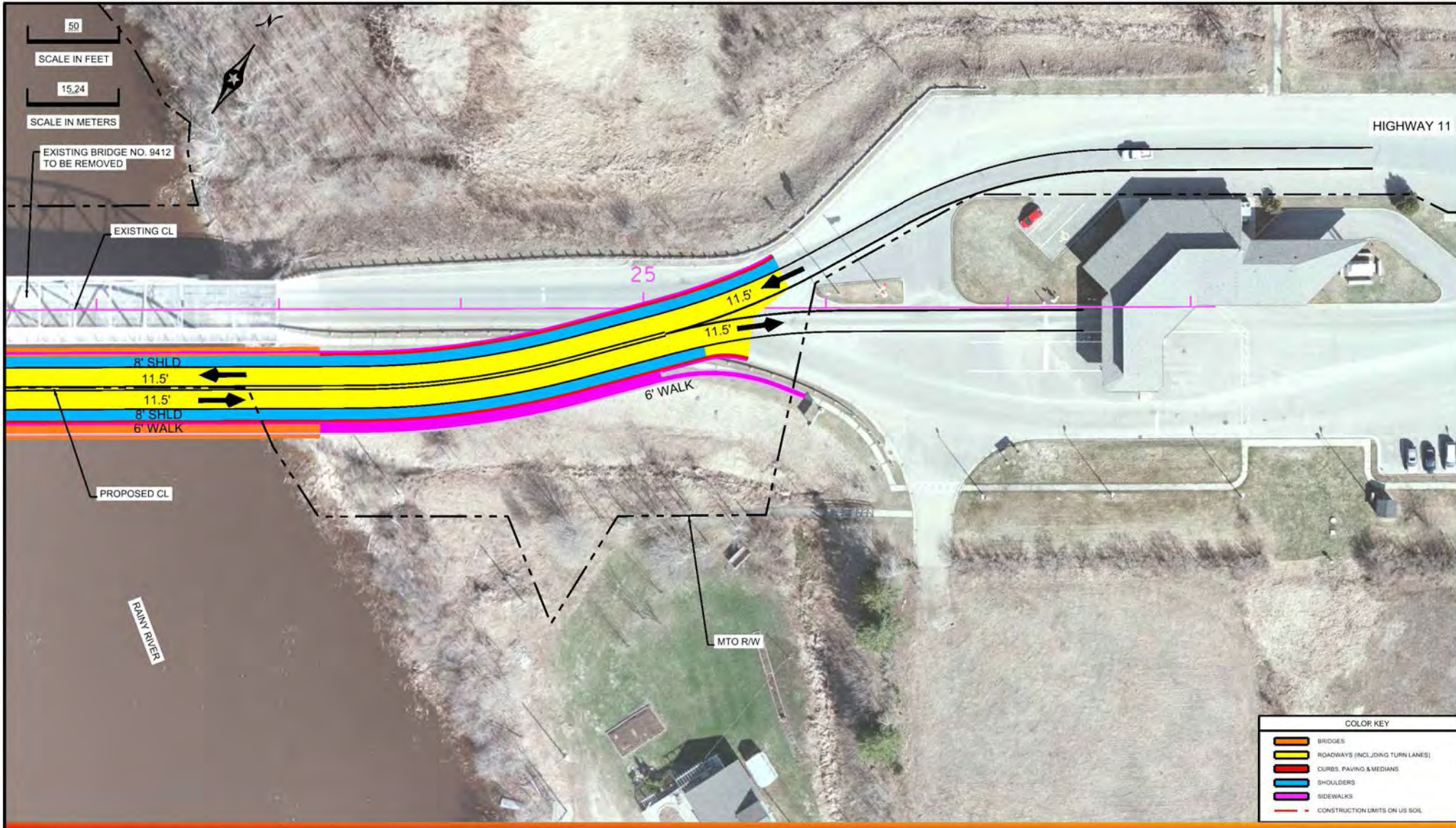
PREFERRED ALTERNATIVE - UNITED STATES APPROACH PLAN

FIGURE 16

MINNESOTA DEPARTMENT OF TRANSPORTATION AND MINISTRY OF TRANSPORTATION ONTARIO
BAUDETTE/RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT

DATE: 01/09/2017

PROJ. NO. 193802870



PREFERRED ALTERNATIVE - CANADA APPROACH PLAN

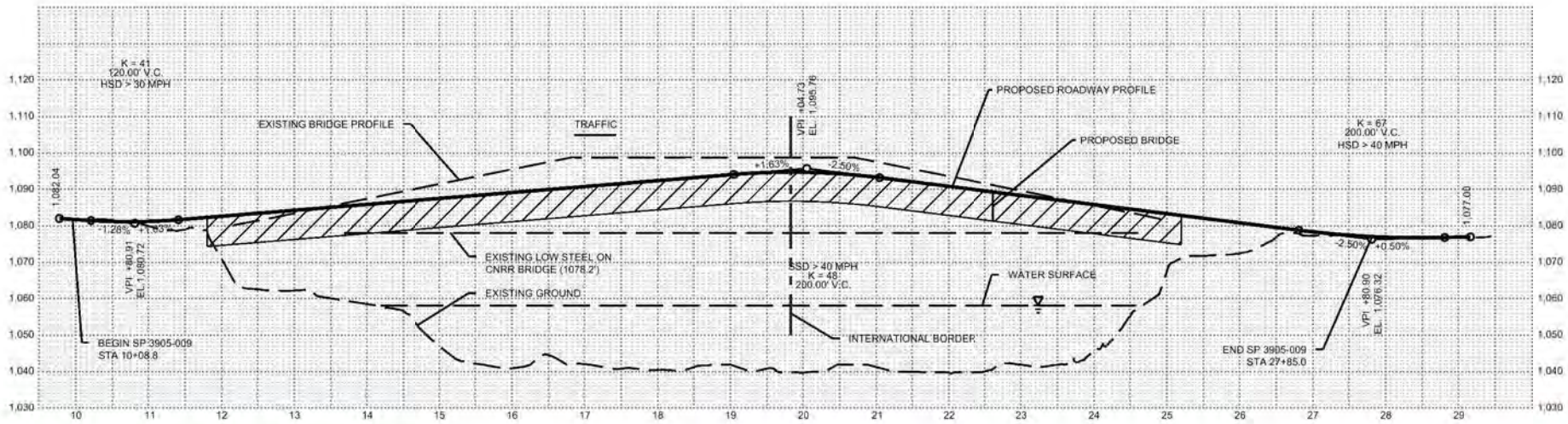
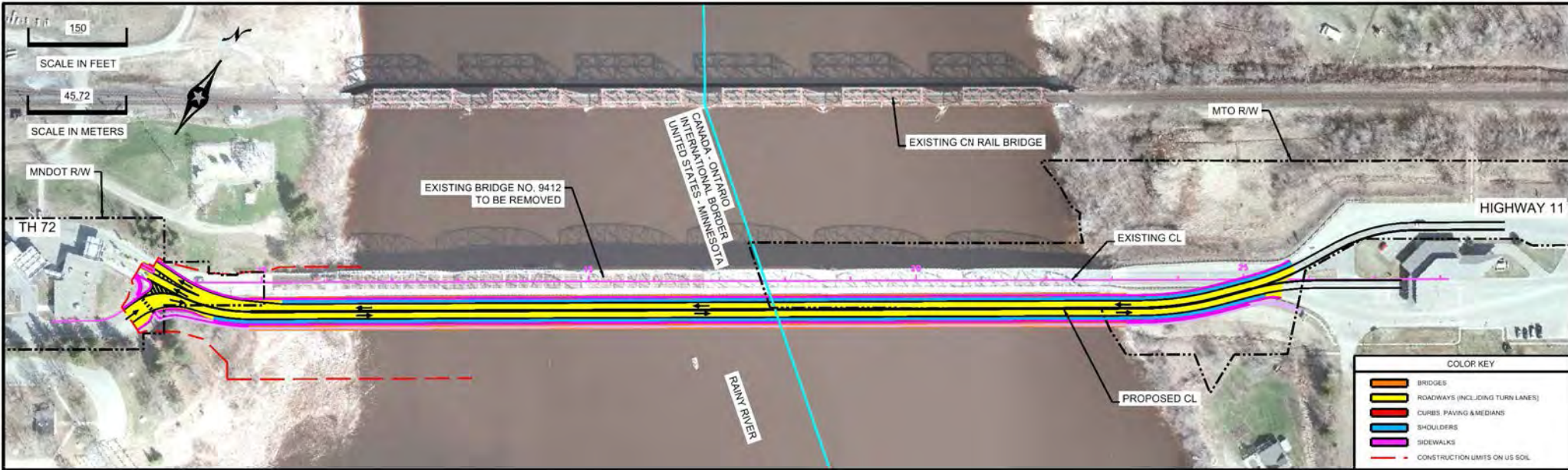
FIGURE 17

MINNESOTA DEPARTMENT OF TRANSPORTATION AND MINISTRY OF TRANSPORTATION ONTARIO

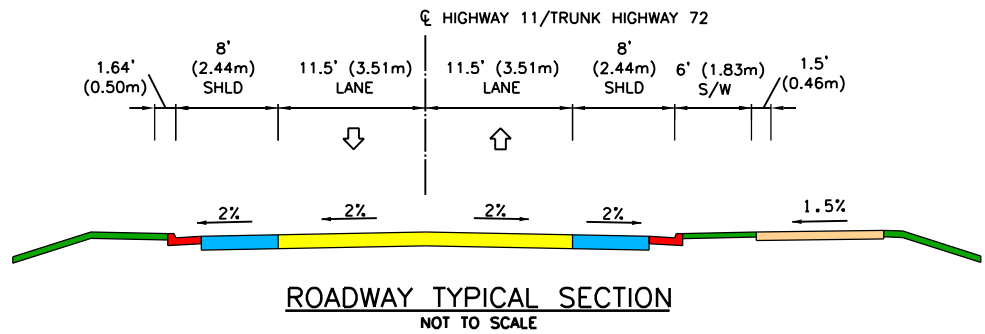
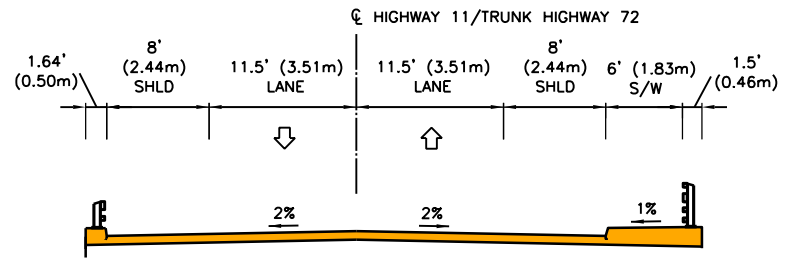
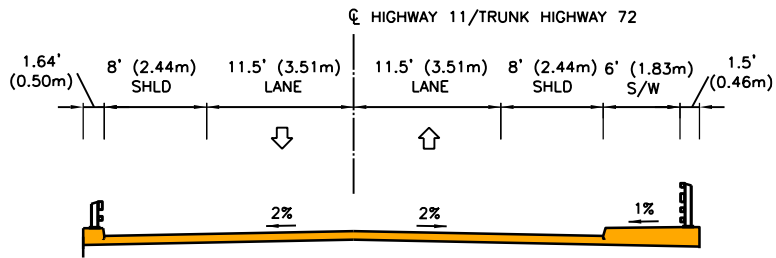
BAUDETTE/RAINNY RIVER INTERNATIONAL BRIDGE REPLACEMENT

DATE: 01/09/2017

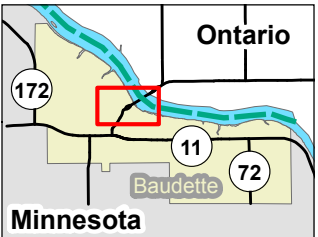
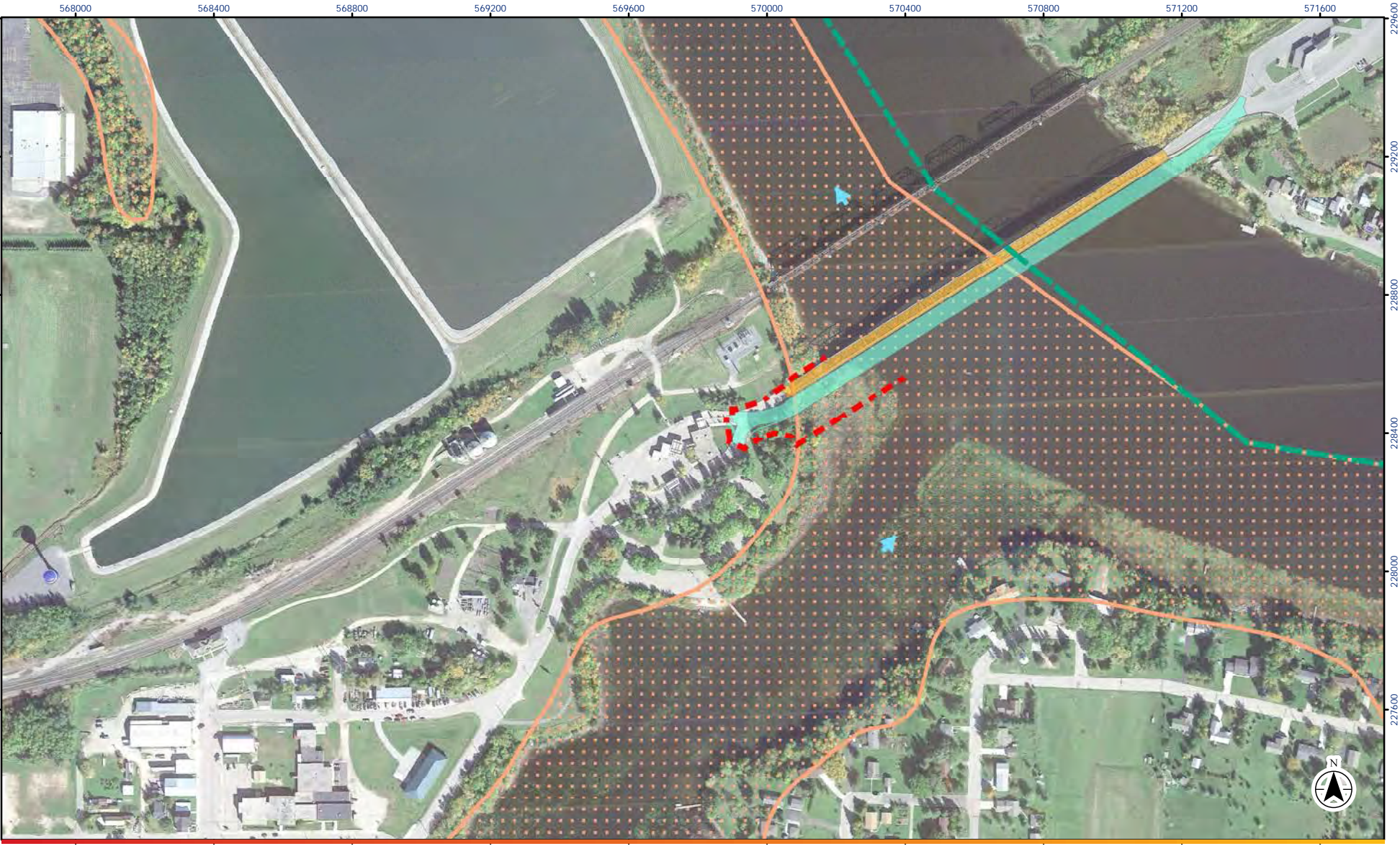
PROJ. NO. 193802870



PREFERRED ALTERNATIVE - PLAN AND PROFILE



TYPICAL SECTIONS



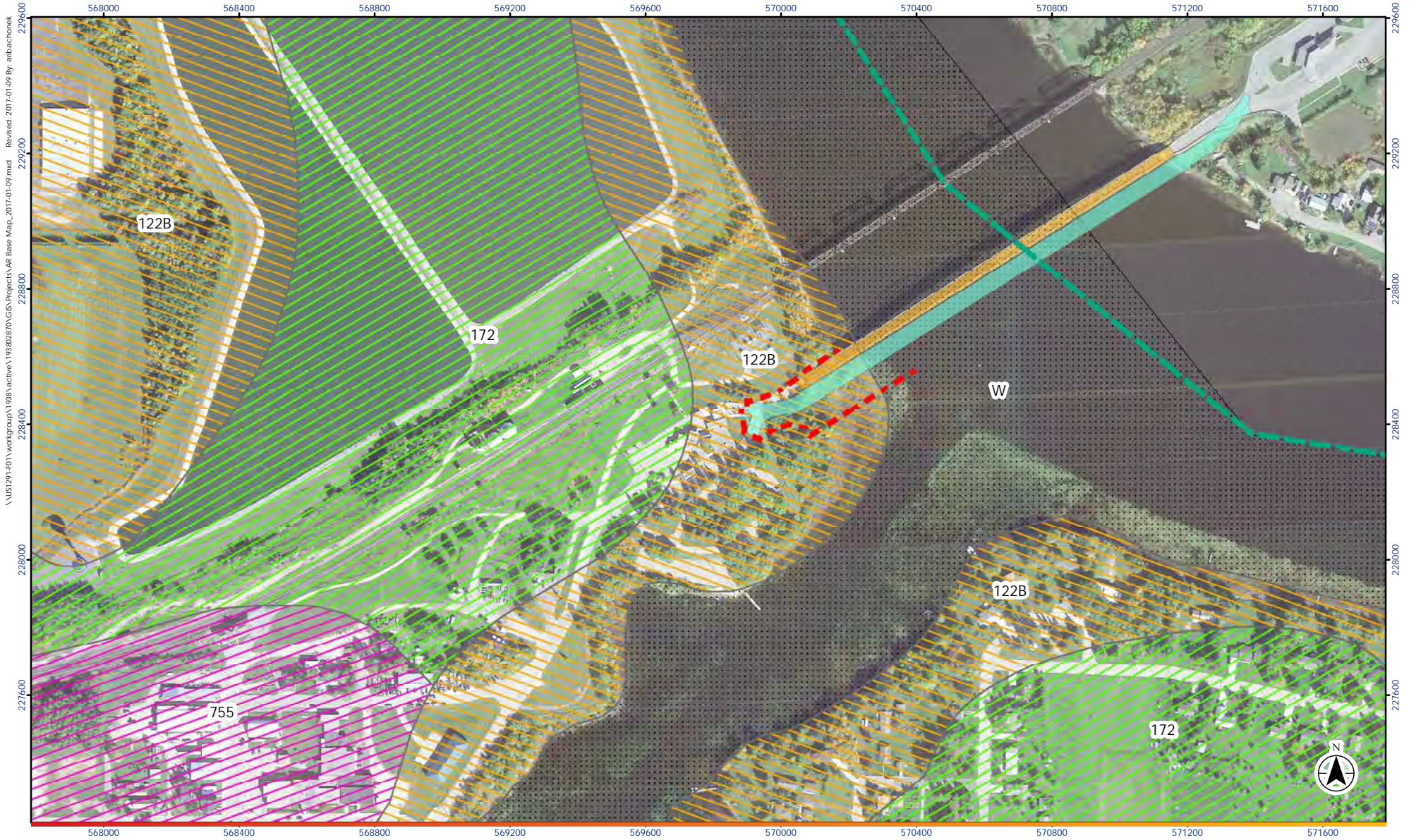
Legend

- - - Construction Limits on U.S. Soil
- - - Approximate International Boundary
- █ Proposed Bridge & Approach
- █ Existing Bridge
- ➔ Flow Direction
- FEMA Flood Zones
- 100-year Floodplain

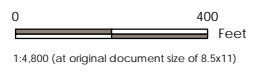
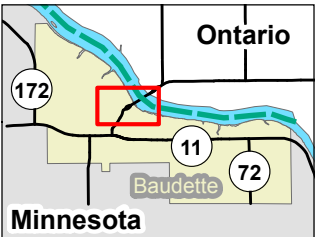
Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.
 Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location	193802870
T161N, R31W, S35 City of Baudette, MN	
Client/Project	SP 3905-09
MnDOT Baudette/Rainy River International Bridge Replacement	
Figure No.	20
Title	

FLOOD ZONES



\GIS\2017\01\Workgroup\1938\active\1938022870\GIS\Projects\AR Base Map_2017-01-09.mxd Revised: 2017-01-09 By: arbachonek



Legend

- Construction Limits on U.S. Soil
- Approximate International Boundary
- Proposed Bridge & Approach
- Existing Bridge
- 122B
- 172
- 755
- W

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

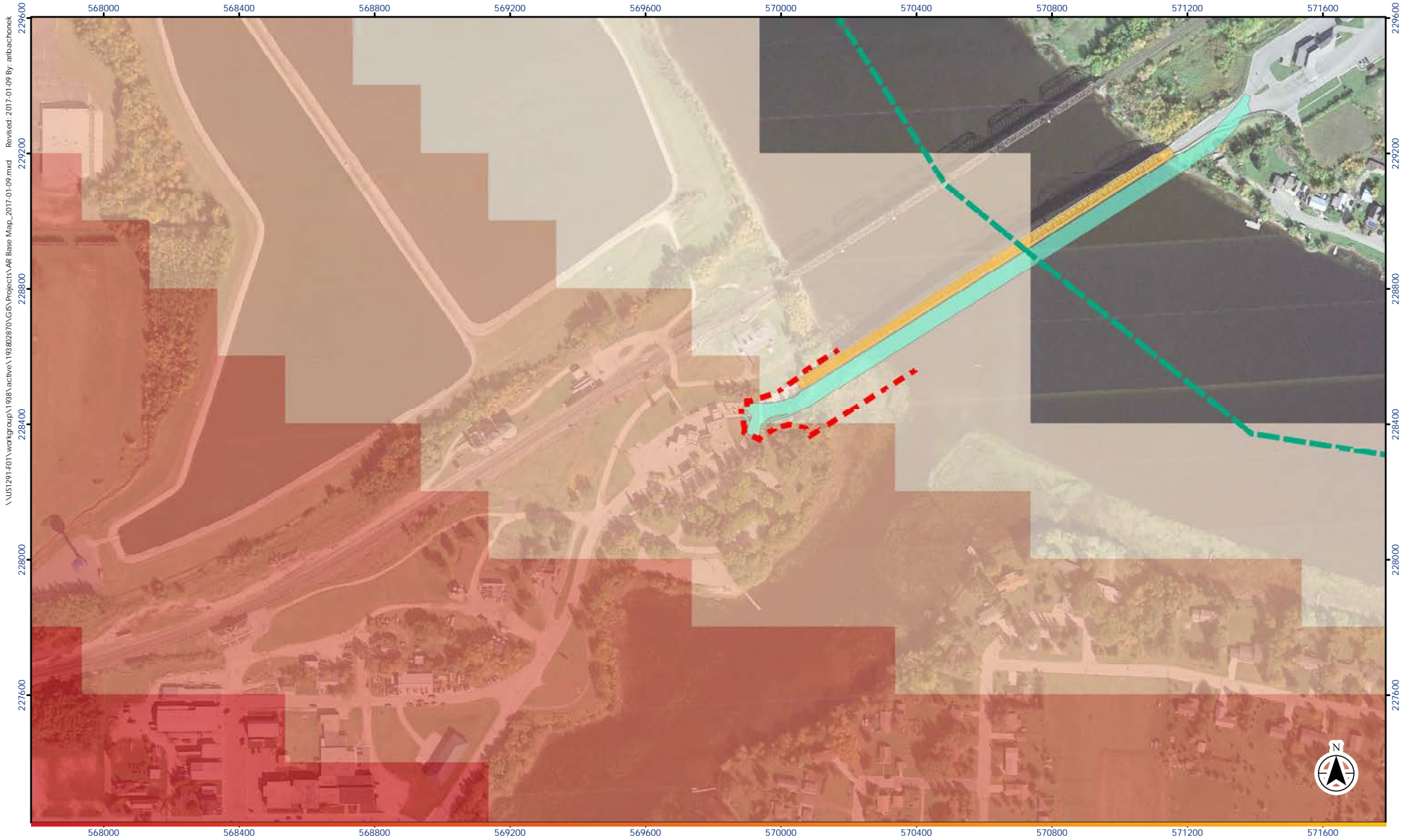
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 1938022870
 T161N, R31W, S35
 City of Baudette, MN

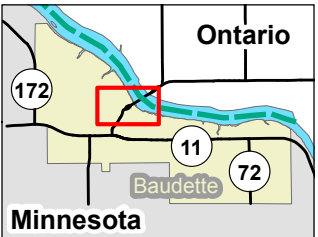
Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge Replacement

Figure No. 21
 Title

SOILS MAP (USCS)



\GIS\2017\01\Workgroup\1938\active\1938022870\GIS\Projects\AR Base Map_2017-01-09.mxd
 Revised: 2017-01-09 By: arbachonek



Legend

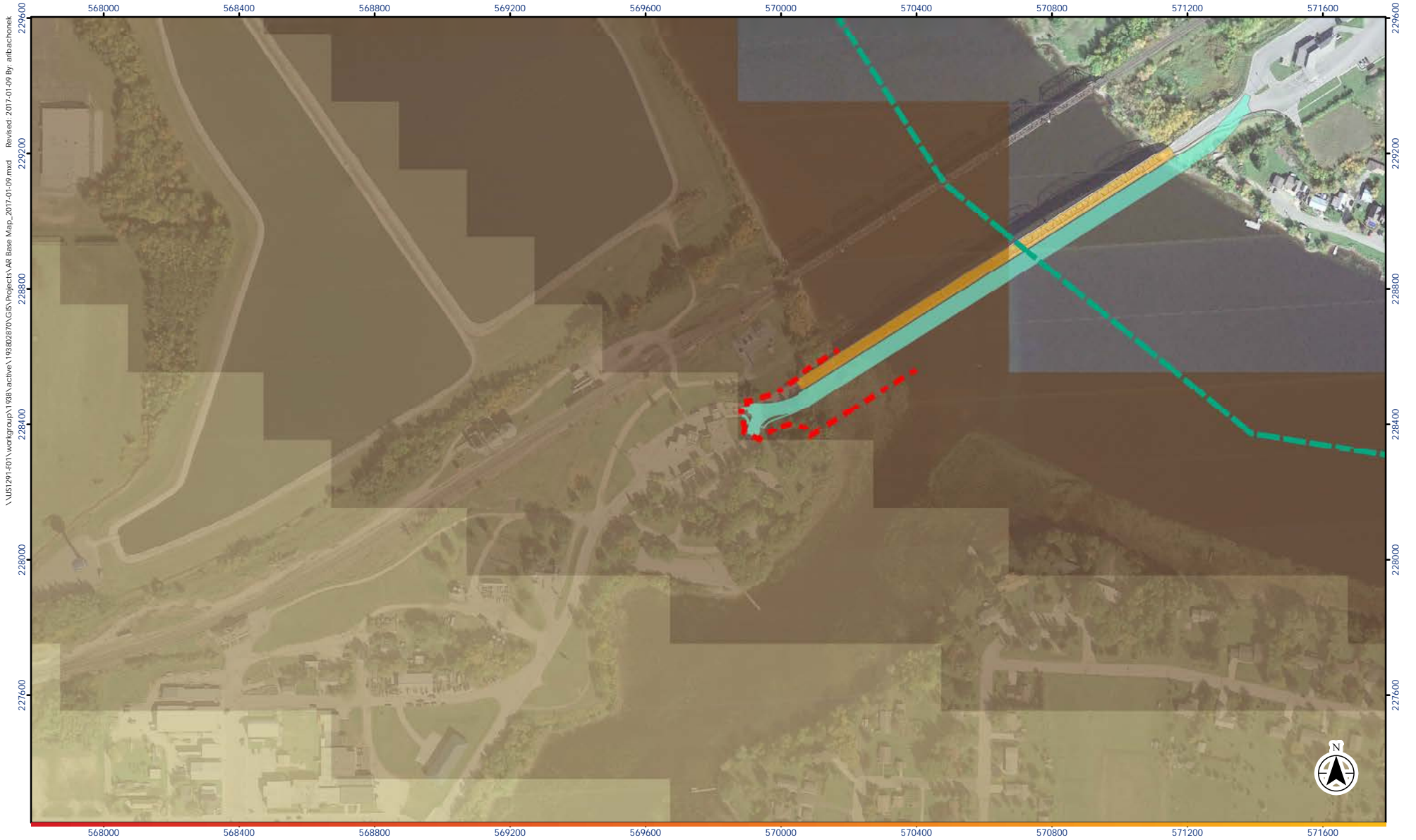
- - - Construction Limits on U.S. Soil
 - - - Approximate International Boundary
 - █ Proposed Bridge & Approach
 - █ Existing Bridge
- | Depth to Bedrock (ft) | |
|-----------------------|---|
| 24.8 - 37.4 | |
| 37.5 - 46.5 | |
| 46.6 - 56.8 | |
| 56.9 - 71 | |

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

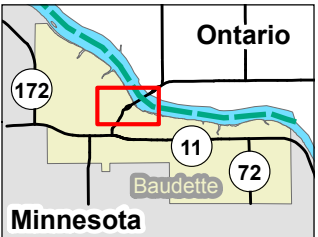
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location T161N, R31W, S35 City of Baudette, MN	1938022870
Prepared by arbachonek on 2017-01-09	
Client/Project MnDOT Baudette/Rainy River International Bridge Replacement	SP 3905-09
Figure No. 22	
Title	

DEPTH TO BEDROCK (MGS)



\GIS\2017\01\Workgroup\1938\active\193802870\GIS\Projects\AR Base Map_2017-01-09.mxd Revised: 2017-01-09 By: arbachonek



Legend

- - - Construction Limits on U.S. Soil
- - - Approximate International Boundary
- - - Proposed Bridge & Approach
- - - Existing Bridge

Bedrock Elevation (ft)	
	1,017.2 - 1,024.8
	1,024.9 - 1,032.5
	1,032.6 - 1,040.1
	1,040.2 - 1,050.1

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN

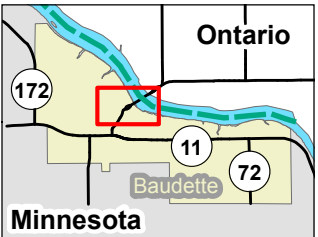
Prepared by arbachonek on 2017-01-09

Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge Replacement

Figure No.
23

Title
BEDROCK ELEVATION (MGS)

\US\3191101\work\cup\1938\active\193802270\GIS\Projects\AR Base Map_2017_01_09.mxd Revised: 2017-01-09 By: arbachonek



- Legend**
- - - Construction Limits on U.S. Soil
 - Approximate International Boundary
 - Proposed Bridge & Approach
 - Existing Bridge
 - Flow Direction
 - Public Waters

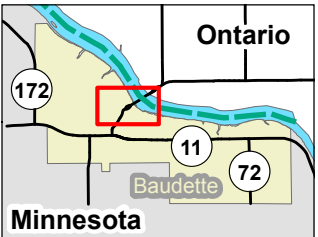
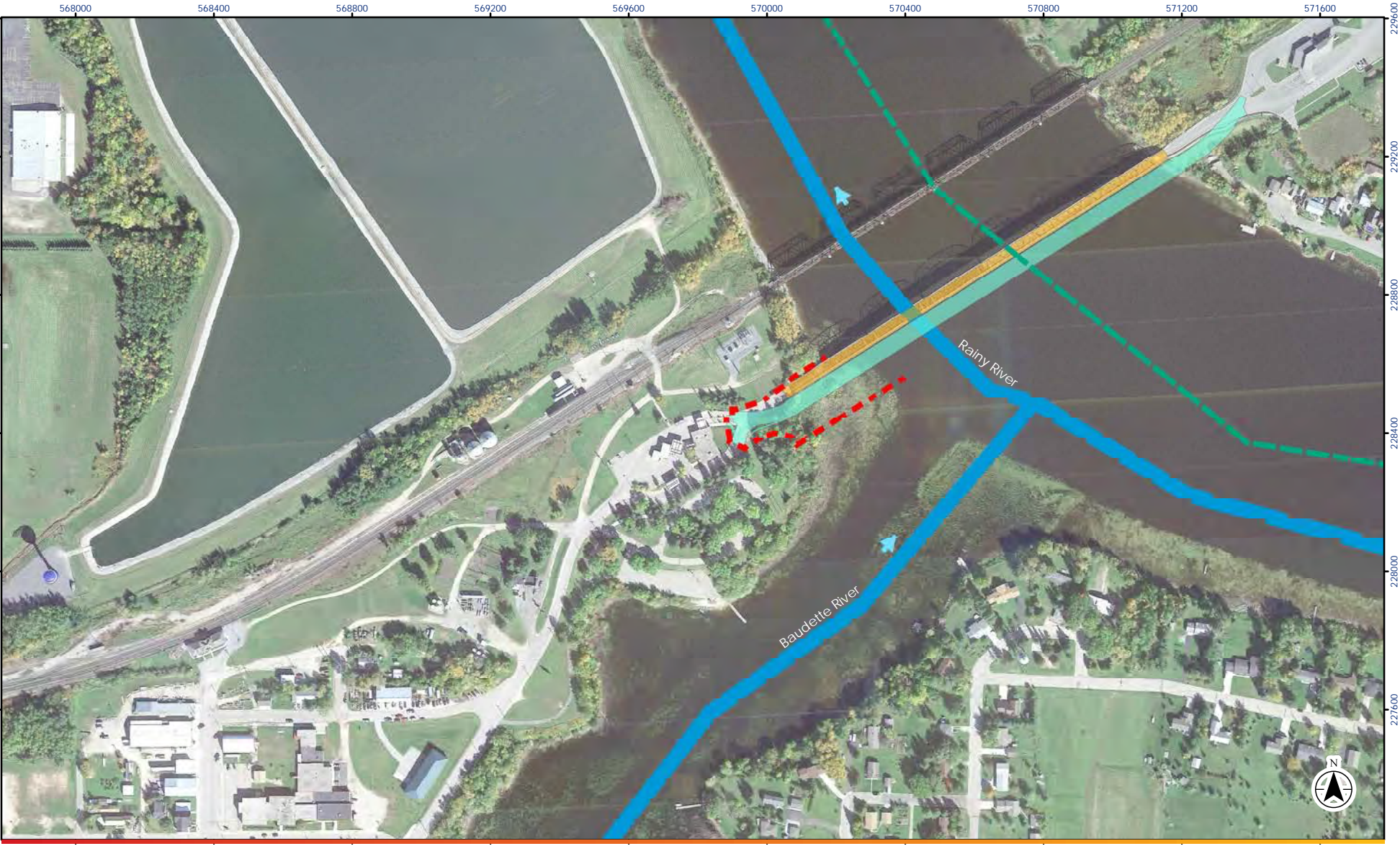
Notes

1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
2. Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location T161N, R31W, S35 City of Baudette, MN	193802270
Prepared by arbachonek on 2017-01-09	
Client/Project MnDOT Baudette/Rainy River International Bridge Replacement	SP 3905-09
Figure No. 24	
Title PUBLIC WATERS	

\\US31291101\workgroup\1938\active\1938022870\GIS\Projects\AR Base Map_2017-01-09.mxd Revised: 2017-01-09 By: arbachonek



- Legend**
- - - Construction Limits on U.S. Soil
 - - - Approximate International Boundary
 - [Area] Proposed Bridge & Approach
 - [Area] Existing Bridge
 - Flow Direction
 - [Area] Impaired Waters

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.
 Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 1938022870
 T161N, R31W, S35
 City of Baudette, MN
 Prepared by arbachonek on 2017-01-09
 Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge
 Replacement
 Figure No. 25
 Title

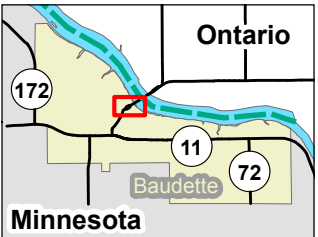
IMPAIRED WATERS



228000

228000

570000



Legend

- Construction Limits on U.S. Soil
- - - Approximate International Boundary
- ▭ Proposed Bridge & Approach
- ▭ Existing Bridge
- ▭ Riverine NWI Wetlands
- ▭ Freshwater Emergent Wetland
- ▭ Lake
- ▭ Field Delineated Wetlands
- ▭ Freshwater Emergent Wetland, W-1
- ▭ Wetland Study Area
- - - Water Level at Site Visit
- - - USACE OHWL of Channel

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

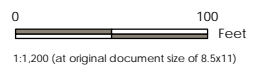
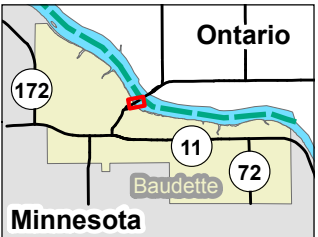
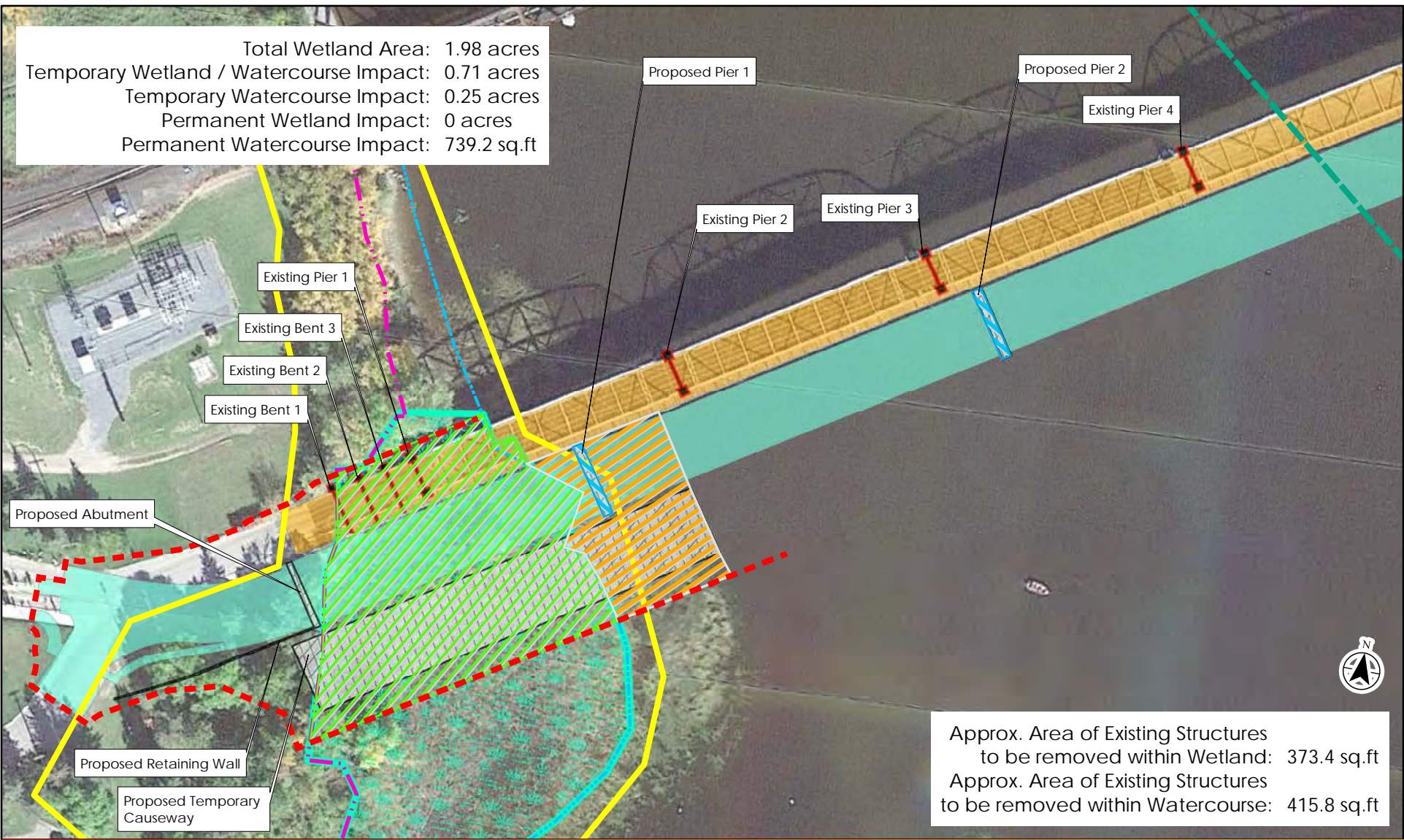
Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN

Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge Replacement

Figure No. 26
 Title

WETLAND LOCATION MAP

\US12911_F01\workgroup\1938\active\193802870\GIS\Projects\Wetland Impacts\AR\Wetland Figures_27A_USACE_2017-01-11.mxd
 Revised: 2017-01-11 By: arbachonek



- Legend**
- Construction Limits on U.S. Soil
 - Approximate International Boundary
 - Proposed Bridge & Approach
 - Existing Bridge
 - Field Delineated Wetlands
 - Freshwater Emergent Wetland, W-1
 - Wetland Study Area
 - Water Level at Site Visit
 - USACE OHWL of Channel
 - Bridge Structures within U.S. Aquatic Resource Boundaries
 - Existing (to be removed)
 - Proposed
 - Wetland / Watercourse Impacts
 - Temporary Wetland / Watercourse
 - Temporary Watercourse
 - Permanent Watercourse

Notes

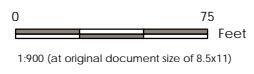
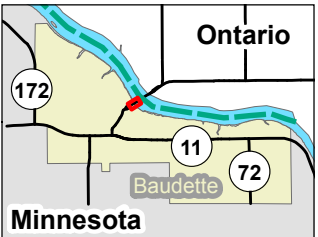
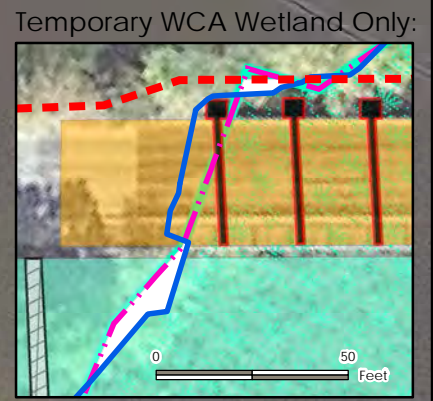
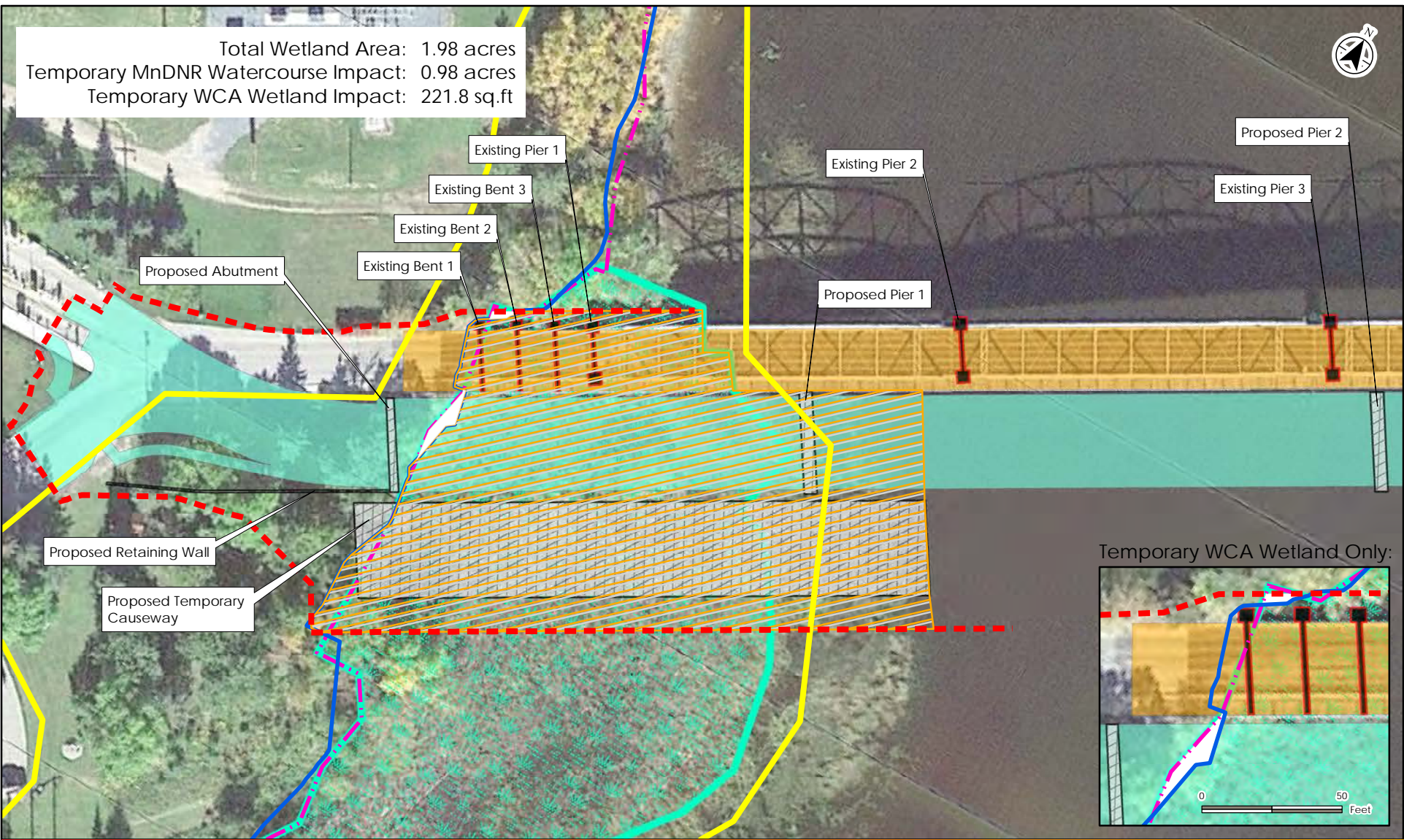
- Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
- Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location	193802870
T161N, R31W, S35 City of Baudette, MN	
Client/Project	SP 3905-09
MnDOT Baudette/Rainy River International Bridge Replacement	
Figure No.	27A
Title	

AQUATIC IMPACTS - USACE SECTION 404

\US1291_F01\workgroup\1938\active\193802870\GIS\Projects\Wetland Impacts\AR\Wetland Figures_27B_DNR_WCA_2017-01-11.mxd
 Reviewed: 2017-01-11 By: arbachonek



- Legend**
- Construction Limits on U.S. Soil
 - Approximate International Boundary
 - Proposed Bridge & Approach
 - Existing Bridge
 - Field Delineated Wetlands
 - Freshwater Emergent Wetland, W-1
 - Wetland Study Area
 - USACE OHWL of Channel
 - MnDNR OHWL (1067 ft)
 - Bridge Structures within U.S. Aquatic Resource Boundaries
 - Existing (to be removed)
 - Proposed
 - Wetland / Watercourse Impacts
 - MnDNR Protected Waters
 - Temporary WCA Wetland

Notes

- Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
- Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN

Client/Project MnDOT
 Baudette/Rainy River International Bridge Replacement

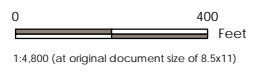
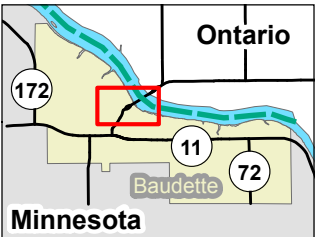
Figure No. 27B

Prepared by arbachonek on 2017-01-11
 SP 3905-09

AQUATIC IMPACTS - MNDNR PROTECTED WATERS & WCA



\US\31291101\workgroup\1198\active\198\active\198\282870\GIS\Projects\AR Base Map_2017-01-09.mxd
 Revised: 2017-01-09 By: arbachonek



Legend

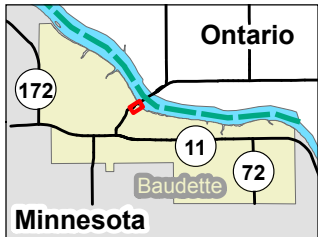
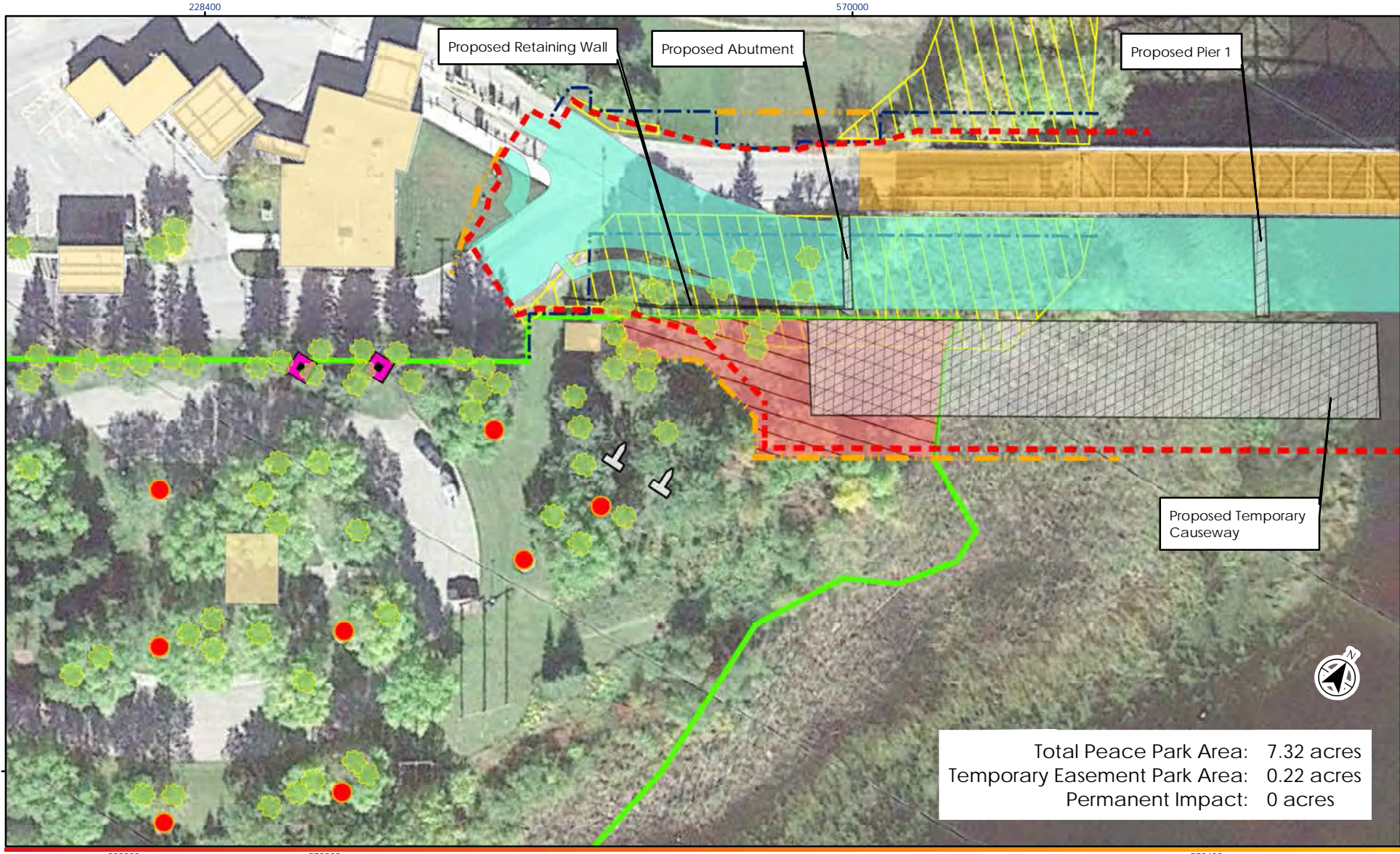
- - - Construction Limits on U.S. Soil
- - - Approximate International Boundary
- - - Proposed Bridge & Approach
- - - Existing Bridge
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Deciduous Forest
- Woody Wetlands
- Emergent Herbaceous Wetlands
- Hay/Pasture
- Cultivated Crops

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN
 Prepared by arbachonek on 2017-01-09
 Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge Replacement
 Figure No. 28
 Title
LAND COVER TYPES (NLCD 2011)

\\US1291-F01\workgroup\193802870\GIS\Projects\Prak Impacts\Prak Impacts_Park Impact Exhibit_2017-01-11.mxd



Legend

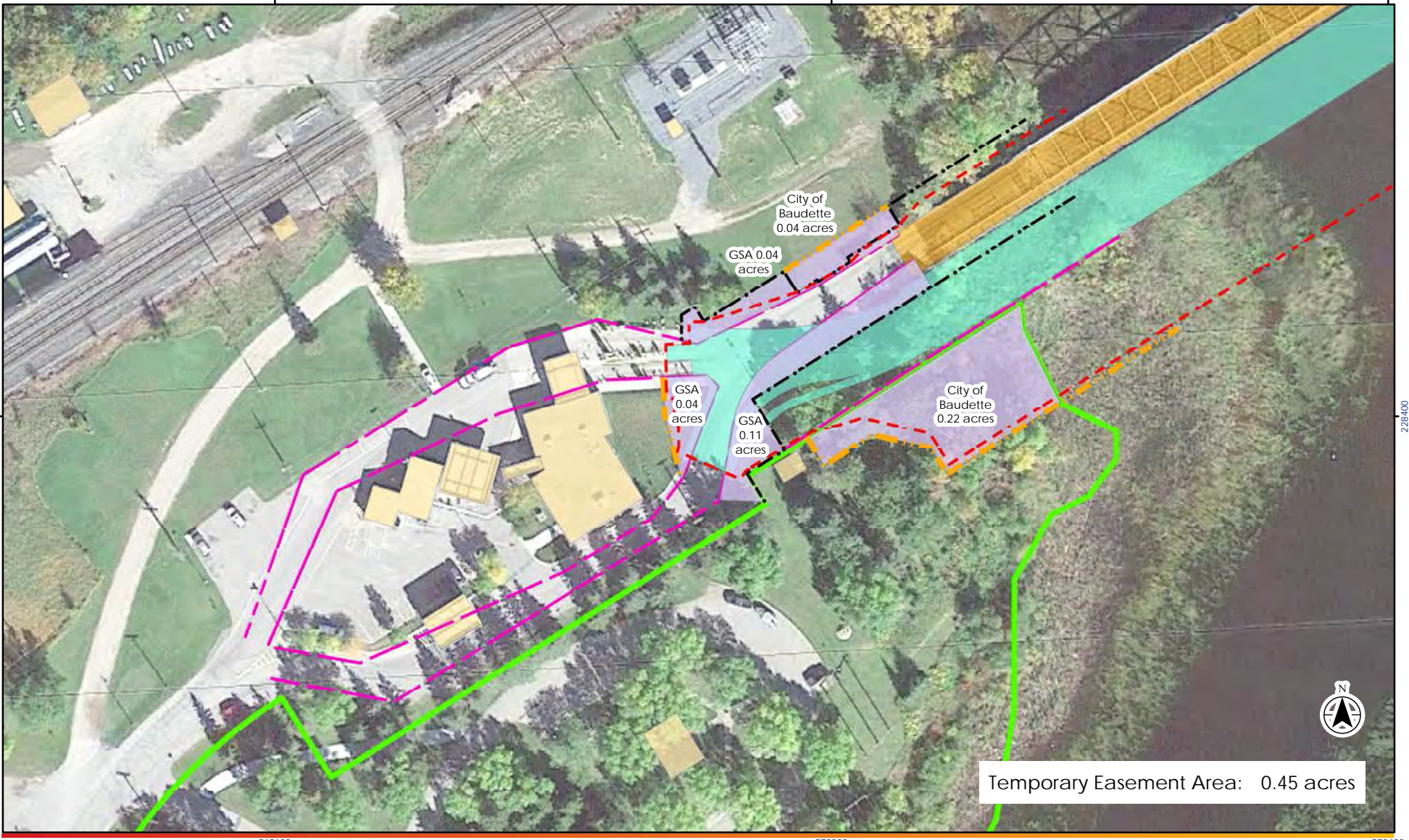
- - - Construction Limits on U.S. Soil
- X X X X Proposed Bridge Structures
- Proposed Bridge & Approach
- Existing Bridge
- Existing Structures
- Property Inplace
- Temporary Easement
- Peace Park
- Temporary Easement Park Area
- Tree Removal Area
- ⚓ Gravesites
- Historic Markers
- Picnic Tables
- Existing Trees from Field Survey

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Zone.
 2. Aerial: Google Earth, 2014.
 Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

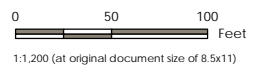
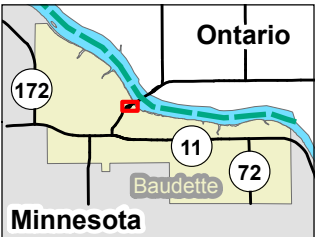
Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN
 Prepared by arbachonek on 2017-01-11
 Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge Replacement
 Figure No. 29
 Title

PEACE PARK - 4(f) IMPACTS

\\US12911-101\workgroup\1938\active\193802870\GIS\Projects\Park Impacts\ROW_2017-01-10.mxd
228400
Reviewed: 2017-01-10 By: arbachonek



Temporary Easement Area: 0.45 acres



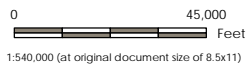
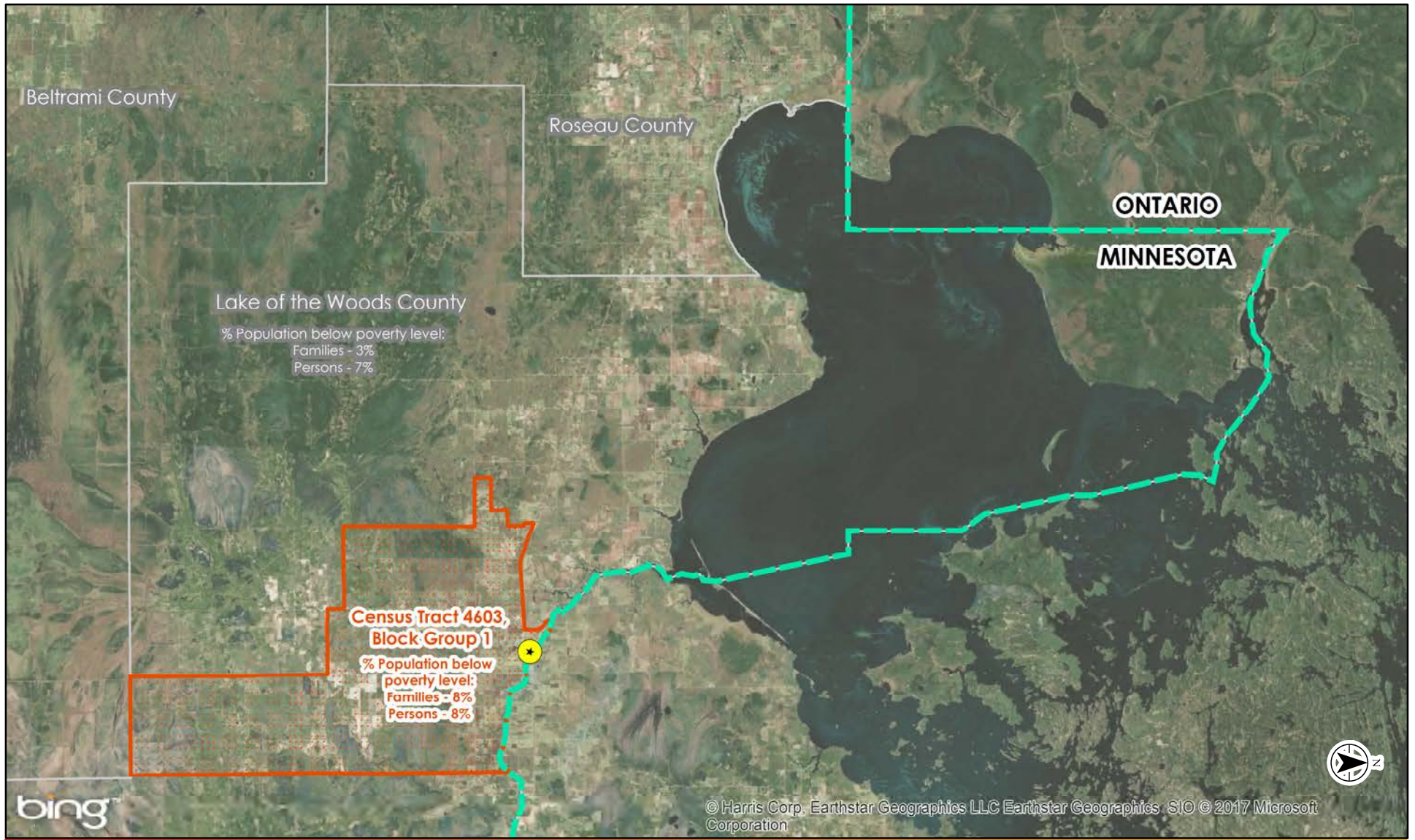
- Legend**
- - - Construction Limits on U.S. Soil
 - █ Proposed Bridge & Approach
 - █ Existing Bridge
 - █ Existing Structures
 - Peace Park
 - · - · - Property Inplace
 - - - Existing Right-of-Way
 - · - · - Temporary Easement
 - Temporary Easement Area by Parcel Owner




Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN
 Prepared by arbachonek on 2017-01-10
 Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge
 Replacement
 Figure No. 30
 Title

RIGHT OF WAY



- Legend
-  Project Area
 -  Approximate International Boundary
 -  Minnesota Counties

Notes

- Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
- Aerial: Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location	193802870
T161N, R31W, S35 City of Baudette, MN	
Prepared by arbachonek on 2017-01-09	
Client/Project	SP 3905-09
MnDOT Baudette/Rainy River International Bridge Replacement	
Figure No.	31
Title	ENVIRONMENTAL JUSTICE

Appendix B– REFERENCES

Technical Memoranda and Reports Informing the Alternatives Development and Evaluation Process⁴⁸

B.1 BACKGROUND

- Ayres Associates & Collins Engineers, Inc. *Underwater Inspection Report: Structure No. 9412*. August 15, 2012.
- Minnesota Department of Transportation (MnDOT). *2013 Routine and Fracture Critical Bridge Inspection Report: Bridge #9412, TH 72 over Rainy River*. December 17, 2013.
- Minnesota Department of Transportation (MnDOT). *Minnesota Structure Inventory Report: Bridge 9412, TH 72 over Rainy River*. Accessed April 21, 2016.
- HNTB. *Traffic Count Data, Projection and Summary Report*. June 2015.

B.2 DEVELOPMENT AND EVALUATION OF ALTERNATIVES

- Minnesota Department of Transportation (MnDOT) & Mead and Hunt. *Bridge Rehabilitation Study Report for Baudette Bridge No. 9412*. May 14, 2013.

B.3 FISHERIES & WETLANDS

- Ministry of Natural Resources and Forestry (MNRF). 2015a. Natural Heritage Information Centre (NHIC) Biodiversity Explorer Database. <<http://nhic.mnr.gov.on.ca/MNR/nhic/species.cfm>>. Accessed May 2015.
- Ministry of Natural Resources and Forestry (MNRF). 2015b. Email correspondence from Rachel Hill to Greg Cooke and Rick DeCal. June 11, 2015.
- Minnesota Department of Natural Resources (MnDNR). 2015a. Email correspondence from Peter Leete (MnDNR Ecological and Water Resources) to Staci Cann (MnDOT). June 19, 2015.
- Minnesota Department of Natural Resources (MnDNR). 2015b. Lake of the Woods Fish Population Surveys and Status handout. <http://files.dnr.state.mn.us/areas/fisheries/audette/winter_handout_2013.pdf>. Accessed October 2015.
- Minnesota Department of Natural Resources (MnDNR). 2015c. Personal communication with Phil Talmage (MnDNR).
- Minnesota Pollution Control Agency (MPCA). Lake and Stream Water Quality Data, Baudette River. <<http://cf.pca.state.mn.us/water/watershedweb/wqip/waterunit.cfm?wid=09030008-519>>. Accessed October 2015.
- United States Fish and Wildlife Service. National Wetland Inventory. 2013.

⁴⁸ All documents listed are available upon request from the MnDOT Project Manager.

B.4 CULTURAL RESOURCES

- Mead and Hunt. *Phase I and Phase II Architecture/History Survey Report: Trunk Highway 72 Area of Potential Effects, Baudette, Minnesota*. January 2014.
- Mullholland, Stephen L. Duluth Archaeology Center. *Phase I Archaeological Investigations of Bridge 9412 and Phase II Archaeological Investigation of Site 21LW0026, Lake of the Woods County, Minnesota*. March 2015.

B.5 HAZARDOUS WASTE & CONTAMINATION

- Groundwater & Environmental Services, Inc. *Asbestos and Regulated Waste Assessment Report: Bridge #9412, TH 72 over Rainy River, Baudette Minnesota*. September 2013.
- Landmark Environmental, LLC. 2014a. *Phase I Environmental Site Assessment*. August 2014.
- Landmark Environmental, LLC. 2014b. *Phase II Drilling Investigation*. October 2014.

Appendix C – ALTERNATIVES DEVELOPMENT

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix C – Alternatives Development

Table 22: Comparison of Alignment Alternatives to Replace the Baudette/Rainy River International Bridge

Evaluation Category	Evaluation Criteria	Alternative 1 Downstream of Existing Alignment	Alternative 2 Upstream of Existing Alignment	Alternative 3A (Downstream) Replacement on Existing Alignment	Alternative 3B (Upstream) Replacement on Existing Alignment
Transportation Engineering	Geometrics	<ul style="list-style-type: none"> ● New profile meets design standards ● New horizontal alignment meets design standards - Trucks approaching the U.S. Port of Entry can use right lane only - Relocation of detection equipment is required to accommodate trucks in left lane on the U.S side of the border 	<ul style="list-style-type: none"> ● New profile meets design standards ● New horizontal alignment meets design standards + Provides desirable geometric alignment connections to existing U.S. and Canadian Ports of Entry facilities ● U.S. Port of Entry detection equipment can remain in place + Improved Truck entry at U.S. Port of Entry 	<ul style="list-style-type: none"> ● New profile meets design standards ● Maintains existing horizontal alignment and minimizes permanent impacts to U.S. and Canadian Ports of Entry facilities ● U.S. Port of Entry detection equipment can remain in place ● Truck entry at U.S. Port of Entry will be maintained - Temporary traffic delays and safety concerns due to narrow temporary bridge 	<ul style="list-style-type: none"> ● New profile meets design standards ● Maintains existing horizontal alignment and minimizes permanent impacts to U.S. and Canadian Ports of Entry facilities ● U.S. Port of Entry detection equipment can remain in place ● Truck entry at U.S. Port of Entry will be maintained - Temporary traffic delays and safety concerns due to narrow temporary bridge
	Constructability	- Construction area between the existing bridge and the CN rail bridge is constrained	● No significant or unique constructability concerns	- Construction area between the existing bridge and the CN rail bridge is constrained - Increased duration of construction	- Increased duration of construction
	Cost	+ Cost is consistent with other similar bridge replacement projects with minimal throw-away costs	+ Cost is consistent with other similar bridge replacement projects with minimal throw-away costs	- Cost of temporary bridge is high, resulting in significant throw away costs	- Cost of temporary bridge is high, resulting in significant throw away costs
	Pedestrians/Cyclists	● No impacts to criteria	● No impacts to criteria	● No impacts to criteria	● No impacts to criteria

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix C – Alternatives Development

Table 22: Comparison of Alignment Alternatives to Replace the Baudette/Rainy River International Bridge (Continued)

Evaluation Category	Evaluation Criteria	Alternative 1		Alternative 2	Alternative 3A (Downstream) Replacement on Existing Alignment	Alternative 3B (Upstream) Replacement on Existing Alignment
		Downstream of Existing Alignment	Upstream of Existing Alignment	Upstream of Existing Alignment		
Social & Cultural Environment	Property/Right of Way	- Requires purchase of private/municipal property on U.S. side	- Requires purchase of property on U.S. side - Requires purchase of property on Canadian side	- Requires purchase of property on U.S. side - Requires purchase of property on Canadian side	- Temporary property requirements on U.S. side	- Temporary property requirements on U.S. side - Temporary property requirements on Canadian side
	Archaeology and Cultural Heritage	<ul style="list-style-type: none"> Does not impact unidentified gravesites/ cultural heritage features on U.S. side and areas with high archaeological potential Does not impact any registered archaeological sites 	<ul style="list-style-type: none"> Potentially impacts unidentified gravesites/ cultural heritage features on U.S. side and areas with high archaeological potential Does not impact any registered archaeological sites 	<ul style="list-style-type: none"> Does not impact unidentified gravesites/ cultural heritage features on U.S. side and areas with high archaeological potential Does not impact any registered archaeological sites 	<ul style="list-style-type: none"> Does not impact unidentified gravesites/ cultural heritage features on U.S. side and areas with high archaeological potential Does not impact any registered archaeological sites 	<ul style="list-style-type: none"> Potentially impacts unidentified gravesites/ cultural heritage features on U.S. side and areas with high archaeological potential Does not impact any registered archaeological sites
	Impacts to Park Land/ 4(f)	<ul style="list-style-type: none"> Does not impact Peace Park on U.S. side 	- Impacts Peace Park on U.S. side	- Impacts Peace Park on U.S. side	<ul style="list-style-type: none"> Does not impact Peace Park on U.S. side 	- Impacts Peace Park on U.S. side
	Aesthetics/Visual Impacts	<ul style="list-style-type: none"> No visual or aesthetic impact due to alignment 	- Potential visual and aesthetic impact due to closer proximity of bridge for residents	- Potential visual and aesthetic impact due to closer proximity of bridge for residents	<ul style="list-style-type: none"> No visual or aesthetic impact due to alignment 	<ul style="list-style-type: none"> No visual or aesthetic impact due to alignment
	Environmental Justice/ Business Impacts/ Access Impacts	<ul style="list-style-type: none"> No impacts to criteria 	<ul style="list-style-type: none"> No impacts to criteria 	<ul style="list-style-type: none"> No impacts to criteria 	<ul style="list-style-type: none"> No impacts to criteria 	<ul style="list-style-type: none"> No impacts to criteria
Natural Environment	Fish and Aquatic Habitat	<ul style="list-style-type: none"> Potential impacts to threatened and endangered/Species-at-Risk and their habitat Potential impacts to fisheries resources, including fish spawning areas May impact contaminated soils from former electric power plant on U.S. side 	<ul style="list-style-type: none"> Potential impacts to threatened and endangered species/Species-at-Risk and their habitat Potential impacts to fisheries resources, including fish spawning areas 	<ul style="list-style-type: none"> Potential impacts to threatened and endangered species/Species-at-Risk and their habitat Greater impacts to fisheries resources, including fish spawning and nursery areas (additional piers in water) May impact contaminated soils from former electric power plant on U.S. side 	<ul style="list-style-type: none"> Potential impacts to threatened and endangered species/Species-at-Risk and their habitat Greater impacts to fisheries resources, including fish spawning and nursery areas (additional piers in water) May impact contaminated soils from former electric power plant on U.S. side 	<ul style="list-style-type: none"> Potential impacts to threatened and endangered species/Species-at-Risk and their habitat Greater impacts to fisheries resources, including fish spawning and nursery areas (additional piers in water) May impact contaminated soils from former electric power plant on U.S. side
	Wildlife and Terrestrial Habitat and Vegetation	- Requires natural vegetation removal	- Requires natural vegetation removal	- Requires natural vegetation removal	- Requires natural vegetation removal	- Requires natural vegetation removal
	Noise/Vibration	<ul style="list-style-type: none"> Minimal potential for noise impacts 	<ul style="list-style-type: none"> Minimal potential for noise impacts 	<ul style="list-style-type: none"> Minimal potential for noise impacts 	<ul style="list-style-type: none"> Minimal potential for noise impacts 	<ul style="list-style-type: none"> Minimal potential for noise impacts
	Wetlands/Floodplains/ Protected Waters*	<ul style="list-style-type: none"> Minimizes impacts to identified wetlands on the U.S. side 	- Impacts identified wetlands on the U.S. side	- Impacts identified wetlands on the U.S. side	<ul style="list-style-type: none"> Minimizes impacts to identified wetlands on the U.S. side 	- Potential impacts to identified wetlands on the U.S. side

Notes:

* Impacts to Floodplain and Protected Waters (i.e. Public Waters designated by MnDNR) were considered under both the Alignment and Bridge Type Alternative analyses. However, these impacts were more of a factor in the Bridge Type Alternative analysis due to substructure considerations. See Section 3.3 (Bridge Type Alternatives) and Table 25: Bridge Type Alternative Final Evaluation Matrix for detailed discussion on piers and pier configuration.

- Advantages and disadvantages have been identified by plus sign (+) and minus sign (-), respectively.
- A bullet sign (●) denotes where there is no clear advantage or disadvantage.

Table 23: Bridge Type Alternative Preliminary Evaluation Matrix

January 20, 2016

Alternative Development Phase
Evaluation Matrix

State Project No. 3905-90
MTO Site 45-110

Alternative Description Evaluation Criteria	A1 - Continuous Steel I-Girder 5 spans - 220'-300'-300'-300'-220' (67.1m-91.4m-91.4m-91.4m-67.1m)	A2 - Continuous Haunched Steel I-Girder 3 spans - 412.5'-515'-412.5' (125.7m-157.0m-125.7m)	B - Simple-Span Precast/Prestressed I-Girder 9 spans @ 149' (45.4m)	C - Continuous Steel Box Girder 5 spans - 220'-300'-300'-300'-220' (67.1m-91.4m-91.4m-91.4m-67.1m)	D - Segmental Concrete Box Girder 4 spans - 254'-416'-416'-254' (77.4m-126.8m-126.8m-77.4m)	E - Tied Arch Main Span, Precast/Prestressed I-Girder Approaches 8 spans - 4@ 145'-1@ 325'-3@ 145' (4@ 44.2m-1@ 99.1m-3@ 44.2m)
Maximum Increase in Structure Depth from Existing (3'-11" [1.2m] ±)	<ul style="list-style-type: none"> 7'-11" (2.4m) ± 124" (3,150 mm) steel plate girders 	<ul style="list-style-type: none"> 18'-5" (5.6m) to 10'-5" (3.2m) ± Variable depth steel girders Maximum depth at piers 	<ul style="list-style-type: none"> 2'-5" (0.7m) ± 63" (1600 mm) precast beams 	<ul style="list-style-type: none"> 7'-1" (2.2m) ± 9'-6" (2.9m) steel tub girders 	<ul style="list-style-type: none"> 21'-1" (6.4m) to 8'-1" (2.5m) ± Variable depth box section Maximum depth at piers 	<ul style="list-style-type: none"> 2'-4" (0.7m) ± Approach spans similar
Number of Substructures in River and Effect on Existing Navigation Openings During Construction	<ul style="list-style-type: none"> 4 substructures in river Truss span 3 constrained approximately 25' (7.6m) Truss span 4 constrained approximately 60' (18.3m) 	<ul style="list-style-type: none"> 2 substructures in river No impact to truss span 3 No impact to truss span 4 	<ul style="list-style-type: none"> 8 substructures in river Truss span 3 width reduced by half Truss span 4 constrained approximately 55' (16.8m) 	<ul style="list-style-type: none"> 4 substructures in river Truss span 3 constrained approximately 25' (7.6m) Truss span 4 constrained approximately 60' (18.3m) 	<ul style="list-style-type: none"> 3 substructures in river Truss span 3 constrained approximately 35' (10.7m) No impact to truss span 4 	<ul style="list-style-type: none"> 7 substructures in river Truss span 3 width reduced by half Possibly no impact to truss span 4
Traffic Impacts / Staging Considerations	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need an additional stringer or temporary span to allow for construction in stages 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need an additional stringer or temporary span to allow for construction in stages 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need to be constructed in stages 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, a jump span with a different structure type more apt for staged construction may be needed 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, a jump span with a different structure type more apt for staged construction may be needed 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need to be constructed in stages
Geometric Opportunities and Challenges	<ul style="list-style-type: none"> May be opportunity to optimize by adding a beam line (less deck load, easier to form deck) May be opportunity to optimize with four spans 	<ul style="list-style-type: none"> May be opportunity to optimize by adding a beam line (less deck load, easier to form deck) May be opportunity to optimize with four spans or five spans with constant end spans 	<ul style="list-style-type: none"> Opportunities may exist to decrease number of spans by one (167' +/-, 51m +/-) or two (192' +/-, 60m +/-) 	<ul style="list-style-type: none"> May be opportunity to optimize with four spans Depth of tubs may require cross section internal stiffening to make cross frames efficient Preferred 1:4 slope of webs will limit the bottom flange width and may not be feasible 	<ul style="list-style-type: none"> Three span configuration may be possible, but will require larger profile raise and may need jump spans on ends 	<ul style="list-style-type: none"> Arch unit limited due to aviation requirements As drawn, only provides 2' additional clearance above CNRR bridge low steel, not the preferred 5'; 5' likely feasible at a slightly less efficient span to depth ratio
Constructability	<ul style="list-style-type: none"> Standard structure type 	<ul style="list-style-type: none"> Will require additional fabrication effort for haunches, including longitudinal stiffener and CJP weld in haunched region Haunched sections will be more difficult to transport Transportation and placement of large beams could be challenging 	<ul style="list-style-type: none"> Standard structure type 	<ul style="list-style-type: none"> Box shape may create a more stable structure for handling and erection May require more stringent fabrication requirements for fit up and assembly 	<ul style="list-style-type: none"> If precast, could possibly result in smallest units to transport Requires contractor with segmental experience and possibly specialized contractors Piers may consist of mass concrete 	<ul style="list-style-type: none"> May require more stringent fabrication requirements for fit up Requires contractor with tied arch experience and possibly specialized contractors Piers may consist of mass concrete
Maintenance and Inspection Needs (Number of Joints, Uncommon Elements, Durability, etc.)	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Articulation with only strip seal joints not feasible as shown Pot or disc bearings may be needed to accommodate load and movement 	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Articulation with only strip seal joints not feasible as shown Pot or disc bearings may be needed to accommodate load and movement 	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Multiple units may prevent need for unique bearings 	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Articulation with only strip seal joints not feasible as shown Pot or disc bearings may be needed to accommodate load and movement 	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Articulation with only strip seal joints not feasible Pot or disc bearings likely to accommodate load and movement Use of post-tensioning may require special inspections 	<ul style="list-style-type: none"> A minimum of four expansion joints likely (modular) Articulation with only strip seal joints may not be feasible as shown Pot or disc bearings likely to accommodate load and movement Arch may require special inspections
Security and Vulnerability	<ul style="list-style-type: none"> Redundant, standard structure type 	<ul style="list-style-type: none"> Redundant, standard structure type 	<ul style="list-style-type: none"> Highly redundant, standard structure type 	<ul style="list-style-type: none"> Redundant structure type Closed members will need to be secured against unwanted access 	<ul style="list-style-type: none"> Highly redundant structure with numerous prestressing strands Closed unit will need to be secured against unwanted access 	<ul style="list-style-type: none"> Arch unit assumed internally redundant to decrease vulnerability; load path redundancy possible but not common Closed members will need to be secured against unwanted access
High-Level Estimate of Probable Construction Costs (US Dollars)	\$25.6 Million	\$35.3 Million	\$14.5 Million	\$25.3 Million	\$22.1 Million	\$20.6 Million

Table 24: Bridge Type Alternative Refined Evaluation Matrix

February 19, 2016

Alternative Refinement Phase
Evaluation Matrix

State Project No. 3905-90
MTO Site 45-110

Alternative	A1 - Continuous Steel I-Girder 5 spans: 220' - 300' - 300' - 300' - 220' (67.1m - 91.4m - 91.4m - 91.4m - 67.1m)	A2 - Continuous Steel I-Girder 4 spans: 290' - 380' - 380' - 290' (88.4m - 115.8m - 115.8m - 88.4m)	B - Precast/Prestressed I-Girder 8 spans: 2 @ 162.2' - 3 @ 175'- 3 @ 163.2' (2 @ 49.7m - 3 @ 53.3m - 3 @ 49.7m)
Description Evaluation			
Estimate of Probable Construction Costs* and Life-Cycle Costs (US Dollars) <i>* includes 30% contingency and escalation factor</i>	<ul style="list-style-type: none"> Estimated construction costs: \$31.7M Estimated life-cycle costs: \$32.9M 	<ul style="list-style-type: none"> Estimated construction costs: \$33.2M Estimated life-cycle costs: \$34.2M 	<ul style="list-style-type: none"> Estimated construction costs: \$31.4M Estimated life-cycle costs: \$32.9M
Construction and Fabrication Complexity	<ul style="list-style-type: none"> Standard structure type Will require additional fabrication effort if haunched Temporary shoring required for erection, possibly temporary bents in the river Transportation of large beams could be challenging 	<ul style="list-style-type: none"> Will require additional fabrication effort for haunches Haunched sections may be more difficult to transport Transportation of large beams could be challenging Temporary shoring required for erection, possibly temporary bents in the river 	<ul style="list-style-type: none"> Length may limit number of fabricators or force modifications to existing casting beds Transportation and placement of beams may be challenging
Geometric Opportunities and Challenges	<ul style="list-style-type: none"> If haunched, may be able to lower profile 	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> May be opportunities to decrease profile (using 82MW) or eliminate beam line (using 96MW shape) May require deviations from standard state/provincial design practices and philosophies
Ability to Apply ABC Techniques	<ul style="list-style-type: none"> Opportunity to launch structure exists and may be optimal, more difficult with haunches Can use prefabricated elements Opportunity to float spans or use gantry for superstructure elements exist 	<ul style="list-style-type: none"> Opportunity to launch structure exists and may be optimal, more difficult with haunches Can use prefabricated elements Opportunity to float spans or use gantry for superstructure elements exist 	<ul style="list-style-type: none"> Can use prefabricated elements, such as deck panels or forms Opportunity to float spans exist
Construction Duration	<ul style="list-style-type: none"> Approximately 22 months 	<ul style="list-style-type: none"> Approximately 22 months 	<ul style="list-style-type: none"> Approximately 22 months
Maximum Increase in Structure Depth from Existing (3'-11" [1.2m] ±)	<ul style="list-style-type: none"> 6'-9" (2.1m) ± 109" (2,770 mm) steel plate girders web depth 	<ul style="list-style-type: none"> 5'-10" (1.8m) to 10'-0" (3.0m) ± Variable depth steel plate girders, 100" (2,540 mm) to 150" (3,810 mm) web depth Maximum depth at piers 	<ul style="list-style-type: none"> 5'-2" (1.6m) ± 96" (2400 mm) precast beams
Aesthetic Opportunities	<ul style="list-style-type: none"> May be haunched for aesthetic appeal Additional opportunities similar to other alternatives (piers, barriers/railings, fencing, etc.) 	<ul style="list-style-type: none"> Opportunities similar to other alternatives (piers, barriers/railings, fencing, etc.) 	<ul style="list-style-type: none"> Opportunities similar to other alternatives (piers, barriers/railings, fencing, etc.)
Number of Substructures in River and Effect on Existing Pier Openings During Construction	<ul style="list-style-type: none"> 4 substructures in river Truss span 3 constrained approximately 25' (7.6m) Truss span 4 constrained approximately 60' (18.3m) 	<ul style="list-style-type: none"> 3 substructures in river Piers located close to existing piers, offset about 25' (7.6m) to avoid existing pier elements 	<ul style="list-style-type: none"> 7 substructures in river Piers in center of river closely align with existing piers Piers towards river banks do not align well with existing piers
Traffic Impacts / Staging Considerations	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need an additional girder line or temporary span to allow for construction in stages 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need an additional girder line or temporary span to allow for construction in stages 	<ul style="list-style-type: none"> No apparent traffic impacts If curvature introduced near west abutment, first span may need to be constructed in stages
Maintenance/Inspection Needs (Number of Joints, Uncommon Elements, Durability, etc.)	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Articulation with only strip seal joints not feasible as shown Pot or disc bearings may be needed to accommodate load and movement Use of boat or snooper may be needed for inspections 	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Articulation with only strip seal joints not feasible as shown Pot or disc bearings may be needed to accommodate load and movement Use of boat or snooper may be needed for inspections 	<ul style="list-style-type: none"> A minimum of two expansion joints needed at ends (modular) Multiple units may prevent need for unique bearings Use of boat or snooper may be needed for inspections
Security and Vulnerability	<ul style="list-style-type: none"> Redundant, standard structure type 	<ul style="list-style-type: none"> Redundant, standard structure type 	<ul style="list-style-type: none"> Highly redundant, standard structure type

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT
Appendix C – Alternatives Development

Table 25: Bridge Type Alternative Final Evaluation Matrix

March 22, 2016

Preferred Alternative Phase
Evaluation Matrix

State Project No. 3905-90
MTO Site 45-110

Evaluation Criteria \ Alternative Description	A1.1 - Continuous Steel I-Girder, 5 Spans Prismatic 220' - 300' - 300' - 300' - 220' (67.1m - 91.4m - 91.4m - 91.4m - 67.1m)	A2 - Continuous Steel I-Girder, 4 Spans Haunched 290' - 380' - 380' - 290' (88.4m - 115.8m - 115.8m - 88.4m)	A1.2 - Continuous Steel I-Girder, 5 Spans Haunched 220' - 300' - 300' - 300' - 220' (67.1m - 91.4m - 91.4m - 91.4m - 67.1m)
Estimate of Probable Construction Costs* and Life-Cycle Costs (US Dollars) <i>* includes 30% contingency and escalation factor</i>	<ul style="list-style-type: none"> Estimated construction costs: \$31.7M Estimated life-cycle costs: \$32.9M 	<ul style="list-style-type: none"> Estimated construction costs: \$33.2M Estimated life-cycle costs: \$34.2M 	<ul style="list-style-type: none"> Estimated construction costs: \$31.7M Estimated life-cycle costs: \$32.9M
Construction Duration	<ul style="list-style-type: none"> Approximately 22 months 	<ul style="list-style-type: none"> Approximately 22 months 	<ul style="list-style-type: none"> Approximately 22 months
Construction and Fabrication Complexity	<ul style="list-style-type: none"> Conceptual configuration has 9 segments, largest at 150' (45.7m) and 63 tons 13 segment configuration similar to A1.2 exists 	<ul style="list-style-type: none"> Will require additional fabrication effort due to haunches Conceptual configuration has 13 segments, largest length at 125' (38.1m) and largest weight at 52 tons Longitudinal web splice needed at haunch (depth exceeds available plate width) 	<ul style="list-style-type: none"> Will require additional fabrication effort due to haunches Conceptual configuration has 13 segments, largest at 135' (41.1m) and 56 tons Longitudinal web splice needed at haunch (depth exceeds available plate width) Through optimization, may be able to eliminate longitudinal web splice at haunch for certain American steel mills
Relative Profile Difference at High Point	<ul style="list-style-type: none"> Profile is approximately 2' (0.6m) higher than Alternative A1.2 to meet navigational requirements 	<ul style="list-style-type: none"> Profile is approximately 4' (1.2m) higher than Alternative A1.2 to meet navigational requirements 	<ul style="list-style-type: none"> Lowest profile which meets navigational requirement
Aesthetic Opportunities	<ul style="list-style-type: none"> Prismatic superstructure, creating clean, concentric lines for all bridge elements Additional opportunities similar to other alternatives (piers, barriers/railings, fencing, etc.) 	<ul style="list-style-type: none"> Haunched superstructure, giving effect that bridge is light, slender, and efficient Additional opportunities similar to other alternatives (piers, barriers/railings, fencing, etc.) 	<ul style="list-style-type: none"> Haunched superstructure, giving effect that bridge is light, slender, and efficient Additional opportunities similar to other alternatives (piers, barriers/railings, fencing, etc.)
Number of Substructures in River	<ul style="list-style-type: none"> 4 substructures in river 	<ul style="list-style-type: none"> 3 substructures in river 	<ul style="list-style-type: none"> 4 substructures in river
Hydraulic Considerations	<ul style="list-style-type: none"> 0.16" (4mm) 100 year surface elevation decrease in permanent condition 0.08" (2mm) 100 year surface elevation increase in temporary condition Total scour estimated at 31.34' (9.6m) for 100 year event and 33.28' (10.1m) for 500 year event 	<ul style="list-style-type: none"> 0.20" (5mm) 100 year surface elevation decrease in permanent condition 0.04" (1mm) 100 year surface elevation decrease in temporary condition Total scour estimated at 30.85' (9.4m) for 100 year event and 32.69' (10.0m) for 500 year event 	<ul style="list-style-type: none"> 0.16" (4mm) 100 year surface elevation decrease in permanent condition 0.08" (2mm) 100 year surface elevation increase in temporary condition Total scour estimated at 31.34' (9.6m) for 100 year event and 33.28' (10.1m) for 500 year event
Potential Temporary Bent Needs	<ul style="list-style-type: none"> If temporary bents are used, scheme appears to exist which only uses 4 Potential to avoid temporary bents in span 3 exists 	<ul style="list-style-type: none"> If temporary bents are used, at minimum, 6 are needed, likely 8 	<ul style="list-style-type: none"> If temporary bents are used, scheme appears to exist which only uses 4 Potential to avoid temporary bents in span 3 exists
Potential Impact to Navigational Openings During Construction	<ul style="list-style-type: none"> Truss span 3 constrained approximately 25' (7.6m) Truss span 4 constrained approximately 60' (18.3m) Temporary bents, if used, can likely be placed outside of truss spans 3 and 4, minimizing construction impacts 	<ul style="list-style-type: none"> Piers located close to existing piers, offset about 25' (7.6m) to avoid existing pier elements Temporary bents, if used, may be placed approximately midspan of truss spans 3 and 4 	<ul style="list-style-type: none"> Truss span 3 constrained approximately 25' (7.6m) Truss span 4 constrained approximately 60' (18.3m) Temporary bents, if used, can likely be placed outside of truss spans 3 and 4, minimizing construction impacts

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix C – Alternatives Development



Figure 32: Preferred Alternative Visualization Aerial Facing U.S. Port of Entry

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix C – Alternatives Development



Figure 33: Preferred Alternative Visualization from Bridge

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix C – Alternatives Development



Figure 34: Preferred Alternative Visualization from Rainy River

Appendix D– AGENCY CORRESPONDENCE

- WCA Notice of Decision. November 20, 2015.
- U.S. Army Corps of Engineers letter of approval. January 11, 2016.
- MnDOT Section 7 Notification of Determination. March 1, 2016.
- Email from MnDNR. June 19, 2015.
- MnDOT Roadside Vegetation Management Unit Response Memo. August 26, 2013.
- Email from MnDNR confirming no Section 6(f) involvement. January 20, 2016.
- Draft de minimis impact finding of Peace Park Letter seeking concurrence from City of Baudette. January 18, 2017.
- Temporary Occupancy of Peace Park letter; concurrence from City of Baudette. January 10, 2017.
- Email from MnDOT Aeronautics. December 15, 2015.
- BDE Airspace, Baudette / Rainy River Figure. June 16, 2015.

Minnesota Wetland Conservation Act

Notice of Decision

Local Government Unit (LGU) Lake of the Woods County Land & Water Planning Office	Address 206 8th Avenue SE Suite #290 Baudette MN 56623
Minnesota Department of Transportation Office of Environmental Stewardship	395 John Ireland Blvd Mailstop 620 St. Paul MN 55155-1899

1. PROJECT INFORMATION

Applicant Name MNDOT Bemidji District (Staci Cann)	Project Name TH 72 SP 3905-09	Date of Application October 20, 2015	Application Number 102015
<input checked="" type="checkbox"/> Attach site locator map.			

Type of Decision:

<input checked="" type="checkbox"/> Wetland Boundary or Type	<input type="checkbox"/> No-Loss	<input type="checkbox"/> Exemption	<input type="checkbox"/> Sequencing
<input type="checkbox"/> Replacement Plan	<input type="checkbox"/> Banking Plan		

Technical Evaluation Panel Findings and Recommendation (if any):

<input checked="" type="checkbox"/> Approve	<input type="checkbox"/> Approve with conditions	<input type="checkbox"/> Deny
Summary (or attach): The TEP reviewed the site with Mike Pederson, Stantec, to verify the delineated wetland boundary and recommends approval as presented.		

2. LOCAL GOVERNMENT UNIT DECISION

Date of Decision: November 19, 2015		
<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Approved with conditions (include below)	<input type="checkbox"/> Denied

LGU Findings and Conclusions (attach additional sheets as necessary):

<p>This Notice of Decision encompasses the entire "study area" as defined in the wetland delineation report dated July 31, 2015, for the Rainy River International Bridge Replacement project. This Notice of Decision provides approval from the two local government units (LGU) having authority within the current right-of-way (ROW) for Highway 72 and other properties identified within the "study area".</p> <p>The TEP reviewed the site on November 19, 2015, in order to verify the delineated wetland boundaries. Based upon the TEP review of the site, the LGU's concur with the recommendation of the TEP to approve the wetland delineation.</p>

For Replacement Plans using credits from the State Wetland Bank:

Bank Account #	Bank Service Area	County	Credits Approved for Withdrawal

Replacement Plan Approval Conditions. In addition to any conditions specified by the LGU, the approval of a Wetland Replacement Plan is conditional upon the following:

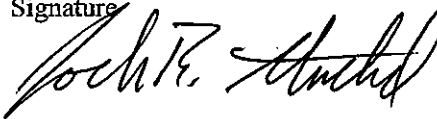
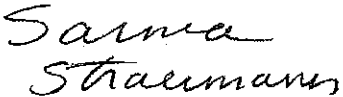
Financial Assurance: For project-specific replacement that is not in-advance, a financial assurance specified by the LGU must be submitted to the LGU in accordance with MN Rule 8420.0522, Subp. 9 (List amount and type in LGU Findings).

Deed Recording: For project-specific replacement, evidence must be provided to the LGU that the BWSR "Declaration of Restrictions and Covenants" and "Consent to Replacement Wetland" forms have been filed with the county recorder's office in which the replacement wetland is located.

Credit Withdrawal: For replacement consisting of wetland bank credits, confirmation that BWSR has withdrawn the credits from the state wetland bank as specified in the approved replacement plan.

Wetlands may not be impacted until all applicable conditions have been met!

LGU Authorized Signature:

Signing and mailing of this completed form to the appropriate recipients in accordance with 8420.0255, Subp. 5 provides notice that a decision was made by the LGU under the Wetland Conservation Act as specified above. If additional details on the decision exist, they have been provided to the landowner and are available from the LGU upon request.		
Name Josh Stromlund Sarma Straumanis	Title Land & Water Planning Director Wetland Program Coordinator (MNDOT)	
Signature  	Date November 20, 2015	Phone Number and E-mail (218) 634-1945 <u>josh_s@co.lake-of-the-woods.mn.us</u> (651) 366-3626 <u>sarma.straumanis@state.mn.us</u>

THIS DECISION ONLY APPLIES TO THE MINNESOTA WETLAND CONSERVATION ACT. Additional approvals or permits from local, state, and federal agencies may be required. Check with all appropriate authorities before commencing work in or near wetlands.

Applicants proceed at their own risk if work authorized by this decision is started before the time period for appeal (30 days) has expired. If this decision is reversed or revised under appeal, the applicant may be responsible for restoring or replacing all wetland impacts.

This decision is valid for three years from the date of decision unless a longer period is advised by the TEP and specified in this notice of decision.

3. APPEAL OF THIS DECISION

Pursuant to MN Rule 8420.0905, any appeal of this decision can only be commenced by mailing a petition for appeal, including applicable fee, within thirty (30) calendar days of the date of the mailing of this Notice to the following as indicated:

Check one:

<input checked="" type="checkbox"/> Appeal of an LGU staff decision. Send petition and \$500 fee (if applicable) to: Lake of the Woods County Land & Water Planning Office 206 8th Avenue SE Suite #290 Baudette MN 56623	<input type="checkbox"/> Appeal of LGU governing body decision. Send petition and \$500 filing fee to: Executive Director Minnesota Board of Water and Soil Resources 520 Lafayette Road North St. Paul, MN 55155
---	---

4. LIST OF ADDRESSEES

<input checked="" type="checkbox"/>	SWCD TEP member: Mike Hirst, P.O. Box 217, Baudette MN 56623
<input checked="" type="checkbox"/>	BWSR TEP member: Dale Krystosek, 403 4th St. NW Suite #200, Bemidji MN 56601
<input type="checkbox"/>	LGU TEP member (if different than LGU Contact):
<input checked="" type="checkbox"/>	DNR TEP member: Dan Thul, Eco/Water Resources
<input checked="" type="checkbox"/>	DNR Regional Office (if different than DNR TEP member): Nathan Kestner, Eco/Water Resources
<input type="checkbox"/>	WD or WMO (if applicable):
<input checked="" type="checkbox"/>	Applicant and Landowner (if different): John Smyth, Stantec (MNDOT Consultant) 2335 Highway 36 West St. Paul MN 55113-3819
	Joe McKinnon, MNDOT District 2 Project Engineer 3920 Highway 2 West, Bemidji MN 56601
<input type="checkbox"/>	Members of the public who requested notice:
<input checked="" type="checkbox"/>	Corps of Engineers Project Manager: Craig Jarnot, 4111 Technology Drive Suite #295, Bemidji MN 56601
	Benjamin Orne, 180 5th Street East, Suite 700, St. Paul MN 55101
<input type="checkbox"/>	BWSR Wetland Bank Coordinator (wetland bank plan decisions only)

5. MAILING INFORMATION

- For a list of BWSR TEP representatives: www.bwsr.state.mn.us/aboutbwsr/workareas/WCA_areas.pdf
- For a list of DNR TEP representatives: www.bwsr.state.mn.us/wetlands/wca/DNR_TEP_contacts.pdf
- Department of Natural Resources Regional Offices:

<u>NW Region:</u>	<u>NE Region:</u>	<u>Central Region:</u>	<u>Southern Region:</u>
Reg. Env. Assess. Ecol. Div. Ecol. Resources 2115 Birchmont Beach Rd. NE Bemidji, MN 56601	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1201 E. Hwy. 2 Grand Rapids, MN 55744	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1200 Warner Road St. Paul, MN 55106	Reg. Env. Assess. Ecol. Div. Ecol. Resources 261 Hwy. 15 South New Ulm, MN 56073

For a map of DNR Administrative Regions, see: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf

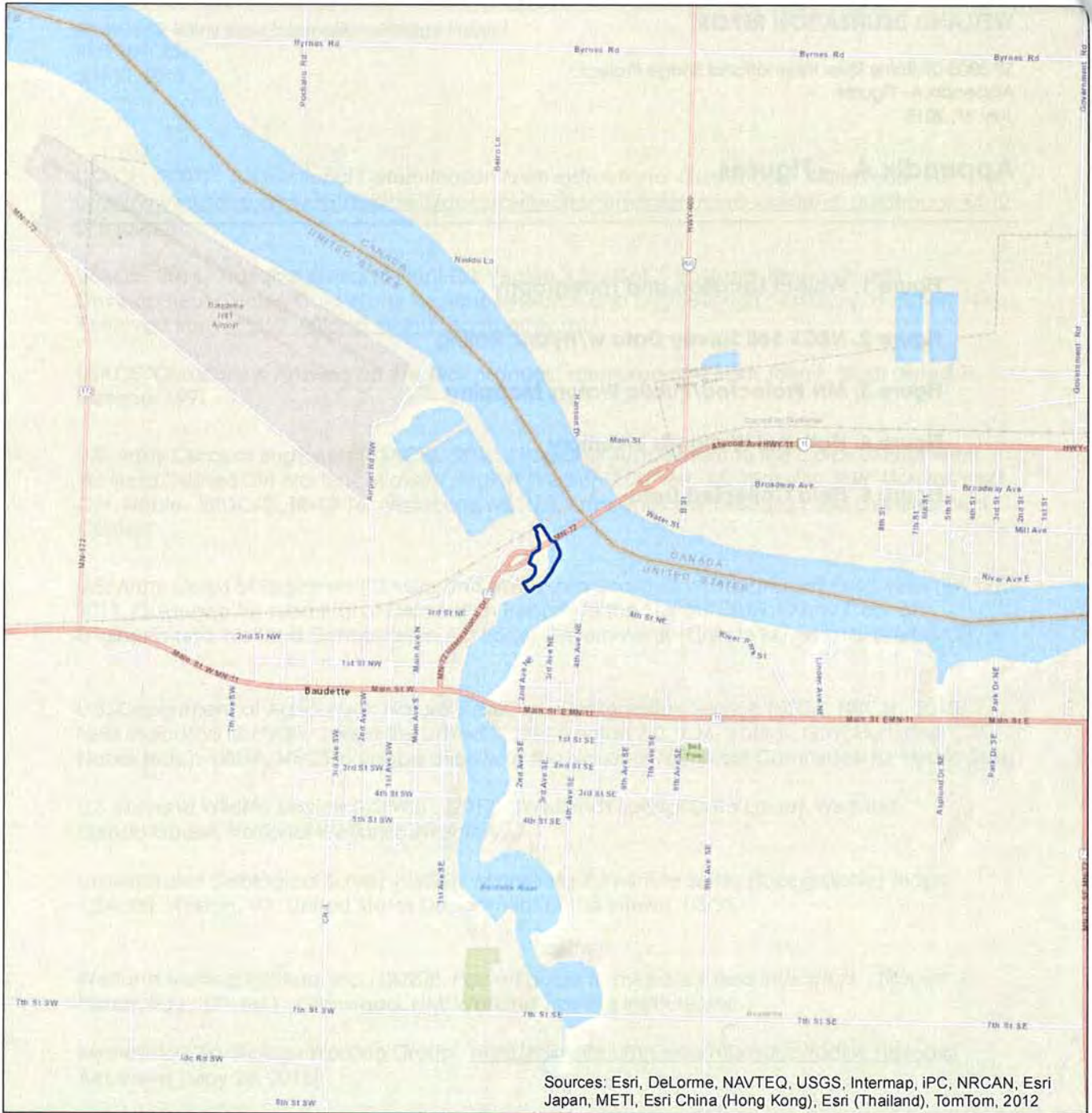
- For a list of Corps of Project Managers: www.mvp.usace.army.mil/regulatory/default.asp?pageid=687
or send to:

US Army Corps of Engineers
St. Paul District, ATTN: OP-R
180 Fifth St. East, Suite 700
St. Paul, MN 55101-1678

- For Wetland Bank Plan applications, also send a copy of the application to:
Minnesota Board of Water and Soil Resources
Wetland Bank Coordinator
520 Lafayette Road North
St. Paul, MN 55155

6. ATTACHMENTS

In addition to the site locator map, list any other attachments:
<input type="checkbox"/>
<input type="checkbox"/>



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012



Legend
 Study Area

Figure No.
1

Title
Project Location

Client/Project
Minnesota Department of Transportation
Baudette International Bridge

Project Location
193602870
T161N, R31W, S35
City of Baudette
Lake of the Woods Co., MN

Prepared by SF on 2015-05-18
 Technical Review by JM on 2015-07-13
 Independent Review by MP on 2015-07-13

0 1,000 2,000
 1:24,000 (at original document size of 8.5x11)

Notes

1. Coordinate System: NAD 1983 StatePlane Minnesota North RPS 2201 Feet
2. Data Sources Include: Stantec and Esri.
3. Base Data: World Street Map

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.





REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 FIFTH STREET EAST, SUITE 700
ST. PAUL MN 55101-1678

JAN 11 2016

Operations
Regulatory (2010-05515-BGO)

Stantec Consulting Services, Inc.
c/o Mr. John Smyth
2335 Highway 36 West
St. Paul, Minnesota 55113

Dear Mr. Smyth:

This letter is in response to your correspondence dated September 23, 2015, requesting Corps of Engineers concurrence with the delineation of aquatic resources and a preliminary jurisdictional determination (JD) for the SP 3905-09 Rainy River International Bridge Replacement site located in Section 35, Township 161N, Range 31W, Lake of the Woods County, Minnesota. The review area for our jurisdictional determination is identified as the "Study Area" on the attached figures labeled MVP-2010-05515-BGO, Page 1 of 2 through Page 2 of 2.

We have reviewed the July 31, 2015 delineation report titled *SP 3905-09 – Rainy River International Bridge Replacement* and determined that the limits of the aquatic resources have been accurately identified in accordance with current agency guidance including the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region. This concurrence is only valid for the review area shown on the attached figures. The boundaries shown on Figure 5 accurately reflect the limits of the aquatic resources in the review area.

This concurrence may generally be relied upon for five years from the date of this letter. However, we reserve the right to review and revise our concurrence in response to changing site conditions, information that was not considered during our initial review, or off-site activities that could indirectly alter the extent of wetlands and other resources on-site. Our concurrence may be renewed at the end of this period provided you submit a written request and our staff are able to verify that the determination is still valid.

This preliminary JD presumes that all of the aquatic resources identified in the review area are subject to Corps of Engineers jurisdiction under the Clean Water Act. Since the determination is considered preliminary it is not appealable under our administrative appeal procedures (33 CFR 331). If you prefer an appealable approved jurisdictional determination that verifies the jurisdictional status of the aquatic resources within the review area you may request one by contacting the Corps representative identified in the final paragraph of this letter.

Operations
Regulatory (2010-05515-BGO)

-2 -

If this preliminary JD is acceptable, please sign and date both copies of the Preliminary Jurisdictional Determination Form and return one copy to the letterhead address within 15 days from the date of this letter.

Thank you for your cooperation with the U.S. Army Corps of Engineers regulatory program. If you have any questions, please contact me in our St. Paul office at (651) 290-5280 or benjamin.g.orne@usace.army.mil. In any correspondence or inquiries, please refer to the Regulatory number shown above.

Sincerely,



Benjamin Orne
Senior Project Manager

Enclosures

cc:

Joe McKinnon, MnDOT
Sarma Straumanis, MnDOT
Josh Stromlund, Lake of the Woods County



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

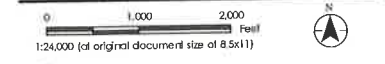


Legend
 Study Area

Figure No.
1
 Title
Project Location

Client/Project
 Minnesota Department of Transportation
 Baudette International Bridge

Project Location
 1161N, R31W, S35
 City of Baudette
 Lake of the Woods Co., MN
 Independent Review by MF on 2015-07-13

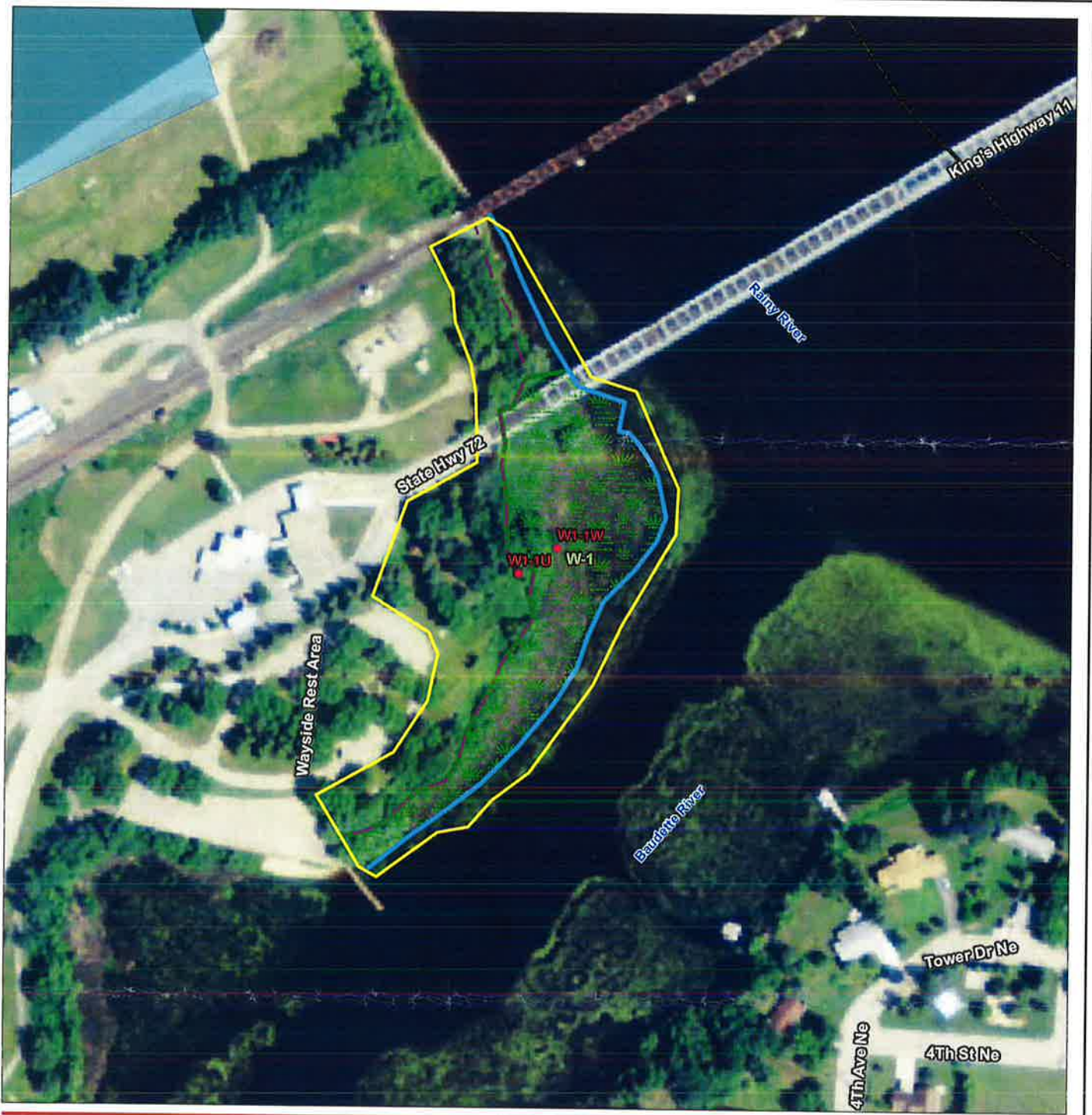


Notes
 1. Coordinate System: NAD 1983 StatePlane Minnesota North FIPS 2201 Feet
 2. Data Sources include: Stantec and Esri.
 3. Base Data: World Street Map.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Photo Courtesy: Aerial View of the Study Area. Prepared by Stantec on 2015-05-18. Revised: 2015-12-22. Project No. 193602670



Legend

- Study Area
- Sample Points
- Field Delineated Wetland
- Field Delineated Wetland Area
- ~ Water Level at Site Visit
- ~ Ordinary High Water Mark
- National Hydrography Data
- ~ Perennial Stream
- ~ Intermittent Stream
- ~ Waterbody

Figure No.
5

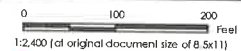
DRAFT

Title
Field Collected Data

Client/Project
Minnesota Department of Transportation
Baudette International Bridge

Project Location
116 1/2 R31W, S25
City of Baudette
Lake of the Woods Co., MN

193602670
Prepared by SF on 2015-05-18
Technical Review by MP on 2015-05-18
Independent Review by JS on 2015-12-22



Notes
 1. Coordinate System: NAD 1983 StatePlane Minnesota North FIPS 2201 Feet
 2. Data Sources Include: Stantec, USGS, and Esri.
 3. Orthophotography: 2013 NAIP

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

copy mailed to COE

PRELIMINARY JURISDICTIONAL DETERMINATION FORM 1/20/16

This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: St. Paul District File/ORM #: MVP-2010-05515-BGO PJD Date: Dec 23, 2015

State: MN City/County: Lake of the Woods County
Nearest Waterbody: Rainy River and Baudette River
Location: TRS, Lat/Long or UTM: Section 35, Township 161N, Range 31W
Name/Address of Person Requesting PJD: Stantec Consulting Services Inc. c/o Mr. John Smyth 2335 Highway 36 West St. Paul, Minnesota 55113

Identify (Estimate) Amount of Waters in the Review Area:
Non-Wetland Waters: 1,000 linear ft x 250 width x 3.0 acres Stream Flow: Perennial
Wetlands: 1.98 acre(s) Cowardin Class: Palustrine, emergent
Name of Any Water Bodies on the Site Identified as: Rainy River
Office (Desk) Determination checked
Field Determination unchecked
Date of Field Trip: []

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: July 31, 2015 Delineation Report
Data sheets prepared/submitted by or on behalf of the applicant/consultant.
Office concurs with data sheets/delineation report.
Office does not concur with data sheets/delineation report.
Data sheets prepared by the Corps
Corps navigable waters' study: []
U.S. Geological Survey Hydrologic Atlas:
USGS NHD data.
USGS 8 and 12 digit HUC maps.
U.S. Geological Survey map(s). Cite quad name: 24K MN-BAUDETTE
USDA Natural Resources Conservation Service Soil Survey. Citation: Lake of the Woods County Soil Survey
National wetlands inventory map(s). Cite name: MN NWI
State/Local wetland inventory map(s): []
FEMA/FIRM maps: []
100-year Floodplain Elevation is: []
Photographs: Aerial (Name & Date): FSA 2013
Other (Name & Date): []
Previous determination(s). File no. and date of response letter: []
Other information (please specify): Lake of the Woods LiDAR Data

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED): Benjamin Orr 12/23/2015

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable): [Signature] 1/20/16

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:
1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Appendix A - Sites

District Office File/ORM # PJD Date:
 State City/County Person Requesting PJD

Site Number	Latitude	Longitude	Cowardin Class	Est. Amount of Aquatic Resource in Review Area	Class of Aquatic Resource
W1	48.718	-94.593	Palustrine, emergent	1.98 ac	non-section 10 - wetland
T1	48.719	-94.593	Riverine	230 lf (0.30 ac)	section 10 - tributary
T2	48.717	-94.593	Riverine	770 lf (2.7 ac)	non-section 10 - tributary

Notes:

T1 - Rainy River
 T2 - Baudette River



Minnesota Department of Transportation

395 John Ireland Boulevard
Saint Paul, MN 55155

March 1, 2016

Andrew Horton
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Twin Cities ES Field Office
4101 American Blvd East
Bloomington, MN 55425-1665

Notification of Determination – May Affect, but will not cause prohibited incidental take – northern long-eared bat (*Myotis septentrionalis*)

No Effect Determination – Canada lynx (*Lynx canadensis*)

No Effect Determination – gray wolf (*Canis lupus*)

No Effect Determination – piping plover (*Charadrius melodus*)

State Project 3905-09, Trunk Highway 72

Baudette, MN and Rainy River, Ontario; Lake of the Woods County; T 160, R 31, Section 2

This project proposes to replace bridge 9412 on Highway 72 over the Rainy River. Work will include bypass lane construction, stormwater pond construction, and up to 1.25 acres of tree removal.

Figure 1: View of Bridge 9412 from the east



Figure 2: Project Location



Figure 3: Locations of estimated tree removal on the MN shore



Species List for the Project County

According to the official County Distribution of Minnesota and Wisconsin's Federally-Listed Threatened, Endangered, Proposed, and Candidate Species list (revised in February 2016), maintained by the Service, the project county is within the distribution range of the following:

Revised February 2016

County	Species	Status	Habitat
Lake of the Woods	Canada lynx (<i>Lynx canadensis</i>)	Threatened	Northern forest
	Gray wolf <i>Canis lupus</i>	Threatened	Northern forest
	Northern long-eared bat <i>Myotis septentrionalis</i>	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
	Piping plover (<i>Charadrius melodus</i>) Northern Great Plains Breeding Population	Threatened; and Critical Habitat	Sandy beaches, islands Map of Critical Habitat Unit (1-page PDF)

No Effect Determinations

Section 7 of Endangered Species Act of 1973, as amended (Act), requires each Federal agency to review any action that it funds, authorizes or carries out to determine whether it may affect threatened, endangered, proposed species or listed critical habitat. Federal agencies (or their designated representatives) must consult with the U.S. Fish and Wildlife Service (Service) if any such effects may occur as a result of their actions. Consultation with the Service is not necessary if the proposed action will not directly or indirectly affect listed species or critical habitat. If a federal agency finds that an action will have no effect on listed species or critical habitat, it should maintain a written record of that finding that includes the supporting rationale.

No Effect Determination – canada lynx (*Lynx canadensis*)

No Effect Determination – gray wolf (*Canis lupus*)

No Effect Determination – piping plover (*Charadrius melodus*)

Lynx canadensis – Determination of No Effect

The proposed project will replace the bridge in place. Any impacts to adjacent habitat will be minimal. This project is outside of any critical habitat designated for this species. **Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.**

Canis lupus – Determination of No Effect

The proposed project will replace the bridge in place. Any impacts to adjacent habitat will be minimal. This project is outside of any critical habitat designated for this species. **Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.**

Charadrius melodus – Determination of No Effect

There are no known occurrences of the species in the project area and the project is outside of any critical habitat identified for this species. **Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.**

Notice of Determination

Northern long-eared bat— May Affect, but will not cause prohibited incidental take.

According to the information provided, this project will include bridge replacement and tree removal. There are no known occurrences of NLEB roost trees or hibernacula in the vicinity of this project. Although there is a slight chance that this work could impact bats, it is not considered to be prohibited incidental take based on the final 4(d) rule for the northern long-eared bat as published on January 14, 2016 and effective beginning February 16, 2016.

Based on the optional framework for section 7 consultation described in the Programmatic Biological Opinion on the Final 4(d) Rule for the Northern Long-Eared Bat, MnDOT on behalf of the FHWA has determined that the proposed action may affect, but will not cause prohibited incidental take of the northern long-eared bat (Myotis septentrionalis). MnDOT will proceed with this action unless we receive additional information from the service within 30 days.

Please contact me if there are any questions or concerns.

Ken Graeve
Minnesota Department of Transportation,
Office of Environmental Stewardship
395 John Ireland Boulevard,
St. Paul, MN 55155
Phone: 651-366-3613
Email: kenneth.graeve@state.mn.us

From: Leete, Peter (DOT) [<mailto:peter.leete@state.mn.us>]

Sent: Friday, June 19, 2015 10:01 AM

To: Cann, Staci (DOT)

Cc: Maahs-Henderson, Theresa; Wingard, John (DOT); Wingert, Sarah E MVP (Sarah.E.Wingert@usace.army.mil); Straumanis, Sarma (DOT); Joyal, Lisa (DNR); Bump, Samantha (DNR); Kestner, Nathan (DNR); Talmage, Phil J (DNR); Alcott, Jason (DOT); Dahlin, Greg (DNR); Thul, Dan C (DNR); Laudenslager, Scott L (DNR); Tom.Kleinboeck@dfo-mpo.gc.ca

Subject: DNR Comments on MnDOT Early Notification Memo, TH72 Rainy River Bridge Replacement (SP3905-09), LOTW Co

Staci,

This email is the DNR response for your project records. The DNR has had input on this project at several opportunities over the past four years, though I find no record of a single summary of concerns/issues. I am now getting calls for such a letter now that the project is moving into the next phase. With a new set of consultants and project managers, I agree that one is needed. Most concerns are in regards to temporary impacts during construction/demolition. Though staging for these concerns could impact project development and final design. Please consider the following comments as final designs and special provisions are developed:

1. The Rainy River is a Public Waters. A Public Waters Work Permit will be required. Though, as you know there is a General Permit to MnDOT for replacement of bridges and culverts to aid in streamlining of the permit process. A copy of the DNR's General Permit to MnDOT (GP2004-0001) is attached, please review all the conditions of this permit and integrate their requirements into project design. Please contact me if you have questions on any of its requirements. Authorization for the project will require final review at a later date. When the project is further along, please enter the project into the DNR online permitting system (MPARS) when there is enough information to do so: www.dnr.state.mn.us/mpars. Specific items to incorporate into design and construction are:
 - A. As the project moves forward, design of the crossing should meet the conditions listed in GP 2004-0001: http://files.dnr.state.mn.us/waters/watermgmt_section/pwpermits/General_Permit_2004-0001.pdf. Additional information, including options on how to meet the conditions of the GP are presented in the collection of ' Best Practices for Meeting GP 2004-0001', at http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html
 - B. We typically limit work in the water (Work Exclusion dates) to allow for undisturbed fish migration and spawning. These dates are March 15 through June 15. While we may revise these dates for a particular project, there may still be limitations on the types of work during this time. The Rainy river is an important fisheries resource. As such, the waiving of these dates is not likely – see 'C' below.

Please be aware that the MPCA NPDES general permit for authorization to discharge stormwater associated with construction activities (permit MN R10001) recognizes the DNR "work in water restrictions" during specified fish migration and spawning time frames for areas adjacent to water. During the restriction period, all exposed soil areas that are within 200 feet of the water's edge and drain to these waters, must have

erosion prevention stabilization activities initiated immediately after construction activity has ceased (and be completed within 24 hours).

- C. Approval of construction and demolition methods will need to occur at a later date, though be aware that due to the work exclusion dates, in-water work will be limited or prohibited from March 15 through June 15. Typical movement of barges and tugs for above water construction will not be an issue during these dates. However, seismic activities could frighten or harm migrating or spawning fish. As such, pile driving, sheet pile installation/removal, or implosions for span or pier removal of the existing bridge we would not be allowed. Please design the projects staging to avoid these types of activities during the dates given. IE: stage pier construction to begin after June 15 and be up and out of the water prior to March 15. Ditto for bridge pier demolition.
 - D. Revegetation of disturbed soils should include native mixes in areas that are not proposed for mowed turf grass. Please utilize the native recommendations developed by BWSR (http://www.bwsr.state.mn.us/native_vegetation/) or MnDOT' in the 'Turf Establishment Recommendations – dated April 14, 2014 (<http://www.dot.state.mn.us/environment/erosion/seedmixes.html>). In addition, for meeting DNR concerns, revegetation may include woody vegetation (trees and shrubs) in addition to grasses and/or forbs.
 - E. Water appropriation is not included in the GP. Please remind contractors that a separate water use permit is required for withdrawal of more than 10,000 gallons of water per day or 1 million gallons per year from surface water or ground water. GP1997-0005 (temporary water appropriations) covers a variety of activities associated with road construction and should be applied of if applicable. An individual appropriations permit may be required for projects lasting longer than one year or exceeding 50 million gallons. Information is located at: http://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/permits.html
2. The Rainy River has been designated as infested with aquatic invasive species due to the known presence of the spiny water flea. There are also reports of zebra mussels having been introduced into the watershed. By the time of bridge construction, precautions for the zebra mussel may also be in place. Attached are best practices that have been developed for construction equipment to prevent the spread of these species. This information is also online at http://files.dnr.state.mn.us/publications/ewr/invasives/ais/best_practices_for_prevention_ais.pdf
It is likely that a permit will be required for transporting construction equipment. More information is also at: http://www.dnr.state.mn.us/invasives/ais_transport.html
3. Aesthetic bridge lighting has not been in any discussions to date that I am aware of. However these large 'signature bridges' tend to have such a discussion at some point. Attached is what has been developed by the DNR, Audubon Society, and USFWS in regards to aesthetic lighting. This was developed primarily due potential conflicts with bird migrations in the Mississippi river flyway. I attach this as an FYI in case the question comes up.

4. The project shall allow for recreational navigation through the work area. Coordination with local authorities (including the DNR conservation officer) for providing passage is will need to occur as the project nears construction. Parameters to consider are a temporary no-wake zone and channel through the worksite delineated with a buoy system and be maintained throughout the project for the safest passage through the work site. This channel shall continue above and below the work site. Buoys must meet US Coast Guard regulations and DNR standards for channel navigation. Activities that would necessitate a temporary closure of all recreational navigation through the work site would require advance notification to local authorities. Being that this is an international boundary, such coordination will involve many authorities.
5. The Minnesota Natural Heritage Information System (NHIS) has been queried to determine if any rare plant or animal species, native plant communities, or other significant natural features are known to occur within an approximate one-mile radius of the project area. Based on this query, several rare features have been documented within the search area (If details are needed for documentation, please contact me). Please note that the following rare features *may* be impacted by the proposed project:
 - A. Lake Sturgeon (*Acipenser fulvescens*), a state listed 'Species of Concern' is known to exist in the Rainy River. Stringent prevention and control measures for debris and construction material containment should be in place to prevent adverse material from entering the river. Also see item 1.C for preventing adverse impacts during the spring migration and spawning period.

The NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. If information becomes available indicating additional listed species or other rare features, further review may be necessary.

DNR folks, if I've missed anything, or have any suggestions for MnDOT to consider, please respond ASAP to Staci, and myself.

Contact me if you have questions

Peter Leete
Transportation Hydrologist (DNR-MnDOT Liaison)
DNR Ecological & Water Resources
Ph: 651-366-3634



Best Practices for Preventing the Spread of Aquatic Invasive Species

All equipment¹ being transported on roads or placed in Waters of the State shall be free of prohibited and regulated invasive species and unlisted non-native species (any other species not native to Minnesota)

1. **Project plans or documents should identify Designated Infested Waters²** located in or near the project area.
2. **Prior to transportation along roads into or out of any worksite, or between water bodies within a project area, all equipment** must be free of any aquatic plants, water, and prohibited invasive species.
 - A. **Drain** all water from equipment where water may be trapped, such as tanks, pumps, hoses, silt curtains, and water-retaining components of boats/barges (see Figures 5 & 6) **AND**
 - B. **Remove** all visible aquatic remnants (plants, seeds and animals). Removal of mud & soil is not required at all sites, though is encouraged as a Best Practice. Removal of mud and soil may be required on sites designated as infested (see #4).
3. **Prior to placing equipment into any waters**, all equipment must be free of aquatic plants and non-native animals.
4. **Additional measures are required on Designated Infested Waters to remove and kill prohibited species such as zebra mussels, quagga mussels, New Zealand mudsnails, faucet snails, or spiny waterfleas.**

Note: The DNR is available to train site inspectors and/or assist in these inspections. Contact the appropriate Regional Invasive Species Specialist: www.mndnr.gov/invasives/ais/contacts.html

- A. For day use equipment (in contact with the water for 24 hours or less); Perform #2 above or.
- B. For in-water exposure greater than 24 hours: Perform #2 above, and inspect all equipment for the prohibited invasive species present (see Figure 1).

Then choose one of the following three: **on-site treatment**, **off-site treatment**, or **customized alternative**.

On-Site Treatment

Remove by handscraping or powerwashing (minimum 3000 psi) all accessible areas (Figures 1 and 2) **AND**

Kill Prohibited Aquatic Invasive Species in non-accessible areas using one or more of the following four techniques:

- **Hot Water (minimum 140°F) for ten seconds** (Figure 2) for zebra mussels, quagga mussels, New Zealand mudsnails, faucet snails **OR**
- **Air Dry** (Figures 3 & 4)
 - Spiny waterfleas – air dry for a minimum of 2 days
 - New Zealand mudsnails – air dry for a minimum of 7 days
 - zebra or quagga mussels, faucet snails – air dry for a minimum of 21 days **OR**
- **Freezing Temperatures**
 - zebra mussels - expose to continuous temperature below 32°F for 2 days **OR**
- **Crush**
 - Crush rock, concrete, or other debris by running it through a crushing plant to kill prohibited species

Off-Site Treatment

Under certain conditions, the DNR will allow transportation of equipment off-site after partial removal of prohibited species (for example, after “removal” has been done and equipment will be taken to a facility to complete final treatment [i.e., “kill”]) This is a ‘one-way pass’ to allow transport to a storage area or disposal facility. This option can only be utilized if the receiving site is at least 300 feet from riparian areas, wetlands, ditches, stormwater inlets or treatment facilities, seasonally-flooded areas, or other waters of the state. To be allowed to use the off-site treatment option you must do the following:

- Read, complete, and comply with the appropriate authorization form for transportation of Prohibited Invasive Species at www.mndnr.gov/invasives/ais_transport.html (Note that a completed form is required to be in every vehicle that is transporting equipment containing infested species) **AND**
- Complete on-site treatment described in 4B above prior to re-use in or adjacent to water.



Figure 1. Invasive species may not be readily visible on equipment. Some species are less than 1/4 inch in size.

Photo credit: Brent Wilber, Lunda Construction



Figure 2. Removal of aquatic remnants is required before transporting.

Photo credit: Peter Leete, DNR

Best Practices for Preventing the Spread of Aquatic Invasive Species

Contact a DNR Invasive Species Specialist for authorization of a customized alternative

There may be situations due to time of year, length of exposure, type of equipment, or site conditions that a DNR Invasive Species Specialist could approve alternative methods or requirements for treatment. Contact the appropriate Regional Invasive Species Specialist:
www.mndnr.gov/invasives/contacts.html

5. Temporary appropriations of water from Designated Infested Waters to utilize elsewhere (such as for dust control, landscaping, bridge washing, etc.) is not allowed except by permit, thus should be avoided.

If use of Designated Infested Waters is unavoidable, permit information is located at www.mndnr.gov/waters/watermgmt_section/appropriations/permits.html



Figure 3. Drying will also kill aquatic organisms. Lay out materials to dry in the proper time. Drying times vary by species. Inspect after drying period is over.
Photo credit: Dwayne Stenlund, MnDOT



Figure 4. Drying techniques must not trap water. This equipment will not dry adequately.
Photo credit: Peter Leete, DNR



Figure 5. Pumping from designated infested waters for use elsewhere on the project is prohibited without a permit.
Photo credit: Peter Leete, DNR



Figure 6. Drain all water from equipment where water may be trapped. Remove drain plugs and drain hoses prior to transport.
Photo Credit: Peter Leete, DNR

Document Information

www.mndnr.gov/waters/watermgmt_section/pwpermits/gp_2004_0001_manual.html

Best Practices for Meeting DNR GP 2004-0001 (published 5/11, updated 12/12) – Chapter 1/Page 8

More on the DNR Invasives Species Program can be found at: www.mndnr.gov/AIS

¹ 'Equipment' is defined as any implement utilized in construction. This includes boats, barges, heavy machinery, light machinery, or other material that may be moved on-site or off-site, including but not limited to rock (riprap) or timber for temporary workpads, backhoes, pumps, hoses, worksite isolation materials (eg, sheet pile or jersey barriers), boats, barges, temporary staging materials, erosion prevention products, sediment control products (eg, silt curtain), water trucks that take water from open bodies of water (eg, dust control), or dewatering components.

² List of Designated Infested Waters: http://files.dnr.state.mn.us/eco/invasives/infested_waters.pdf

DNR Contact Information



DNR Ecological and Water Resources lists area office staff at www.mndnr.gov/waters

DNR Ecological and Water Resources
500 Lafayette Road, Box 32, St. Paul, MN
55155-4032, (651)259-5700 or 5100

DNR Ecological and Water Resources website provides information at www.mndnr.gov or by calling (651) 259-5700 or 5100.

© 2013 State of Minnesota, Department of Natural Resources

DNR Information Center

Twin Cities: (651) 296-6157
Minnesota toll free: 1-888-646-6367
Telecommunication device for the deaf (TDD): (651) 296-5484
TDD toll free: 1-800-657-3929

This information is available in an alternative format on request

Equal opportunity to participate in and benefit from programs of the Minnesota Department of Natural Resources is available regardless of race, color, national origin, sex, sexual orientation, marital status, status with regard to public assistance, age, or disability. Discrimination inquiries should be sent to Minnesota DNR, 500 Lafayette Road, St. Paul, MN 55155-4049; or the Equal Opportunity Office, Department of the Interior, Washington, DC 20240.



Minnesota Department of Transportation
Roadside Vegetation Management Unit
395 John Ireland Boulevard
Saint Paul, MN 55155

Mail Stop 620
Office Phone 651-366-3610
Fax 651-366-3603

Memo

TO: J.T. Anderson, P.E.
Project Manager

FROM: Dan Gullickson *DG*
Natural Resource Program Coordinator

DATE: August 26, 2013

SUBJECT: SP 3905-09 (TH 72) Vegetation Review

I reviewed the area using ArcMap and the Video Log to determine potential vegetation impacts based on the information you supplied in your Early Notification Memo dated July 11, 2013 and our phone conversation on August 20, 2013. The following are my observations and recommendations.

Potential Impacts: There are not likely to be any impacts to rare species, rare native plant communities, trees, shrubs or other notable vegetation from this project. Typical erosion control and reseeding practices where soil disturbance occurs should suffice.

Should vegetation concerns become discovered during the upcoming public involvement process feel free to call upon me to take a closer look at any specific vegetation concerns that may arise.

Thank you for the opportunity to review this project for vegetation concerns. Please feel free to contact me if you have any other questions.

cc. Lynn Clarkowski-OES Director
Roadside Vegetation Management Unit

An Equal Opportunity Employer



Ribachonek, Allison

From: Hiller, Joe H (DNR) <Joe.Hiller@state.mn.us>
Sent: Wednesday, January 20, 2016 3:44 PM
To: Maahs-Henderson, Theresa
Subject: RE: LAWCON Funded Property - Baudette City Boat Launch Inquiry
Attachments: Baudette Map.PNG; Pages from LW27-00230_M.pdf; Pages from LW27-01051_M.pdf

Theresa,

Attached are three maps

1. Baudette Area showing the location of two funded parks
2. Project map of "Boat Launch" Grant 27-00230
3. Project map of "Timbermill Park" Grant 27-01051

The City has agreed to retain these sites and operate them solely for outdoor recreation. If your project would convert any part of them to a non-recreation use, please contact me.

Thanks for checking,

Joe Hiller
Park Grant Coordinator
MN Dept. of Natural Resources, Division of Parks and Trails
651-259-5538
Joe.hiller@state.mn.us
500 Lafayette Road, St. Paul, MN 55155-4039

From: Maahs-Henderson, Theresa [mailto:Theresa.Maahs-Henderson@stantec.com]
Sent: Wednesday, January 20, 2016 3:39 PM
To: Hiller, Joe H (DNR)
Subject: LAWCON Funded Property - Baudette City Boat Launch Inquiry

Hi Joe,
Since I have your email, I thought it might be easier for you to just to reply to an email.

Thanks again.

Theresa Maahs, PE, LEED AP

Project Manager
Stantec
2335 Highway 36 West St. Paul MN 55113
Phone: 651-604-4786
Cell: 612-749-9177
Fax: 651-636-1311
theresa.maahs@stantec.com



City of Baudette ... x
LW27-00230

Baudette - Timb... x
LW27-01051

MAP OF
BAUDETTE
 LAKE OF THE WOODS COUNTY
 POP. 1597

CANADA

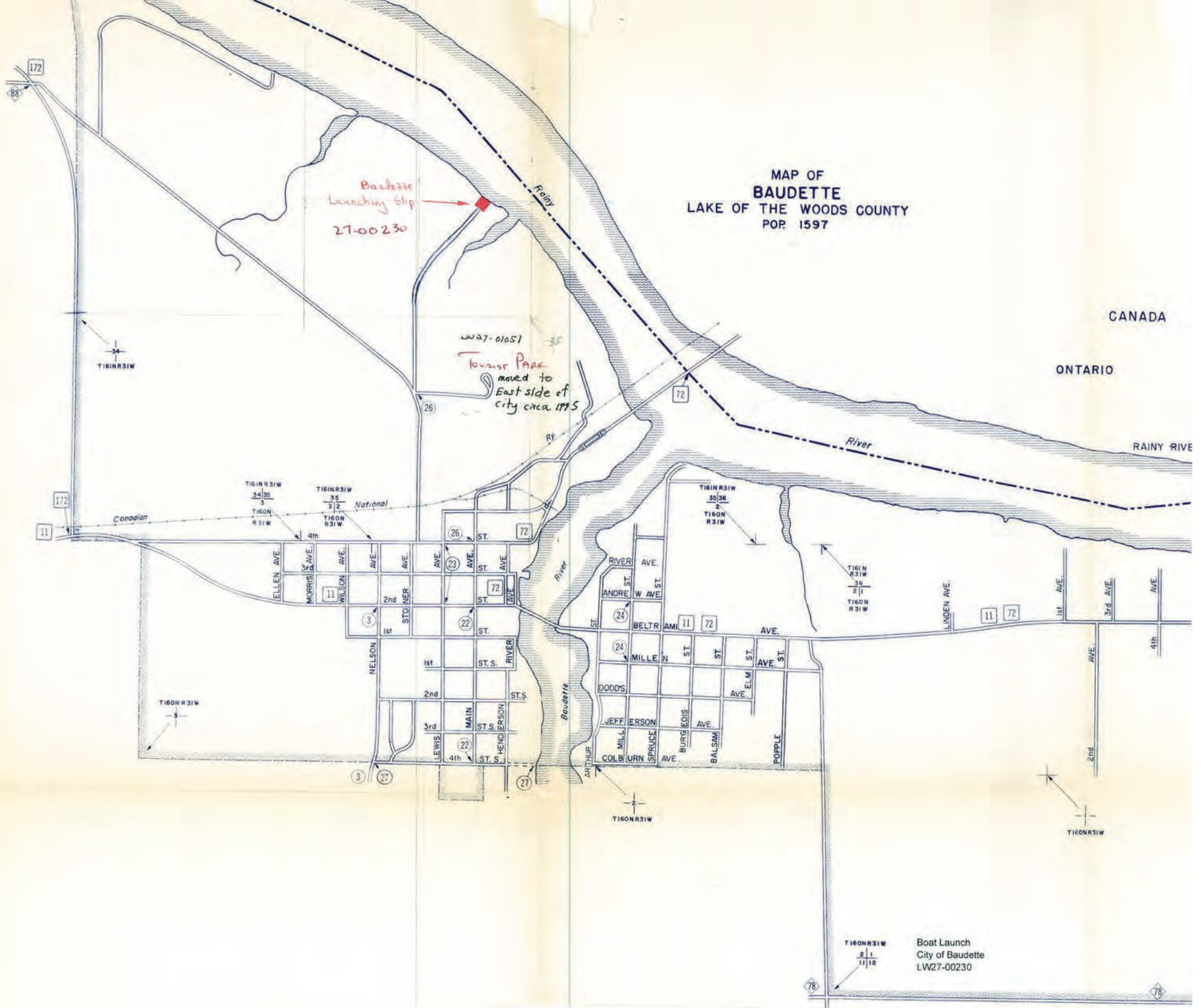
ONTARIO

RAINY RIVER

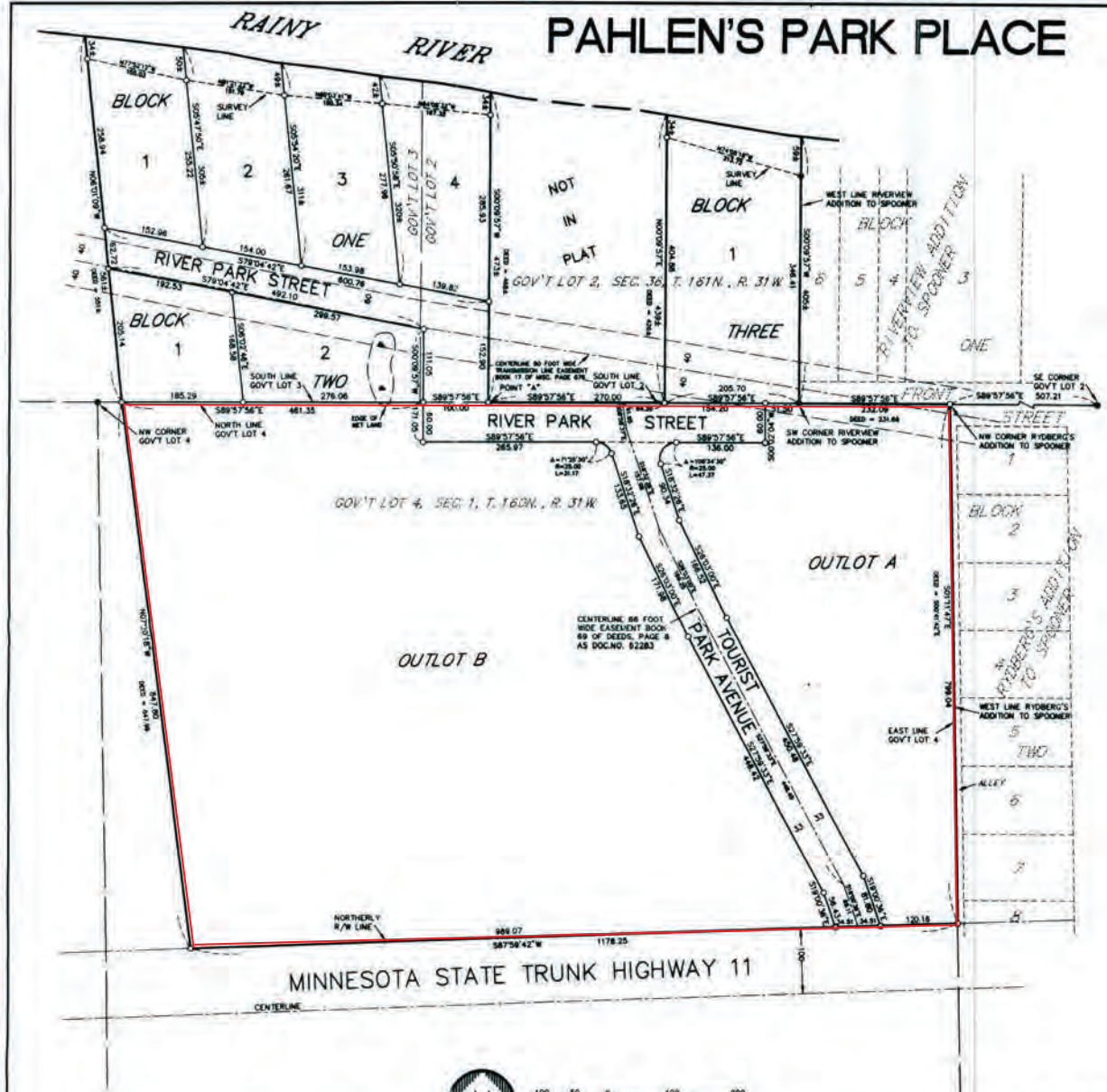
Baudette
 Launching slip
 27-00230

LW27-01051
 Tourist Park
 moved to
 East side of
 city circa 1995

Boat Launch
 City of Baudette
 LW27-00230



PAHLEN'S PARK PLACE



KNOW ALL PERSONS BY THESE PRESENTS: That Scott Pahlen and Carolyn Pahlen, husband and wife, are the owners of the following described property situated in Lake of the Woods County, Minnesota, to-wit:

LEGAL DESCRIPTION:
That part of Government Lot Two (2) and Three (3), Section Thirty-six (36), Township One Hundred Sixty-one (161) North, Range Thirty-one (31) West and that part of Government Lot Four (4), Section One (1), Township One Hundred Sixty (160) North, Range Thirty-one (31) West of the Fifth Principal Meridian in Minnesota, according to the United States Government Survey thereof, Lake of the Woods County, Minnesota described as follows, to-wit:

Commencing at the Northwest corner of RYDBERG'S ADDITION to Spooner; according to the plat on file in the office of the County Recorder, Lake of the Woods County, Minnesota: thence North 89 degrees 57 minutes 56 seconds West, along the South line of said Government Lot 2, Section 36, a distance of 231.66 feet to the Southwest corner of RIVERVIEW ADDITION to Spooner; the point of beginning of the tract to be described; thence reversing South 89 degrees 57 minutes 56 seconds East, a distance of 231.66 feet to the Northwest corner of said RYDBERG'S ADDITION; thence South 00 degrees 41 minutes 42 seconds East, along the West line of said RYDBERG'S ADDITION, a distance of 799.04 feet to the North right-of-way line of Minnesota's State Trunk Highway Number 11; thence South 87 degrees 59 minutes 42 seconds West, a distance of 1178.25 feet along the North right-of-way line of said Minnesota State Trunk Highway Number 11; thence North 07 degrees 20 minutes 18 seconds West, a distance of 847.95 feet to the South line of said Government Lot 3; thence North 04 degrees 01 minute 09 seconds West, a distance of 551 feet, more or less, to the shoreline of Rainy River; thence Easterly along the shoreline of the Rainy River, to the intersection with the line which bears North 09 degrees 09 minutes 57 seconds East from a point hereinafter designated as Point A (Point A is located as follows: Commencing at the southeast corner of Government Lot 2, Section 36, thence North 89 degrees 57 minutes 56 seconds West, assumed bearing along the South line of said Government Lot 2, a distance of 1215.00 feet to hereinafter designated Point A); thence South 00 degrees 09 minutes 57 seconds West, a distance of 468 feet, more or less, to hereinafter designated Point A; thence South 89 degrees 57 minutes 56 seconds East, a distance of 270.00 feet; thence North 00 degrees 09 minutes 57 seconds East, a distance of 426 feet, more or less, to the shoreline of the Rainy River; thence Easterly along the shoreline of the Rainy River, to the intersection with the West line of said RIVERVIEW ADDITION which bears North 00 degrees 09 minutes 57 seconds East from the point of beginning; thence South 00 degrees 09 minutes 57 seconds West, a distance of 405 feet, more or less, to the point of beginning. Subject to easements, reservations or restrictions of record, if any.

Have caused the same to be surveyed and platted as PAHLEN'S PARK PLACE and do hereby donate and dedicate to the public for public use forever RIVER PARK STREET and TOURIST PARK AVENUE, the roads shown on this plat and also dedicating the drainage and utility easements as shown on this plat for drainage and utility purposes only.

IN WITNESS WHEREOF, said Scott Pahlen and Carolyn Pahlen have hereunto set their hands this ____ day of _____ 19 ____

OWNERS:

State of Minnesota
County of _____

The foregoing instrument was acknowledged before me this ____ day of _____ 19 ____ by Scott Pahlen and Carolyn Pahlen, husband and wife:

Notary Public _____ County, Minnesota
My Commission Expires _____

I hereby certify that I have surveyed and platted the property described on this plat as PAHLEN'S PARK PLACE, that this plat is a correct representation of the survey, that all distances are correctly shown on the plat in feet and hundredths of a foot, that all monuments have been correctly placed in the ground as designated; that the outside boundary lines are correctly designated on the plat, and that there are no wet lands as defined in MS 505.02, Subd. 1, or public highways to be designated other than as shown.

Donn R. Rasmussen, Land Surveyor
Minnesota License Number 16102
State of Minnesota
County of Crow Wing

The foregoing Surveyor's Certificate was acknowledged before me this ____ day of _____ 19 ____ by Donn R. Rasmussen, Minnesota License Number 16102:

Notary Public _____ Crow Wing County, Minnesota
My Commission Expires _____

I hereby certify that I have checked the plat of PAHLEN'S PARK PLACE. I have found the mathematical computations to be correct, blocks and lots are correctly dimensioned and defined, related bearings and distances as shown are correct. This plat meets the requirements of Minnesota Statutes, Chapter 505.02. It is my professional opinion this plat is complete and accurate and I recommend it be approved for recording.

Donald Coulter, Land Surveyor
Minnesota License Number 5852

COUNTY TREASURER:
No delinquent taxes due and transfer entered this ____ day of _____ 19 ____

COUNTY TREASURER:
County Treasurer: _____

TAX STATEMENT:
I hereby certify that all taxes for 19 ____ on the land described herein are paid

BAUDETTE CITY COUNCIL:
I hereby certify that on the ____ day of _____ 19 ____ the City Council of the City of Baudette, Minnesota, approved this plat

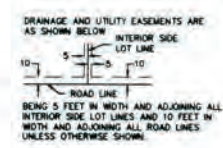
Mayor _____
County Treasurer _____

RECORDING CERTIFICATE:
I hereby certify that this instrument was filed in the office of the County Recorder for record on this ____ day of _____ 19 ____ at ____ o'clock ____ M., and was duly recorded in Plat file, Slide No. _____ instrument No. _____

County Recorder _____

6(f) Boundary Map 27-0151.1
City of Baudette - Timbermill Park
Add 22 acres to replace original Tourist Park near airport.

WIDSETH SMITH & NOLTING
2000 Industrial Park Blvd
P.O. Box 2700
Baudette, MN 56621
313-386-5117
313-386-5117
LAND SURVEYORS
PROFESSIONAL ARCHITECTS



- DENOTES IRON MONUMENT FOUND IN PLACE
 - DENOTES 1/2 INCH DIAMETER BY 18 INCH LONG IRON REBAR MONUMENT SET AND MARKED BY LICENSE NUMBER 16102.
 - ▲ DENOTES MET LAND
- ORIENTATION OF THIS BEARING SYSTEM IS BASED ON THE SOUTH LINE OF GOV'T LOT 2, SEC. 36, TO HAVE AN ASSUMED BEARING OF N89°57'36\"

BENCHMARK
SPIKE IN POWERPOLE WHICH IS
21 FEET NORTHWEST OF THE
SOUTHEAST CORNER OF LOT 1,
BLOCK THREE
ELEVATION = 1084.95
WATER ELEVATION OF RAINY RIVER
ON 12/15/98 = 1058.40
NAD 83 DATUM



U.S. Department
of Transportation
**Federal Highway
Administration**

Minnesota Division

January 18, 2017

380 Jackson Street
Cray Plaza, Suite 500
St. Paul, MN 55101-4802
651.291.6100
Fax 651.291.6000
www.fhwa.dot.gov/mndiv

January 17, 2017

Mr. Roger Schotl
Public Works Director
City of Baudette
219 8th Avenue SE
Baudette, MN 56623

RE: Baudette/Rainy River International Bridge Reconstruction
SP 3905-09
Request for Concurrence on De Minimis Impact to Park

Dear Mr. Schotl:

This letter is regarding the proposed impacts to the Peace Park property located adjacent to the existing international bridge crossing (Bridge #9412), as a result of the bridge replacement project. The Minnesota Department of Transportation (MnDOT), in cooperation with the Ontario Ministry of Transportation (MTO), is planning to replace the Baudette/Rainy River International Bridge on Minnesota Trunk Highway 72 in the City of Baudette and Highway 11 in the Town of Rainy River. The proposed improvements involve removing of the existing Bridge and constructing a replacement bridge on a new alignment. The project will also include tying the new bridge structure into the existing U.S. and Canadian approaches. Construction is anticipated to begin in 2018, with substantial completion by the end of 2019.

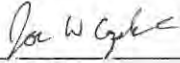
As you are aware, this project includes approximately 0.22 acres of temporary easement area to accommodate tree removal for construction movements and equipment (approximately four trees will be removed within the Peace Park boundary). This temporary impact area also includes possible minor excavation activities to facilitate the installation of the proposed bridge abutment and retaining wall. Lastly, construction of the proposed temporary causeway for construction staging will take place within park property. None of the existing park facility structures, historical markers, or graves will be removed, relocated, or temporarily disturbed. Upon construction completion, vegetation and landscaping will be restored as feasible and the existing facilities will not be impacted.

Under Section 4(f) of the U.S. Department of Transportation Act of 1966, this park property is considered a Section 4(f) resource. A review of the project impacts and proposed construction shows that the impacts to the park will be minimal and will not alter or affect the use of the park. Based on this assessment, we intend to make a determination that the impact to the park property would be de minimis.

In order to make the Section 4(f) de minimis finding, your written concurrence that this project will not adversely affect the activities, features, and attributes of the park property is necessary. To acknowledge that you have been notified of the intent to apply the Section 4(f) de minimis finding, and your agreement that the activities, features, and attributes of the park will not be adversely affected, please sign below and return the signed copy to me at the letterhead address. Your prompt response is appreciated.

If you have any questions, please call me at (651) 291-6121.

Sincerely,



Joe Campbell, P.E.
Area Engineer / Assistant Bridge Engineer

JOSEPH W CAMPBELL
2017.01.18 10:38:36 -06'00'

Date

As the official with jurisdiction over Peace Park, I hereby concur with the recommendation of the project proponents that the use and impacts associated with this project along with the identified avoidance, minimization, and mitigation measures, will not adversely affect the activities, features, and attributes that qualify the property for protection under section 4(f).

Mr. Roger Schotl
City of Baudette Public Works

Date

Date: January 10, 2017

Mr. Roger Schotl
Public Works Director
City of Baudette
219 8th Avenue SE
Baudette, MN 56623

RE: Baudette/Rainy River International Bridge Reconstruction
SP 3905-09
Temporary occupancy in Peace Park

Mr. Schotl:

The Minnesota Department of Transportation (MnDOT), in cooperation with the Ontario Ministry of Transportation (MTO), is planning to replace the Baudette/Rainy River International Bridge on Minnesota Trunk Highway 72 in the City of Baudette and Highway 11 in the Town of Rainy River – see Figure 1 which shows the project area.

The purpose of this project is to address the deteriorating condition of the existing bridge structure in order to maintain the international exchange of vehicular, freight and pedestrian traffic across the Rainy River at this location as follows:

- To provide a level of service that is consistent with the transportation needs of area residents, businesses and industries;
- To improve public safety by providing a roadway that conforms to the current minimum standards for geometry and width; and
- To ensure the continued serviceability of the route.

The proposed improvements involve removing of the existing Bridge and constructing a replacement bridge on a new alignment. The project will also include tying the new bridge structure into the existing U.S. and Canadian approaches. Construction is anticipated to begin in 2018, with substantial completion by the end of 2019.

Peace Park is a City Owned property, located directly adjacent to the project area and is considered to be subject to Section 4(f) regulations (23 CFR 774). Contractors may request to use a portion of Peace Park during construction for staging purposes, including storage of materials or equipment in the parking lot and using the boat launch to provide access to Rainy River through the Baudette River. If contractors utilize the park for staging in this manner, a temporary occupancy of Peace Park will occur – see Figure 2 which shows the anticipated temporary occupancy area in Peace Park.

As per the 23 CFR 774.13(d), a temporary occupancy does not constitute a Section 4(f) use when all of the conditions listed below are satisfied:

- **Duration must be temporary, less than the time needed for construction of the project, and there should be no change in ownership of the land;**
The duration of the occupancy would be temporary in nature. The City is anticipating that contractors may desire to utilize the parking lot, dock and boat landing within Peace Park for construction staging. The staging work would generally include transporting and storage of materials. SP 3905-09 is anticipated to be constructed under a single contract with a total estimated duration of two construction seasons (approximately 24 months). Staging activities will occur only during construction and will not last beyond the approximate 24 month period.
The City of Baudette will retain ownership of Peace Park throughout the duration of the project. No change in ownership will occur.
- **Scope of the work must be minor, both the nature and the magnitude of the changes to the Section 4(f) property are minimal;**
Contractor use of the parking lot, dock and boat landing would be temporary and will not result in any changes within Peace Park.
- **There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;**
There are no anticipated permanent adverse physical impacts or interference with the protected activities, features, or attributes of the property. The site would generally remain open during construction so that visitors would have access to the boat ramp, picnic tables, and other amenities on the site. Limited closures may be needed for safety concerns and for short-term nighttime work. Parking may be temporarily reduced; however additional parking is available on Trunk Highway 72.
- **The land being used must be fully restored, the property must be returned to a condition which is at least as good as that which existed prior to the project;**
The parking lot, driveway and dock areas will be fully restored to its prior use upon completion of the project. The land would be fully restored following construction, including replanting trees and other vegetation, repair of asphalt paving if necessary, and removal of all construction equipment and debris.
- **There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.**

Please review the attached figures and indicate your concurrence with the work proposed, and that the above conditions are met, by signing below. Please forward the signed original back to me for our records. I will forward this information to the Federal Highway Administration for concurrence.

If you have questions regarding this matter, feel free to contact me at your earliest convenience at 218-755-6517. Thank you.

Sincerely,

Joseph McKinnon, P.E.
Project Manager, MnDOT District 2

I concur that the assessment of impacts for each of the four conditions and understand this will likely result in a FHWA determination of a temporary occupancy in Peace Park.

Mr. Roger Schotl
City of Baudette Public Works

Date

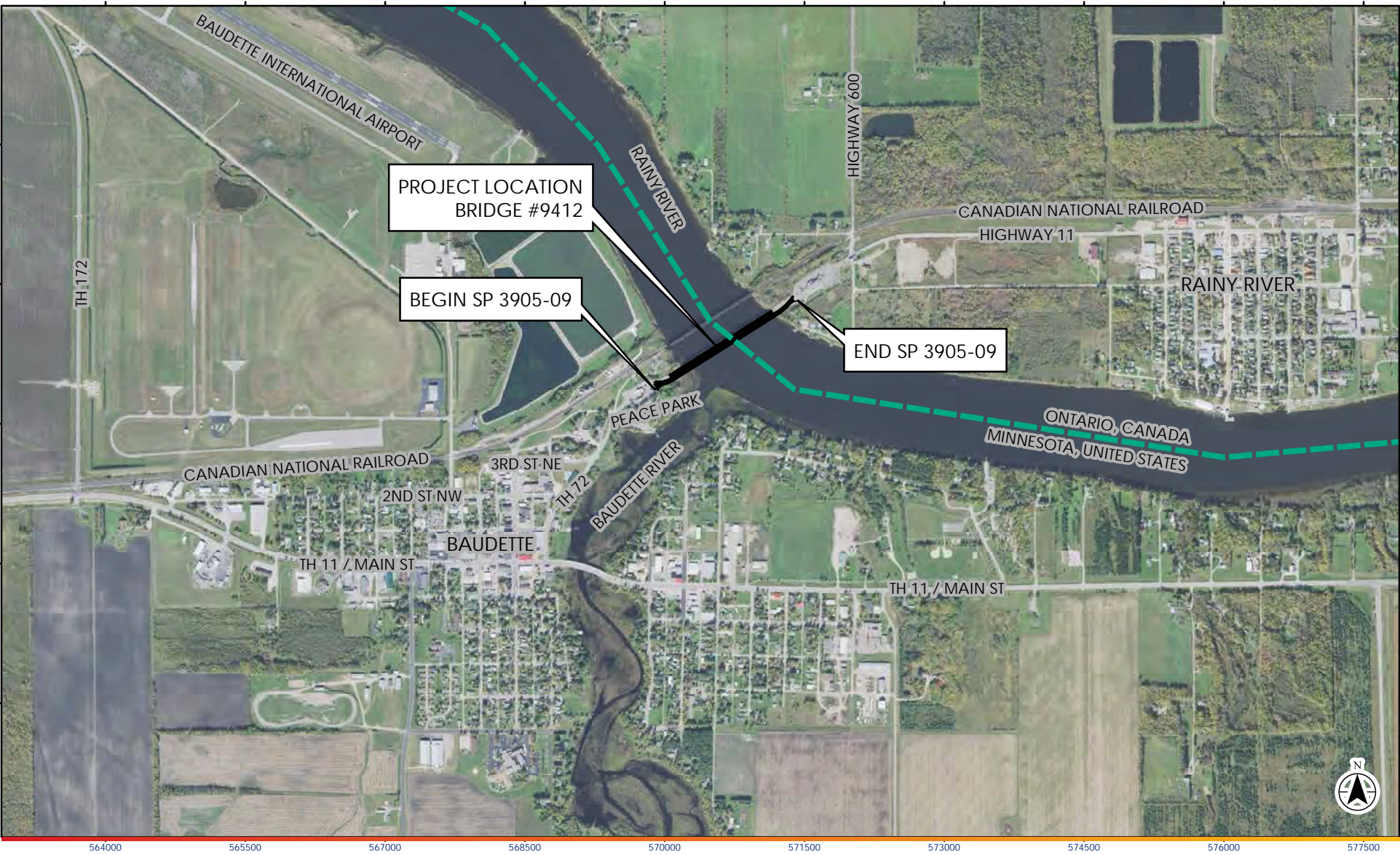
Attachments:

1. Figure 1 – Project Location Map
2. Figure 2 – Temporary Occupancy Area

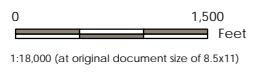
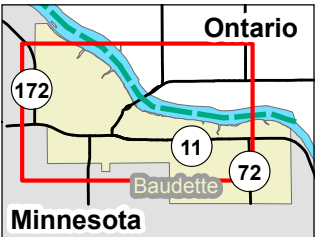
cc: Phil Forst, FHWA

DRAFT

\\US1291-101\workgroup\193802870\CIS\Projects\Park Impacts\AR Aerial & USGS Figures_2017-01-08.mxd
231000
229500
228000
226500
225000



231000
229500
228000
226500
225000



Notes
1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
2. Aerial: MnGEO WMS, 2015 FSA.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
T161N, R31W, S35
City of Baudette, MN

Prepared by arbachonek on 2017-01-08

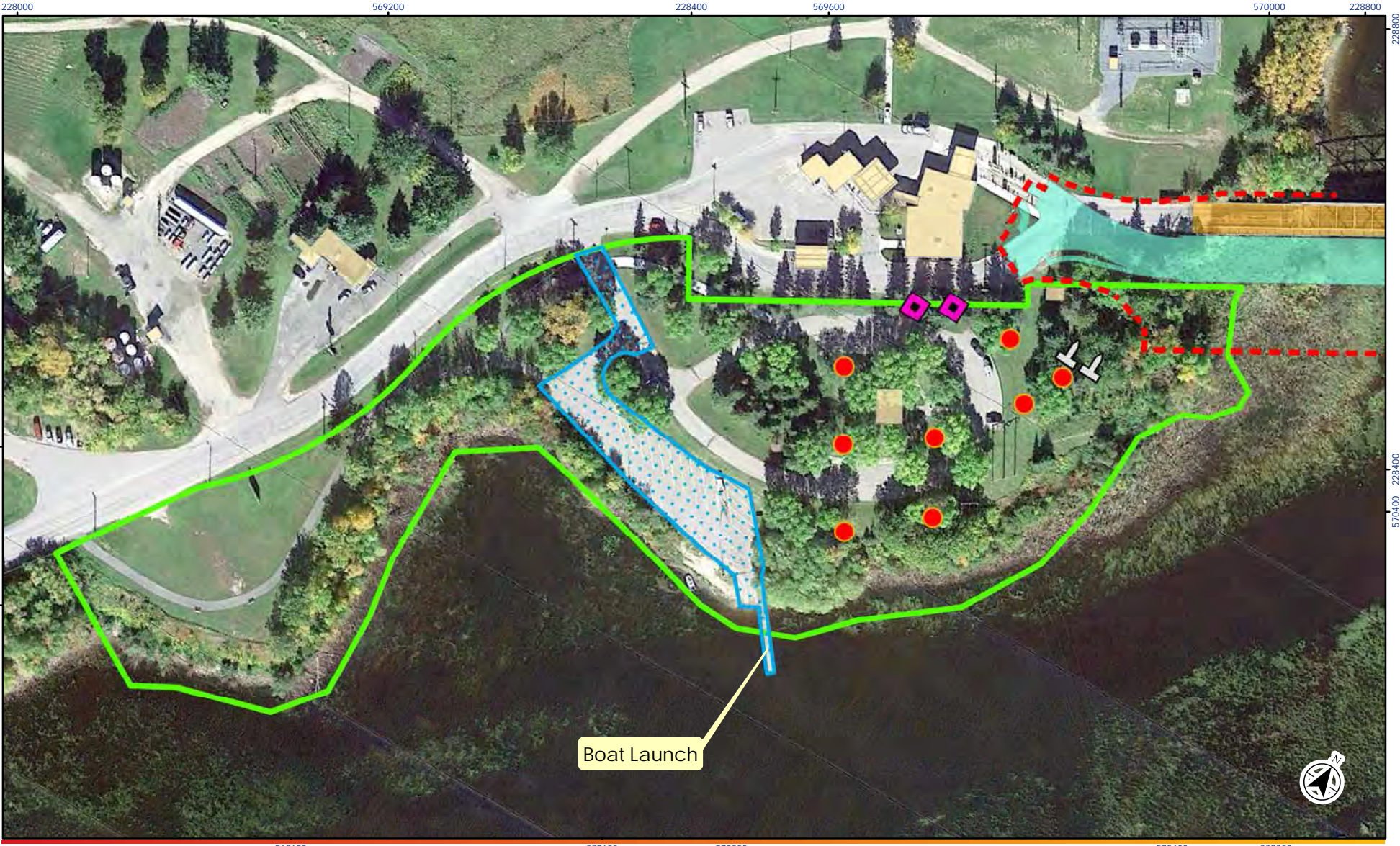
Client/Project SP 3905-09
MnDOT
Baudette/Rainy River International Bridge
Replacement

Figure No. 1

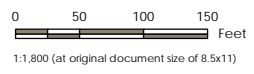
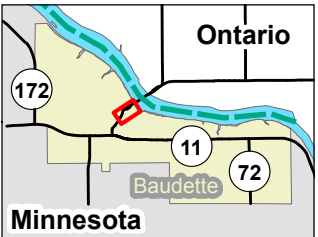
Title

PROJECT LOCATION AERIAL

\\US1291101\workgroup\193802870\GIS\Projects\Park Impacts\Temp Occupancy_2017-01-09.mxd
 Reviewed: 2017-01-09 By: arbachonek



Boat Launch



Legend

- - - Construction Limits on U.S. Soil
- █ Proposed Bridge & Approach
- █ Existing Bridge
- █ Existing Structures
- Peace Park
- Temporary Occupancy Area
- ▬ Gravesites
- Historic Markers
- Picnic Tables

Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
 2. Aerial: Google Earth, 2014.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Project Location 193802870
 T161N, R31W, S35
 City of Baudette, MN

Client/Project SP 3905-09
 MnDOT
 Baudette/Rainy River International Bridge Replacement

Figure No. 2
 Title

**PEACE PARK -
 TEMPORARY OCCUPANCY AREA**
Page 01 of 01

From: Obermoller, Rachel (DOT)
Sent: Tuesday, December 15, 2015 1:30 PM
To: McKinnon, Joseph (DOT)
Cc: Carr, Julie (DOT)
Subject: Baudette Bridge

Hi Joe,

Julie Carr and I both listened to the webinar last week on the Baudette bridge project, and just wanted to reiterate the need for the bridge to stay under a 50:1 slope from the end of the primary surface (200 feet beyond the end of the runway) across the span of the bridge which lies under the approach surface on that end of the runway. Of the concepts presented, several looked to have significant vertical height and we are concerned about the impact this could have on the airport in Baudette now and in the future. I know there was discussion about coordinating with the FAA to ensure the bridge does not pose an issue for the approaches to the airport, and we in addition would like to be involved in the discussion, as our office looks at the long term plans for the airport and the state licensing for the airport and want to prevent any issues now or down the road because of the design and location of the bridge.

Please let us know how we can be involved in the discussion or share our concerns for the project so they can be considered as the design is selected.

Rachel Obermoller
Aviation Representative – MnDOT Aeronautics
222 East Plato Boulevard
St. Paul, MN 55107
651-234-7207
Rachel.Obermoller@state.mn.us

Connect with us:



[Sign up for email updates](#)

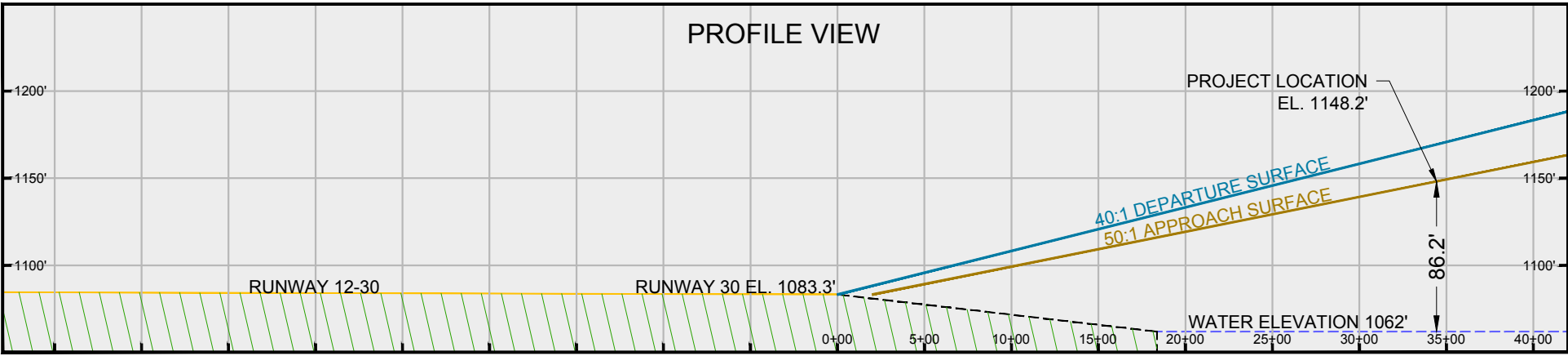
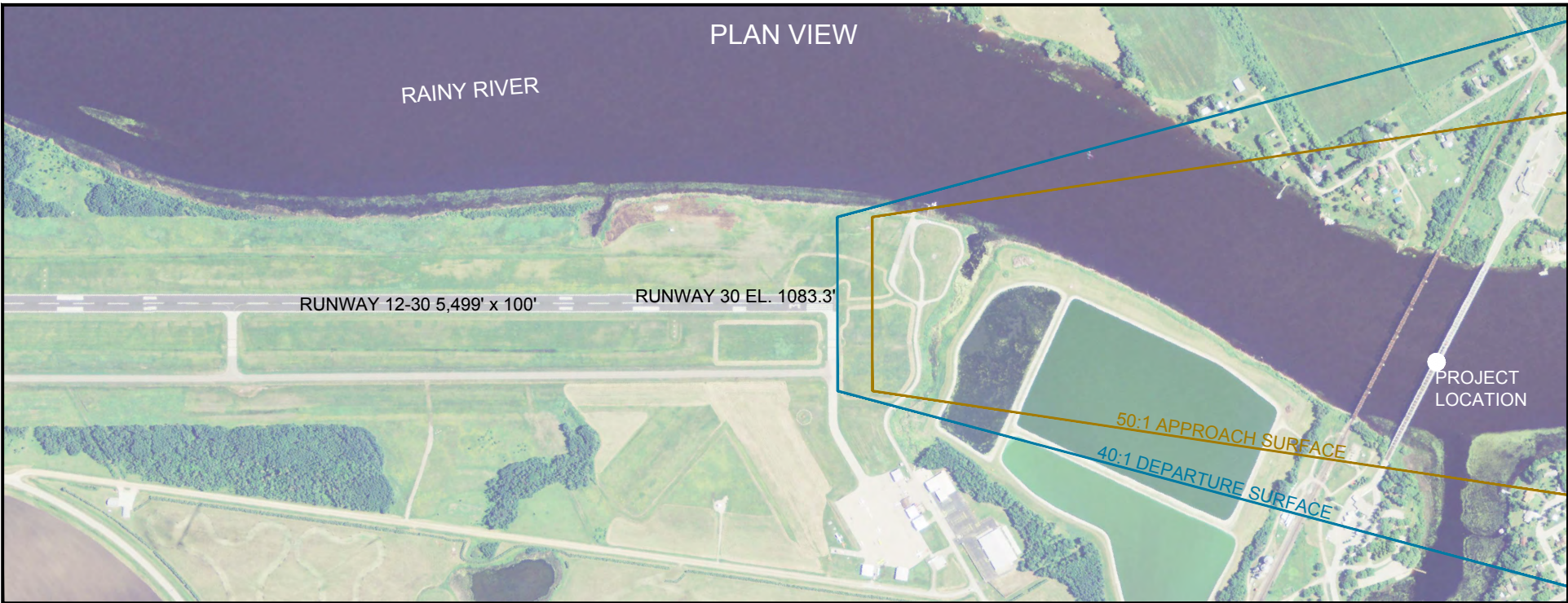


FIGURE 1
 BDE AIRSPACE
 BAUDETTE / RAINY RIVER
 06.16.2015

- GENERAL NOTES:**
- (1) VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
 - (2) ALL ELEVATIONS ARE HEIGHT ABOVE MEAN SEA LEVEL (MSL).
 - (3) ONLY THE CRITICAL APPROACH AND DEPARTURE AIRSPACE SURFACES ARE SHOWN HERE.



Appendix E – AGENCY CORRESPONDENCE – SECTION 106

- Letter from MnHPO to MnDOT CRU. June 6, 2014.
- Letter from MnHPO to MnDOT CRU. April 23, 2015.
- Letter from MnDOT CRU to MnHPO. September 9, 2015.
- Letter from MnHPO to MnDOT CRU. December 10, 2015.
- Section 106 Determination Letter from MnHPO (IN PROGRESS – DRAFT ATTACHED).

June 6, 2014

Elizabeth Abel
MnDOT Cultural Resources Unit
Transportation Building, Mail Stop 620
395 John Ireland Boulevard
St. Paul MN 55155-1899

RE: S.P. 3905-09
Repair or Replace Bridge No. 9412 over the Rainy River
Baudette, Lake of the Woods County
SHPO Number: 2013-1191

Dear Ms. Abel:

Thank you for continuing consultation on the above project. The report is being reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800, responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act, and per the terms of the 2005 Programmatic Agreement between the Federal Highway Administration, the Minnesota Department of Transportation and the Minnesota State Historic Preservation Office.

We have completed our review of the project materials received in our office on 9 May 2014 which included:

- Correspondence letter dated 7 May 2014
- Report entitled *Phase I and Phase II Architecture/History Survey Report: Trunk Highway 72 Area of Potential Effects, Baudette, Minnesota* (Mead & Hunt, January 2014)

You have indicated that a preferred alternative for the bridge project has not yet been identified and that both rehabilitation and replacement of the existing bridge are still being considered. Your determination of the area of potential effects (APE) for the project takes into account both options and we concur with your determination of this APE, based upon information available to us at this time. You have also indicated that the APE may be adjusted at a future date as project design is further refined.

We concur with your agency's determinations regarding eligibility for listing in the National Register of Historic Places (NRHP) for the following identified historic properties within the APE:

- **Baudette Rest Area/Peace Park (LW-BDC-030)** – not eligible for listing in the NRHP;
- **Switch House (LW-BDC-032)** – not eligible for listing in the NRHP;
- **Station House (LW-BDC-033)** – not eligible for listing in the NRHP;
- **Storage Building (LW-BDC-034)** – not eligible for listing in the NRHP;

- **Canadian Northern (Canadian National) Railroad Bridge (LW-BDC-025)** – not eligible for listing in the NRHP due to compromised integrity as a result of major bridge rehabilitation in 2005;
- **Baudette-Rainy River International Bridge (Bridge 9412) (LW-BDC-031)** – previously determined eligible for listing in the NRHP under Criterion A (Transportation) and Criterion C (Engineering);
- **Minnesota & Manitoba (Canadian National) Railroad Corridor (LW-RRD-001)** – determined eligible for listing in the NRHP under Criterion A (Transportation).

We look forward to continuing consultation on this project. Feel free to contact me if you have any questions or concerns regarding our review. I may be reached at 651-259-3456 or by e-mail at sarah.beimers@mnhs.org.

Sincerely,



Sarah J. Beimers, Manager
Government Programs and Compliance

April 23, 2015

Elizabeth Abel
MnDOT Cultural Resources Unit
Transportation Building, Mail Stop 620
395 John Ireland Boulevard
St. Paul MN 55155-1899

RE: S.P. 3905-09
Repair or Replace Bridge No. 9412 over the Rainy River
Baudette, Lake of the Woods County
SHPO Number: 2013-1191

Dear Ms. Abel:

Thank you for continuing consultation on the above project. Information received in our office on 24 March 2015 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800, responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act, and per the terms of the 2005 Programmatic Agreement between the Federal Highway Administration, the Minnesota Department of Transportation and the Minnesota State Historic Preservation Office.

We have completed our review of the project materials included with your March 17th correspondence letter:

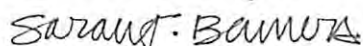
- Delineation/documentation of the area of potential effects (APE) for direct effects for both Alternative 1 and Alternative 2; and
- Report entitled *Phase I Archaeological Investigations of Bridge 9412 and Phase II Archaeological Investigation of Site 21LW0026, Lake of the Woods County, Minnesota* (Duluth Archaeology Center, March 2015)

We agree that the APE is generally appropriate to take into account the potential effects of the proposed undertaking as we currently understand it. We do recommend, however, that your agency consider expanding the APE for direct effects to include the riverbed of the Rainy River if the proposed bridge project will involve disturbance of the underwater surface. Also, as a general rule, as the project's scope of work is further defined, or if it is significantly altered from the current scope, additional consultation with our office may be necessary in order to revise the current APE.

In addition, we concur with your determination that archaeological site 21LW0026 is not eligible for listing in the National Register of Historic Places (NRHP).

We look forward to continuing consultation on this project. Feel free to contact me if you have any questions or concerns regarding our review. I may be reached at 651-259-3456 or by e-mail at sarah.beimers@mnhs.org.

Sincerely,



Sarah J. Beimers, Manager
Government Programs and Compliance



Minnesota Department of Transportation

Office of Environmental Stewardship

Mail Stop 620
395 John Ireland Boulevard
St. Paul, MN 55155-1899

Office Tel: (651) 366-3604

Fax: (651) 366-3603

September 9, 2015

Sarah J. Beimers, Manager
Government Programs and Compliance
State Historic Preservation Office
Minnesota Historical Society
345 Kellogg Blvd. W.
St. Paul, MN 55102

Re: S.P. 3905-09 (Replace Bridge 9412, Rainy River International Bridge)
Baudette, Lake of the Woods County
SHPO Number: 2013-1191

Dear Ms. Beimers:

Thank you for your July 21, 2015, letter to me concurring with our finding that the above-referenced undertaking will have an adverse effect on National Register-eligible **Bridge 9412 (LW-BDC-031)** by replacing it with a new structure.

At the time we made our initial finding (June 2015), our office did not have enough preliminary engineering information to assess project effects to the National Register-eligible **Minnesota and Manitoba Railroad Corridor Historic District (LW-RRD-001)**. I am writing now to apprise you of: (1) the three bridge replacement alternatives that are being considered; (2) our revision to the project area of potential effects (APE) for direct impacts; and (3) our finding that none of the replacement alternatives will result in adverse effects to historic properties beyond those to Bridge 9412, which have been documented through previous correspondence with your office.

Bridge Replacement Alternatives

The bridge replacement alternatives will construct a new bridge either immediately northwest of (Alternative 1), immediately southeast of (Alternative 2), or in the same location as (Alternative 3), Bridge 9412 (see attached draft preliminary alternative layouts dated July 21, 2015). Border patrol and customs facilities on each end of the bridge will remain in their current locations, with some minor modifications to the existing bridge approaches to accommodate the new structure. Alternatives 1 and 2 would retain Bridge 9412 to carry traffic until the replacement bridge is completed. Alternative 3 would involve construction and use of a temporary modular bridge either northwest or southwest of Bridge 9412 until the replacement bridge is completed.

The new bridge will be constructed in the same location as, or adjacent to, Bridge 9412 and will be a steel I-beam or concrete box girder structure. There will be no change in the alignment and little or no change in the overall length of the crossing (1286 feet). Bridge 9412 carries two 12-foot wide traffic lanes and the overall width of the deck measures 26.5 feet. A six-foot wide sidewalk is cantilevered on one side of the existing bridge. The replacement bridge will also carry two 12-foot traffic lanes, with the addition of 8-foot shoulders, and a 10-foot wide sidewalk, and will measure approximately 50 feet in width. The profile of the new bridge deck will not be markedly different from that of Bridge 9412. At its midpoint, the new bridge will be approximately 8 feet higher in elevation than the existing bridge, and the height of the new bridge deck will be approximately 9 feet while the existing deck height is approximately 5 feet (see attached alternative layouts).

APE Revisions

The proposed replacement alternatives require no revision to our delineation of the APE for indirect effects. All three replacement alternatives involve installation of new pilings and piers

within the river. Therefore, as recommended in your April 25, 2015, letter to me, we have extended the direct effects APE to include that portion of the Rainy River riverbed that may be impacted by new bridge construction. The width of the new bridge will not measure more than 60 feet and a replacement structure (and any temporary structure if Alternative 3 is chosen) will be built within a few feet of the existing bridge. We have revised the direct effects APE to include the bed of the river within approximately 150 feet of the centerline of existing Bridge 9412 and terminating at the U.S. Canadian border (see attached figure labeled *Revised Direct Effects APE*). Our office has determined that this addition to the APE contains no known historic properties other than Bridge 9412 and is unlikely to contain unidentified historic properties.

Minnesota and Manitoba Rail Corridor

Construction of any of the three replacement alternatives and removal of existing Bridge 9412 will result in no direct impacts to the Minnesota and Manitoba Railroad Corridor Historic District. New construction, particularly a new bridge structure, will be visible from the corridor. The integrity of the railroad corridor district's setting has been compromised by the clearing of the largely forested landscape that existed when the corridor was established, the removal of adjacent industrial facilities in Baudette (e.g., lumber storage buildings and businesses, fuel tanks, grain elevators, ancillary buildings), the 2005 replacement of the superstructure of the Canadian National Railroad Bridge carrying the corridor over the Rainy River, and the construction of Bridge 9412 and related facilities after the corridor's period of significance (1901-1956). The project will have no effect on the Minnesota and Manitoba Railroad Corridor Historic District's integrity of materials, design, workmanship, location, feeling or association, and little additional impact on its already altered setting.

We are requesting your concurrence with our revision to the direct effects APE and our finding that the project as currently proposed will have **no additional adverse effects on historic properties**. We look forward to continuing consultation with your office, including developing a memorandum of agreement to mitigate the adverse effect to Bridge 9412 resulting from its removal. If you have any questions or concerns, please call or email me.

Sincerely,



Elizabeth J. Abel
Archaeologist/Historian
Cultural Resources Unit
elizabeth.abel@state.mn.us

attachments: 3

cc: Joe McKinnon, MnDOT D. 2
Tim Anderson, FHWA
David Dominguez, FHWA
Phil Forst, FHWA
Theresa Maahs, Stantec

STATE HISTORIC PRESERVATION OFFICE

December 10, 2015

Elizabeth Abel
MnDOT Cultural Resources Unit
Transportation Building, Mail Stop 620
395 John Ireland Boulevard
St. Paul MN 55155-1899

RE: S.P. 3905-09
Replace Bridge 9412 over the Rainy River
Baudette, Lake of the Woods County
SHPO Number: 2013-1191

Dear Ms. Abel:

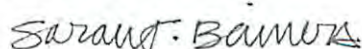
Thank you for continuing consultation on the above project. Information received in our office on 13 November 2015 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800, responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act, and per the terms of the 2005 Programmatic Agreement between the Federal Highway Administration, the Minnesota Department of Transportation and the Minnesota State Historic Preservation Office.

Your correspondence dated 11/12/2015 provided further information regarding your assessment of archaeological potential within the revised area of potential effects (APE) for this project. We appreciate this information and we agree with your assessment that the revised APE is unlikely to contain unidentified archaeological resources, in particular submerged historic properties.

To summarize, we agree that Bridge 9412 is the only historic property within the direct APE for this project and we have concurred with your agency's adverse effect determination.

We look forward to continuing consultation regarding resolution of adverse effects to Bridge 9412. Feel free to contact me if you have any questions or concerns regarding our review. I may be reached at 651-259-3456 or by e-mail at sarah.beimers@mnhs.org.

Sincerely,



Sarah J. Beimers, Manager
Government Programs and Compliance

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

WHEREAS, the Federal Highway Administration (FHWA) plans to provide Federal-Aid Highway Program funds to the Minnesota Department of Transportation (MnDOT) to replace the Rainy River International Bridge (MnDOT Bridge 9412/Ontario Bridge 45-110) carrying Minnesota Trunk Highway 72/Ontario Provincial Highway (King's Highway) 11 over the Rainy River between Baudette, Minnesota, and Rainy River, Ontario, with a new bridge, and reconstruct a portion of the bridge approaches (S.P. 3905-09) (PROJECT); and

WHEREAS, FHWA has determined that the PROJECT is a federal undertaking with the potential to affect historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP) and is therefore subject to review under Section 106 of the National Historic Preservation Act (54 USC § 306108) and its implementing regulations at 36 CFR 800; and

WHEREAS, review of this PROJECT has been conducted per the terms of the *2005 Programmatic Agreement Among the Federal Highway Administration; the Minnesota State Historic Preservation Office; the Advisory Council on Historic Preservation; the Department of the Army, Corps of Engineers, St. Paul District; and the Minnesota Department of Transportation Regarding Implementation of the Federal-Aid Highway Program in Minnesota* (as amended 2014) (Statewide PA), various stipulations of which are incorporated by reference; and

WHEREAS, the PROJECT will require permits from the U.S. Army Corps of Engineers, St. Paul District (Corps), pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 USC § 403) and Section 404 of the Clean Water Act (33 USC § 1344); and

WHEREAS, in accordance with 36 CFR 800.2(a)(2) and per the terms of the Statewide PA, FHWA and the Corps have agreed that FHWA is the lead federal agency in the Section 106 review of this PROJECT; and

WHEREAS, MnDOT's Cultural Resources Unit (MnDOT CRU), on behalf of FHWA and in consultation with the Minnesota Historic Preservation Office (MnHPO), has defined the PROJECT area of potential effects (APE) as shown in Attachments A and B to this Memorandum of Agreement (AGREEMENT); and

WHEREAS, MnDOT CRU, in consultation with MnHPO, has completed surveys of the PROJECT APE and has identified two historic properties within the APE: the Minnesota and Manitoba Railroad Corridor Historic District (LW-RRD-001) and the Rainy River International Bridge (LW-BDC-031), both of which are eligible for listing in the NRHP; and

WHEREAS, MnDOT CRU has determined, and MnHPO has concurred, that based on the draft preliminary alternative layouts dated July 21, 2015, the PROJECT will have no adverse effect

on the Minnesota and Manitoba Railroad Corridor Historic District (LW-RRD-001) but will have an adverse effect on the Rainy River International Bridge (LW-BDC-031) by removing the structure; and

WHEREAS, in accordance with 36 CFR 800.2(c)(2)(ii), MnDOT CRU, on behalf of FHWA, has, in a good faith effort, contacted by letter dated February 16, 2012, the federally recognized American Indian tribes listed in Attachment C to this AGREEMENT, asking if they knew of any properties of historical and/or cultural significance within the APE and inviting their participation in consultation, and none have indicated that they are aware of the presence of these properties and they have not requested to participate in the consultation; and

WHEREAS, in accordance with 36 CFR 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its finding of adverse effect for the PROJECT and has provided ACHP with documentation specified in 36 CFR 800.11(e), and ACHP has chosen not to participate in the consultation; and

WHEREAS, FHWA has consulted with MnHPO and MnDOT pursuant to 36 CFR 800 to resolve the adverse effect of the PROJECT on the Rainy River International Bridge (LW-BDC-031); and

WHEREAS, MnDOT has assumed certain responsibilities under this AGREEMENT and FHWA has invited MnDOT to become a signatory to this AGREEMENT pursuant to 36 CFR 800.6(c)(2); and

WHEREAS, the Rainy River International Bridge (LW-BDC-031) is jointly owned and maintained by MnDOT and the Ministry of Transportation - Ontario (MTO) and FHWA has consulted with MTO and has asked them to concur with this AGREEMENT pursuant to 36 CFR 800.6(c)(3); and

WHEREAS, MnDOT CRU has consulted with the Lake of the Woods County Historical Society (LOW County Historical Society) per 36 CFR 800.3(f) and has asked them to concur with this AGREEMENT pursuant to 36 CFR 800.6(c)(3); and

WHEREAS, FHWA has conducted public participation in this review in coordination with the scoping, public review and comment, and public hearings conducted to comply with the National Environmental Policy Act (NEPA) and its implementing regulations as allowed per 36 CFR 800.2(d)(3); and

NOW, THEREFORE, FHWA and MnHPO agree that upon FHWA's approval of the PROJECT, FHWA will ensure that the following stipulations are implemented in order to take into account the effects of the PROJECT on historic properties, and that these stipulations shall govern the PROJECT and all of its parts until this AGREEMENT expires or is terminated.

STIPULATIONS

FHWA shall ensure that the following measures are carried out:

I. HAER RECORDATION OF THE RAINY RIVER INTERNATIONAL BRIDGE (LW-BDC-031)

A. Prior to awarding a contract for construction, MnDOT CRU shall have the Rainy River International Bridge (LW-BDC-031) documented according to the standards and guidelines of the Historic American Engineering Record (HAER) by an individual who meets the *Secretary*

of the Interior's Professional Qualifications Standards in architecture, historic architecture, or architectural history (36 CFR 61). The recordation shall be Level II and will include: select existing drawings that will be photographed with large-format negatives or photographically reproduced on Mylar; photographs with large-format negatives of the bridge and its relationship to the cities of Baudette, Minnesota, and Rainy River, Ontario, and historic views, where available; an index to photographs; and a written narrative (history and description) of the historic bridge.

- B. MnDOT CRU shall submit a copy of the draft HAER documentation package including a set of example photographs and negatives (both original and of the drawing sets) to the National Park Service (NPS) Midwest Regional Office for review.
- C. MnDOT CRU shall incorporate any changes required by NPS and submit one original final HAER documentation package (including photographs and negatives) to the NPS Midwest Regional Office, one original final HAER documentation package and a PDF copy on an archivally stable CD to MnHPO, and one original final documentation package and a PDF copy on an archivally stable CD to LOW County Historical Society. MnDOT CRU shall upload a PDF copy of the final documentation onto its Historic Bridges website.

II. PUBLIC INTERPRETATION AND EDUCATION

- A. Within two (2) years following execution of this AGREEMENT, MnDOT shall develop and install an interpretive panel in the vicinity of the new bridge that will include photos, graphics and text relating the history and importance of the Rainy River International Bridge (LW-BDC-031) crossing to the history of Baudette and detailing the historical significance and unique features of the bridge structure. MnDOT shall develop the content of the interpretive panel and determine an appropriate location in consultation with LOW County Historical Society and MnHPO. MnDOT CRU shall submit draft interpretive panel content and proposed location to LOW County Historical Society and MnHPO for a sixty-day (60-day) review and comment period. Any written comments received by MnDOT CRU within the sixty-day (60-day) review period will be incorporated into the final interpretive panel design.
- B. Within two (2) years following execution of this AGREEMENT, MnDOT CRU shall prepare an exhibit panel or panels regarding the historical significance of the Rainy River International Bridge (Bridge 9412) (LW-BDC-031) for display at the Lake of the Woods County Museum. Designed for public education, the exhibit shall include photographs and other images of the Rainy River International Bridge (LW-BDC-031), including images from the HAER documentation, and information about its NRHP eligibility within the context of Minnesota's historic bridges and its importance in the history of Baudette and the surrounding area. MnDOT CRU shall develop the content of the exhibit in consultation with LOW County Historical Society, who will take ownership of the exhibit, and MnHPO. MnDOT CRU shall submit draft exhibit content to LOW County Historical Society and MnHPO for a sixty-day (60-day) review and comment period. Any written comments received by MnDOT CRU within the sixty-day (60-day) review period will be incorporated into the final exhibit design.

III. POST-REVIEW DISCOVERIES

If MnDOT CRU determines that the PROJECT will affect a previously unidentified property that may be historic or affect a known historic property in an unanticipated manner, MnDOT CRU shall ensure that the measures contained in Stipulation 5 of the Statewide PA are carried out.

The terms of any mitigation for adverse effects to historic properties identified during post-review discovery shall be addressed by amending this AGREEMENT.

III. TREATMENT OF HUMAN REMAINS

If MnDOT or its contractors discover human remains, possible human remains, or artifacts associated with mortuary features during PROJECT-related construction activities, MnDOT CRU shall follow the terms and conditions of Stipulation 6 of the Statewide PA.

IV. DISPUTE RESOLUTION

Should any party to this AGREEMENT object at any time to any actions proposed or the manner in which the terms of the AGREEMENT are implemented, MnDOT CRU on behalf of FHWA shall consult with the objecting party (or parties) to resolve the objection. If objections cannot be resolved, FHWA shall follow the steps outlined in Stipulation 7 of the Statewide PA. FHWA's responsibility to carry out all other actions subject to the terms of this AGREEMENT that are not subjects of the dispute remain unchanged pending resolution.

V. DURATION, AMENDMENTS AND TERMINATION

- A. This AGREEMENT shall remain in effect from the date of full execution for a period not to exceed five (5) years. If FHWA anticipates that the terms of the AGREEMENT cannot be completed within this timeframe, it shall notify the parties in writing at least thirty (30) days prior to the AGREEMENT's expiration date. The AGREEMENT may be extended by the written concurrence of the signatories and invited signatories. If the AGREEMENT expires and FHWA elects to continue with the undertaking, FHWA shall reinstate review of the undertaking in accordance with 36 CFR 800.
- B. Any signatory or invited signatory to this AGREEMENT may propose to FHWA that the terms of the AGREEMENT be amended. FHWA shall use the same consultation process exercised in creating the original AGREEMENT to consider the proposed amendment. If the signatories and relevant invited signatories elect to amend this AGREEMENT, FHWA shall file the amendment with ACHP upon execution.
- C. If any signatory or invited signatory to this AGREEMENT determines that the AGREEMENT cannot be fulfilled, or that an amendment to the terms of the AGREEMENT must be made, the signatories shall consult to seek an amendment to its terms using the same consultation process as that exercised in creation of the original AGREEMENT. FHWA shall file any amendments with ACHP upon execution.
- D. Any signatory or invited signatory to this AGREEMENT may terminate the AGREEMENT by providing sixty (60) days' written notice to the other parties, provided the parties consult during the period prior to termination to agree on amendments or other actions that would avoid termination. If the AGREEMENT is terminated and FHWA elects to continue with the undertaking, FHWA shall reinstate review of the undertaking in accordance with 36 CFR 800.

VI. IMPLEMENTATION

- A. This AGREEMENT may be implemented in counterparts, with a separate signature page for each party. This AGREEMENT shall become effective on the date of the final signature by the signatories and invited signatories. The refusal of any concurring party to sign the

AGREEMENT does not invalidate the AGREEMENT. FHWA shall ensure each party is provided with a fully executed copy of the AGREEMENT and that the final AGREEMENT, updates to attachments, and any amendments are filed with ACHP.

- B. Execution of this AGREEMENT by FHWA and MnHPO and implementation of its terms is evidence that FHWA has taken into account the effects of its undertaking on historic properties and has afforded ACHP opportunity to comment pursuant to Section 106 of the National Historic Preservation Act.

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING**

**REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) BETWEEN BAUDETTE, LAKE OF THE WOODS COUNTY,
MINNESOTA, AND RAINY RIVER, ONTARIO**

SIGNATORY :

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

By: _____
Arlene Kocher, Minnesota Division Administrator

Date: _____

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

SIGNATORY :

MINNESOTA HISTORIC PRESERVATION OFFICE (MnHPO)

By: _____
Amy H. Spong, Deputy State Historic Preservation Officer

Date: _____

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

INVITED SIGNATORY:

MINNESOTA DEPARTMENT OF TRANSPORTATION (MnDOT)

By: _____
Charles E. Zelle, Commissioner

Date: _____

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

CONCURRING PARTY:

MINISTRY OF TRANSPORTATION - ONTARIO (MTO)

By: _____

Date: _____

The Ministry of Transportation-Ontario was invited to sign this AGREEMENT and has elected not to take a signature action. Since this concurring party does not have a duty or responsibility under the AGREEMENT, the AGREEMENT is valid without their signature per ACHP guidance documents.

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

CONCURRING PARTY:

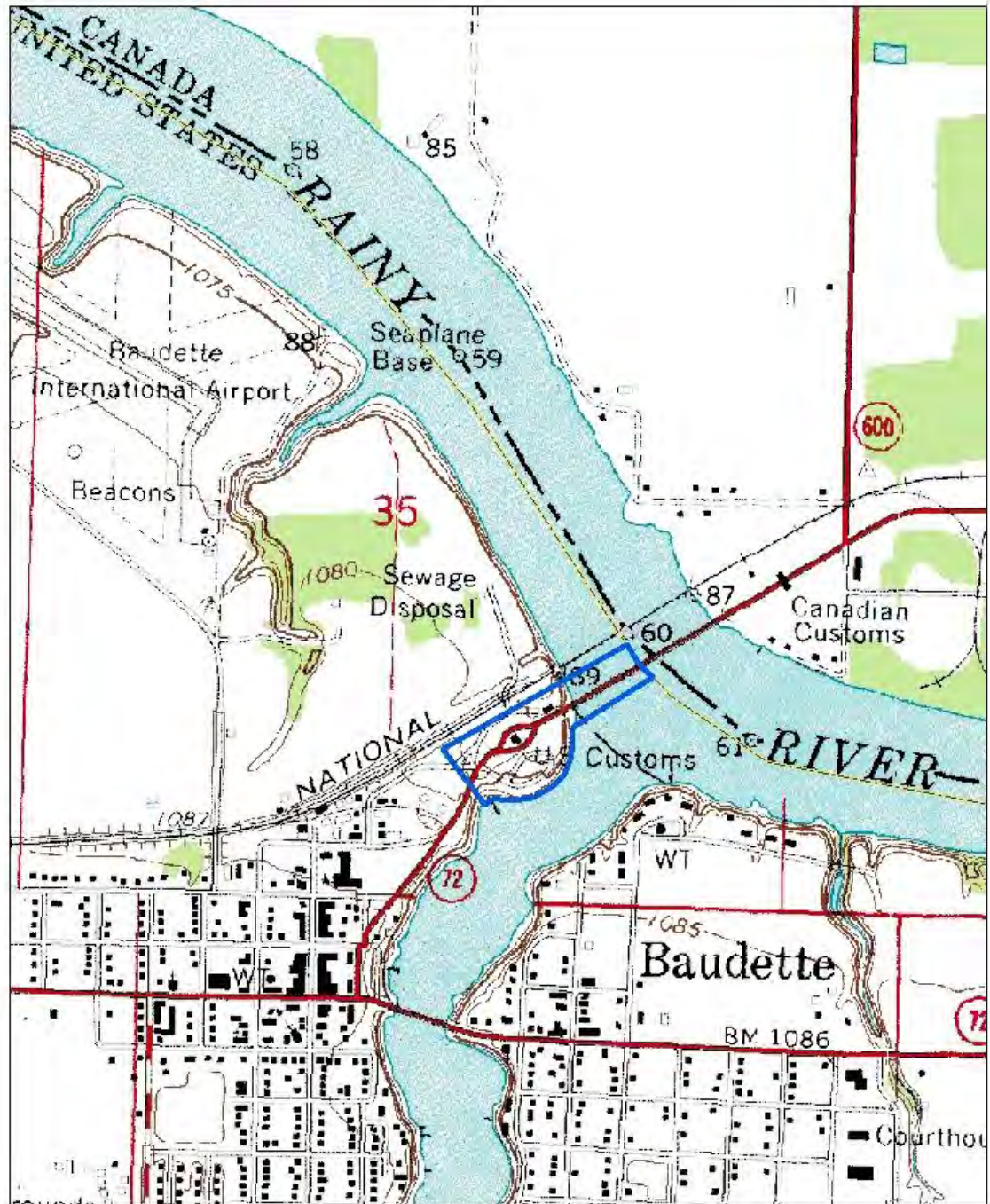
LAKE OF THE WOODS COUNTY HISTORICAL SOCIETY

By: _____
Gary Aery, President, Board of Directors

Date: _____

FINAL DRAFT

ATTACHMENT A

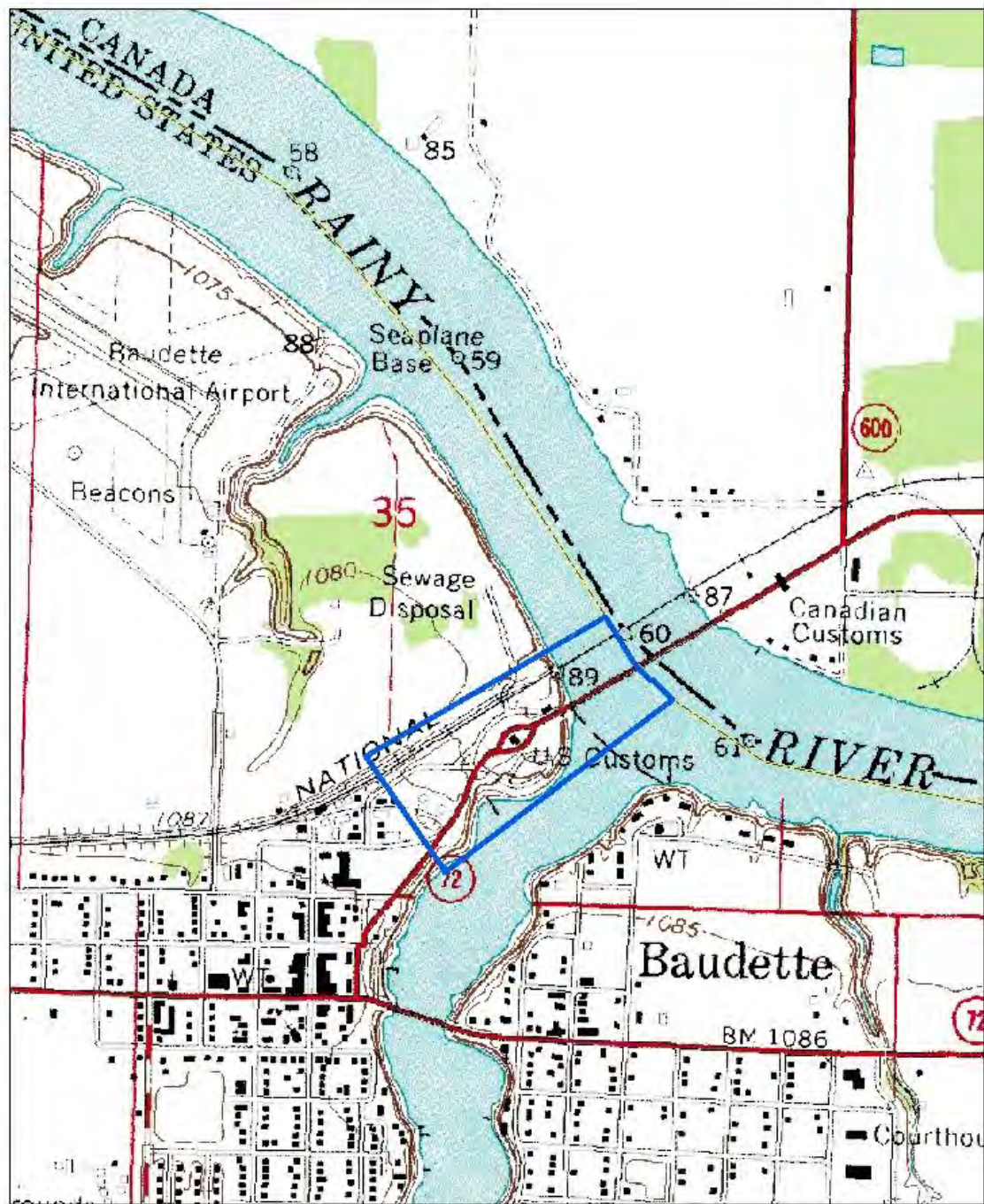


S.P. 3905-09; SHPO No. 2013-1191
Replace Rainy River International Bridge (LW-BDC-0031)
Baudette, MN

DIRECT EFFECTS APE

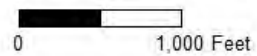


ATTACHMENT B



S.P. 3905-09; SHPO No. 2013-1191
Replace Rainy River International Bridge (LW-BDC-0031)
Baudette, MN

INDIRECT EFFECTS APE



ATTACHMENT C
CONTACTED TRIBES

Bad River Band of Lake Superior Chippewa
Fort Peck Tribes
Flandreau Santee Sioux Tribe
Keweenaw Bay Indian Community
Lac Courte Oreilles Band of Lake Superior Chippewa
Lac du Flambeau Band of Lake Superior Chippewa
Lac Vieux Desert Band of Lake Superior Chippewa
Red Cliff Band of Lake Superior Chippewa
Red Lake Band of Chippewa
St. Croix Chippewa Indians of Wisconsin
Santee Sioux Tribe
Shakopee Mdewakanton Sioux Community
Sokaogon Chippewa Community
Spirit Lake Tribe
Standing Rock Sioux Tribe
Turtle Mountain Band of Chippewa

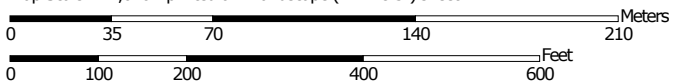
FINAL DRAFT

Appendix F – UNIFIED SOIL CLASSIFICATION SYSTEM SOILS REPORT

Custom Soil Resource Report Map—Unified Soil Classification (Surface)



Map Scale: 1:2,610 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

Custom Soil Resource Report























MAP LEGEND



















Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  CH
-  CL
-  CL-A (proposed)
-  CL-K (proposed)
-  CL-ML
-  CL-O (proposed)
-  CL-T (proposed)
-  GC
-  GC-GM
-  GM
-  GP
-  GP-GC
-  GP-GM
-  GW
-  GW-GC
-  GW-GM
-  MH
-  MH-A (proposed)
-  MH-K (proposed)
-  MH-O (proposed)
-  MH-T (proposed)
-  ML









































-  ML-A (proposed)
-  ML-K (proposed)
-  ML-O (proposed)
-  ML-T (proposed)
-  OH
-  OH-T (proposed)
-  OL
-  PT
-  SC
-  SC-SM
-  SM
-  SP
-  SP-SC
-  SP-SM
-  SW
-  SW-SC
-  SW-SM
-  Not rated or not available

Soil Rating Lines


-  CH
-  CL
-  CL-A (proposed)
-  CL-K (proposed)
-  CL-ML
-  CL-O (proposed)
-  CL-T (proposed)
-  GC
-  GC-GM
-  GM
-  GP
-  GP-GC
-  GP-GM
-  GW
-  GW-GC
-  GW-GM
-  MH
-  MH-A (proposed)
-  MH-K (proposed)
-  MH-O (proposed)
-  MH-T (proposed)
-  ML
-  ML-A (proposed)
-  ML-K (proposed)
-  ML-O (proposed)
-  ML-T (proposed)
-  OH
-  OH-T (proposed)
-  OL
-  PT
-  SC
-  SC-SM
-  SM

-  SP
-  SP-SC
-  SP-SM
-  SW
-  SW-SC
-  SW-SM
-  Not rated or not available

Soil Rating Points

-  CH
-  CL
-  CL-A (proposed)
-  CL-K (proposed)
-  CL-ML
-  CL-O (proposed)
-  CL-T (proposed)
-  GC
-  GC-GM
-  GM
-  GP
-  GP-GC
-  GP-GM
-  GW
-  GW-GC
-  GW-GM
-  MH
-  MH-A (proposed)
-  MH-K (proposed)
-  MH-O (proposed)
-  MH-T (proposed)
-  ML
-  ML-A (proposed)
-  ML-K (proposed)
-  ML-O (proposed)
-  ML-T (proposed)
-  OH
-  OH-T (proposed)
-  OL
-  PT
-  SC
-  SC-SM
-  SM
-  SP
-  SP-SC
-  SP-SM
-  SW
-  SW-SC
-  SW-SM
-  Not rated or not available

Water Features






 Streams and Canals

Transportation

 Rails

Custom Soil Resource Report

MAP INFORMATION

-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake of the Woods County, Minnesota
Survey Area Data: Version 12, Sep 18, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Oct 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Unified Soil Classification (Surface)

Unified Soil Classification (Surface)— Summary by Map Unit — Lake of the Woods County, Minnesota (MN077)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
122B	Taylor loam, 1 to 8 percent slopes	CL	0.5	24.5%
W	Water		0.8	42.2%
Subtotals for Soil Survey Area			1.3	66.7%
Totals for Area of Interest			2.0	100.0%

Rating Options—Unified Soil Classification (Surface)

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

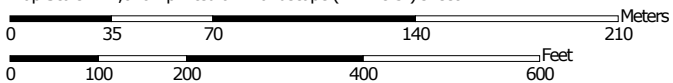
Drainage Class

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Custom Soil Resource Report Map—Drainage Class




















Map Scale: 1:2,610 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 - Soil Rating Polygons**
 -  Excessively drained
 -  Somewhat excessively drained
 -  Well drained
 -  Moderately well drained
 -  Somewhat poorly drained
 -  Poorly drained
 -  Very poorly drained
 -  Subaqueous
 -  Not rated or not available
 - Soil Rating Lines**
 -  Excessively drained
 -  Somewhat excessively drained
 -  Well drained
 -  Moderately well drained
 -  Somewhat poorly drained
 -  Poorly drained
 -  Very poorly drained
 -  Subaqueous
 -  Not rated or not available
 - Soil Rating Points**
 -  Excessively drained
 -  Somewhat excessively drained
 -  Well drained
 -  Moderately well drained
 -  Somewhat poorly drained
 -  Poorly drained
 -  Very poorly drained
 -  Subaqueous
 -  Not rated or not available
- Water Features**
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads
- Background**
 -  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake of the Woods County, Minnesota
 Survey Area Data: Version 12, Sep 18, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Oct 21, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Drainage Class

Drainage Class— Summary by Map Unit — Lake of the Woods County, Minnesota (MN077)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
122B	Taylor loam, 1 to 8 percent slopes	Moderately well drained	0.5	24.5%
W	Water		0.8	42.2%
Subtotals for Soil Survey Area			1.3	66.7%
Totals for Area of Interest			2.0	100.0%

Rating Options—Drainage Class

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix G – Phase I & II Environmental Site Assessment Excerpts

Appendix G– PHASE I & II ENVIRONMENTAL SITE ASSESSMENT EXCERPTS

TABLE 3
Soil - Detected Parameters
Trunk Highway 72/Bridge 9412
Baudette, Minnesota
October 2014

Parameter	Method	MPCA Industrial SRVs	MPCA Tier 1 SLVs	MPCA Residential SRVs	LGP-1/1-3	LGP-1/4-6	LGP-2/1-3	LGP-2/6-8	LGP-3/2-4	LGP-3/5-7	LGP-4/1-3	LGP-4/5-7	LGP-5/2-4	LGP-5/8-10	LGP-6/1-3	LGP-6/5-7	LGP-7/1-3	LGP-7/11-13	LGP-8/10-12	LGP-8/2-4	
RCRA Metals																					
Arsenic	EPA 6010C	20	5.8	9	2.2	6.2	4.2	3.9	3.2	3.6	4.2	ND	5.7	2.2	2.9	3.1	3.2	7.0	1.5	3.1	
Barium	EPA 6010C	18000	1700	1100	56.3	58.7	68.2	63.9	42.5	88.6	61.3	111	117	49.1	68.9	70.6	129	102	62.0	112	
Cadmium	EPA 6010C	200	8.8	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34	0.20	0.40	0.46	0.46	ND	ND	
Chromium	EPA 6010C	NS	NS	NS	11.5	17.9	27.6	17.0	12.2	20.3	21.6	37.8	34.0	13.2	13.0	21.9	12.1	21.9	18.5	31.0	
Lead	EPA 6010C	700	2700	300	37.9	10.5	10.0	6.1	4.4	6.4	7.2	7.0	12.6	5.1	63.0	11.5	53.7	7.9	5.5	10.3	
Selenium	EPA 6010C	1300	2.6	160	2.2	1.4	ND	ND	ND	ND	2.4	ND	0.89	1.1	ND	2.3	2.4	1.9	1.7	ND	
Mercury	EPA 7471B	1.5	3.3	.5	0.058	0.032	0.027	NA*	0.023	0.025	0.029	ND	0.030	ND	0.047	ND	0.038	0.032	0.024	0.041	
SVOCs																					
1-Methylnaphthalene	EPA 8270	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	19.1	ND	ND	ND	ND	ND	2.78	ND	ND
2-Methylnaphthalene	EPA 8270	369	NS	100	ND	ND	ND	ND	ND	ND	ND	ND	33.6	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	EPA 8270	5260	81	1200	ND	ND	ND	ND	ND	ND	ND	ND	1.66	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	EPA 8270	45400	1300	7880	ND	ND	ND	ND	ND	ND	ND	ND	0.519	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	EPA 8270	4120	110	850	ND	ND	ND	ND	ND	ND	ND	ND	2.55	ND	ND	ND	ND	0.746	ND	ND	ND
Naphthalene	EPA 8270	28	4.5	10	ND	ND	ND	ND	ND	ND	ND	ND	5.39	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	EPA 8270	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	5.64	ND	ND	ND	ND	ND	1.51	ND	ND
BaP Equivalent		3	2	10.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VOCs																					
1,2,4-Trimethylbenzene	EPA 8260	25	2.7	8	ND	ND	ND	ND	ND	ND	ND	ND	12.3	ND	ND	ND	ND	ND	0.13	ND	ND
1,3,5-Trimethylbenzene	EPA 8260	10	2.7	3	ND	ND	ND	ND	ND	ND	ND	ND	4.8	0.10	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	EPA 8260	200	1	200	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	EPA 8260	87	9.5	30	ND	ND	ND	ND	ND	ND	ND	ND	0.93	0.064	ND	ND	ND	ND	0.62	ND	ND
Naphthalene	EPA 8260	28	4.5	10	ND	ND	ND	ND	ND	ND	ND	ND	16.6	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (Total)	EPA 8260	130	5.4	45	ND	ND	ND	ND	ND	ND	ND	ND	3.4	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	EPA 8260	92	NS	30	ND	ND	ND	ND	ND	ND	ND	ND	2.8	0.14	ND	ND	ND	ND	1.9	ND	ND
n-Propylbenzene	EPA 8260	93	NS	30	ND	ND	ND	ND	ND	ND	ND	ND	2.1	0.10	ND	ND	ND	ND	1.4	ND	ND
p-Isopropyltoluene	EPA 8260		NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	2.0	0.085	ND	ND	ND	ND	1.5	ND	ND
sec-Butylbenzene	EPA 8260	70	NS	25	ND	ND	ND	ND	ND	ND	ND	ND	1.9	0.10	ND	ND	ND	ND	1.7	0.095	ND
Petroleum																					
Diesel Range Organics (DRO)	WI DRO	NS*	NS*	NS*	ND	ND	ND	ND	ND	ND	7.9	ND	332	ND	19.4	ND	36.1	1370	105	ND	
Gasoline Range Organics (GRO)	WI GRO	NS*	NS*	NS*	ND	ND	ND	ND	ND	ND	ND	ND	292	ND	ND	ND	ND	192	27.6	ND	

NS - No Standard listed by MPCA for parameter

ND - Parameter Not Detected

MPCA - Minnesota Pollution Control Agency

SRV - Soil Reference Value

SLV - Soil Leaching Value

BOLD - Parameter Detected Above MPCA Tier I SLV Criteria

BOLD - Parameter Detected Above MPCA Residential SRV Criteria

*Best Management Practice for DRO and GRO of 100 mg/kg when defining unregulated fill for soil with no field screening indications of contamination. Exceedances of the MPCA BMP shown in **BOLD**.

Table 4

Groundwater - Detected Parameters
Trunk Highway 72/Bridge 9412
Baudette, Minnesota
October 2014

Parameter	Method	MDH HRLs	LGP-1/18-23	LGP-2/13-18	LGP-3/14-19	LGP-4/8-13	LGP-5/19-24	LGP-6/9-14
RCRA Metals								
Barium, Dissolved	6010C Met	2000	151	240	190	146	236	145
Selenium, Dissolved	6010C Met	30	33.0	ND	ND	20.5	ND	23.9
SVOCs								
1-Methylnaphthalene	EPA 8270	NS	ND	ND	ND	ND	237	ND
2-Methylnaphthalene	EPA 8270	NS	ND	ND	ND	ND	481	ND
Acenaphthene	EPA 8270	400	ND	ND	ND	ND	20.8	ND
Fluorene	EPA 8270	300	ND	ND	ND	ND	30.0	ND
Naphthalene	EPA 8270	300	ND	ND	ND	ND	217	ND
Phenanthrene	EPA 8270	NS	ND	ND	ND	ND	55.5	ND
VOCs								
1,2,4-Trimethylbenzene	EPA 8260	100	ND	ND	ND	ND	93.8	ND
1,3,5-Trimethylbenzene	EPA 8260	100	ND	ND	ND	ND	93.6	ND
Benzene	EPA 8260	2	ND	ND	ND	ND	53.9	ND
Ethylbenzene	EPA 8260	50	ND	ND	ND	ND	21.8	ND
Isopropylbenzene (Cumene)	EPA 8260	300	ND	ND	ND	ND	34.0	ND
Naphthalene	EPA 8260	300	ND	ND	ND	ND	326	ND
Toluene	EPA 8260	200	ND	ND	ND	ND	2.9	ND
Xylene (Total)	EPA 8260	300	ND	ND	ND	ND	110	ND
n-Butylbenzene	EPA 8260	NS	ND	ND	ND	ND	31.7	ND
n-Propylbenzene	EPA 8260	NS	ND	ND	ND	ND	55.4	ND
p-Isopropyltoluene	EPA 8260	NS	ND	ND	ND	ND	21.5	ND
sec-Butylbenzene	EPA 8260	NS	ND	ND	ND	ND	26.5	ND
Petroleum								
Diesel Range Organics (DRO)	WI DRO	200*	140	ND	ND	140	24,800	320
Gasoline Range Organics (GRO)	WI GRO	200*	ND	ND	ND	ND	2420	ND

NS - No Standard for parameter listed by MDH

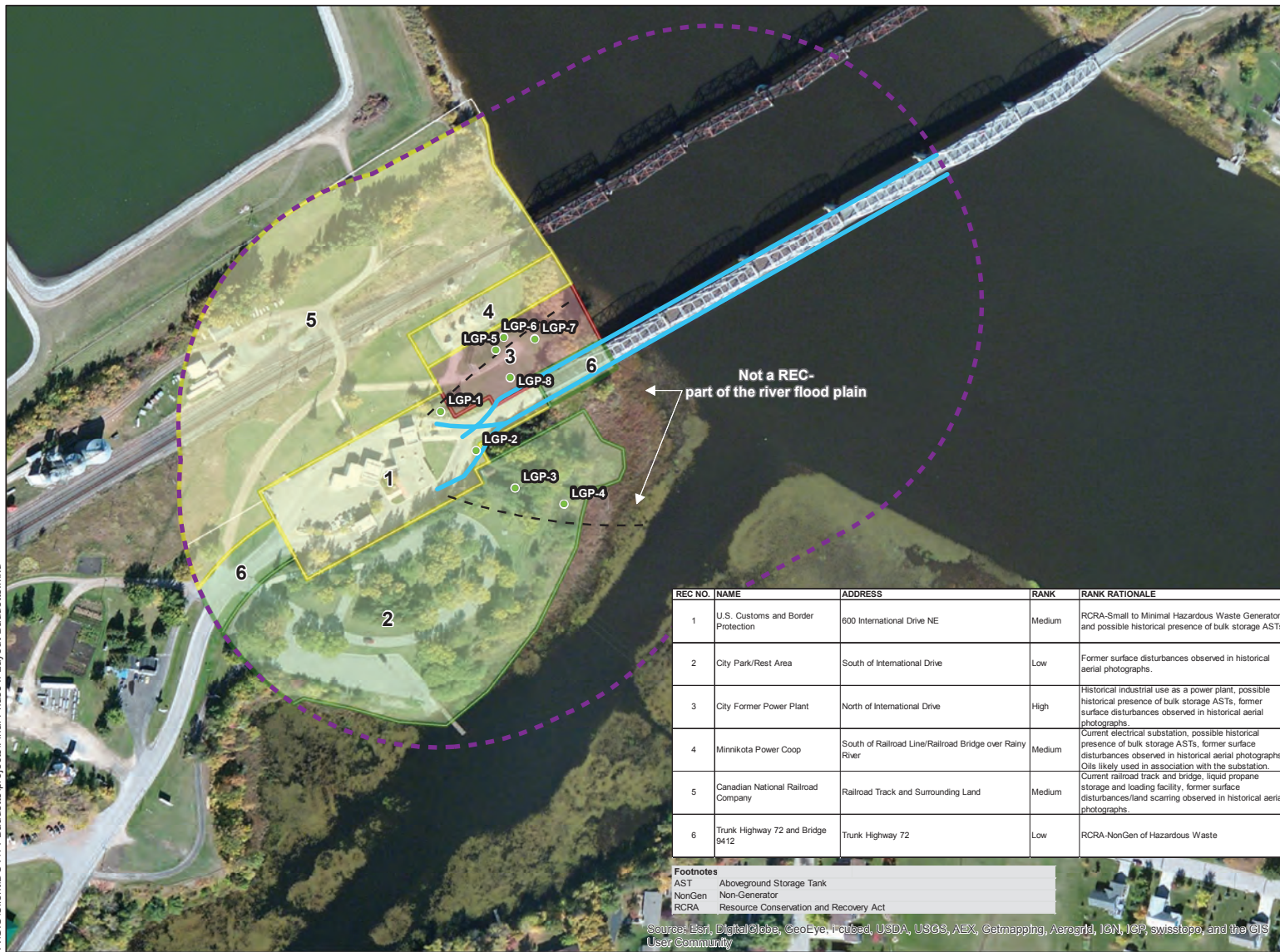
ND - Parameter Not Detected

BOLD - Parameter detected above MDH HRL Criteria

* - MDH Concentration for Total Petroleum Hydrocarbons of 200 ug/L utilized for DRO/GRO comparison

MDH - Minnesota Department of Health

HRL - Health Risk Limit



LEGEND

- Project Area
- Recognized Environmental Conditions (RECs)**
- REC Ranking**
- Low
- Medium
- High
- Alignment Alternatives
- Proposed Excavation Limits
- Investigation Locations

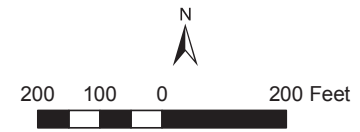
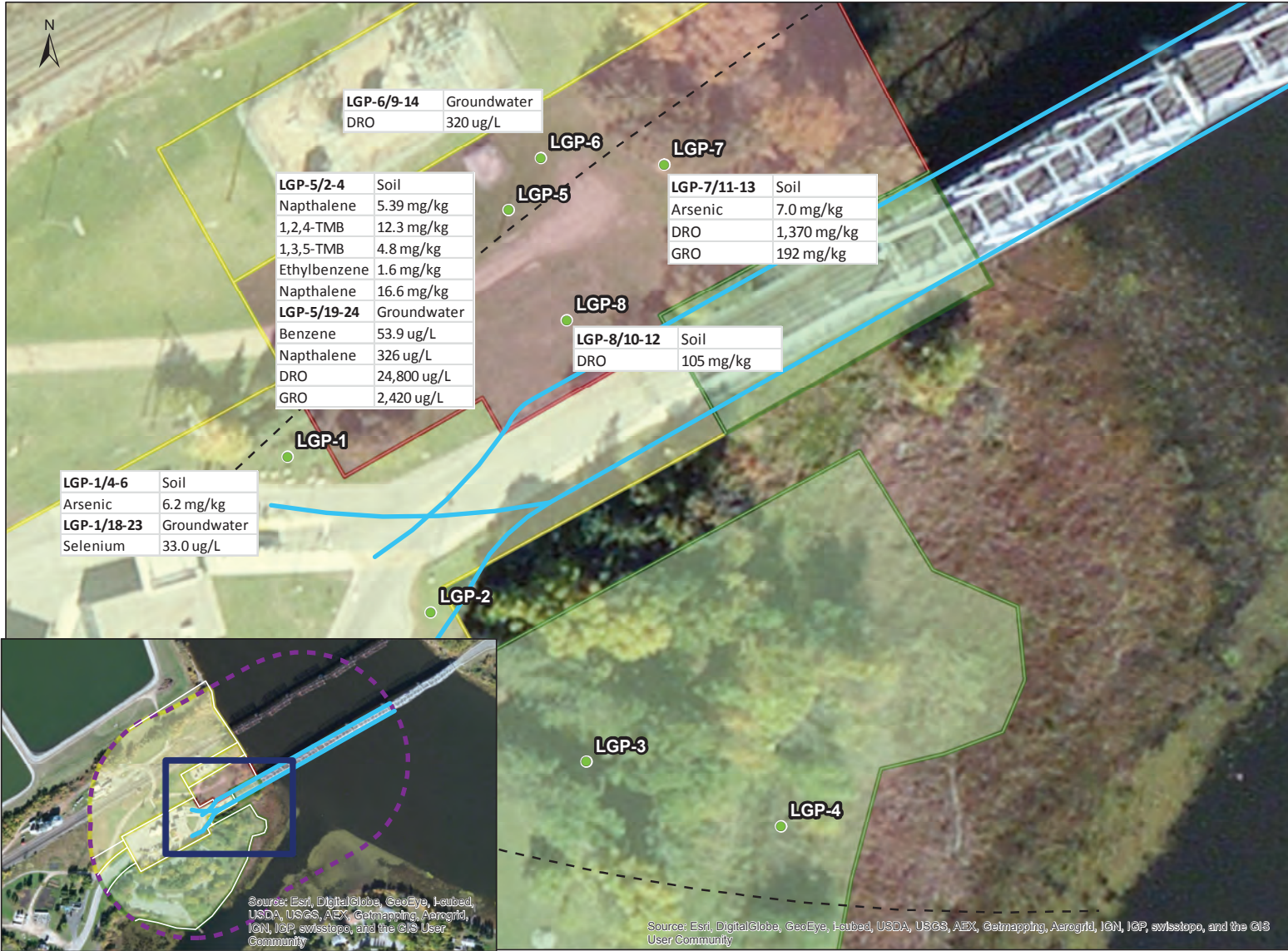


FIGURE 2
PROJECT AREA LAYOUT MAP WITH INVESTIGATION LOCATIONS
Rainy River Bridge Replacement
Trunk Highway 72/International Drive Baudette, Minnesota
LANDMARK ENVIRONMENTAL, LLC



LEGEND

- Project Area
- Recognized Environmental Conditions (RECs)**
- REC Ranking
 - Low
 - Medium
 - High
- Alignment Alternatives
- Proposed Excavation Limits
- Investigation Locations

Parameter	MPCA RSRV	MPCA SLV	MDH HRL
Arsenic	9 mg/kg	5.8 mg/kg	NA
Selenium	NA	NA	30 ug/L
Napthalene	NA	NA	326 ug/L
Benzene	NA	NA	2 ug/L
1,2,4-TMB	8 mg/kg	2.7 mg/kg	NA
1,3,5-TMB	3 mg/kg	2.7 mg/kg	NA
Ethylbenzene	NA	1 mg/kg	NA
DRO	100 mg/kg*	100 mg/kg*	200 ug/L*
GRO	100 mg/kg*	100 mg/kg*	201 ug/L*

See Tables 3 and 4 for details

Footnotes:
 TMB: Trimethylbenzene
 DRO: Diesel Range Organics
 GRO: Gasoline Range Organics
 mg/kg: milligrams per kilogram
 ug/L: micrograms per liter
 MPCA: Minnesota Pollution Control Agency
 RSRV: Residential Soil Reference Value
 SLV: Tier I Soil Leaching Value
 MDH: Minnesota Department of Health
 HRL: Health Risk Limit
 *Best Management Practice used for DRO and GRO in soil;
 Total Petroleum Hydrocarbon HRL used for groundwater
 NA: No detections above the listed regulatory criteria
 Note: No parameters detected above listed regulatory criteria in LGP-2, LGP-3, LGP-4



FIGURE 3

**SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DETECTED PARAMETERS
 EXCEEDING REGULATORY CRITERIA**

**Rainy River Bridge Replacement
 Trunk Highway 72/International Drive
 Baudette, Minnesota**

LANDMARK ENVIRONMENTAL, LLC

Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-1	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382748/5397322	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/8/2014	DATE FINISHED: 10/8/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 25	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: 19.5	
NUMBER OF SAMPLES: 5		DEPTH TO GROUNDWATER AT COMPLETION: 18	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)		Remarks	
0					Fine-grained sandy silt with trace clay, rootlets and organics throughout, dark grayish brown, topsoil	0	Soil sample LGP-1/1-3 submitted for laboratory analysis
1					Sand with 30% gravel, loose, some wood chips, grayish brown, fill	0	
2						0	
3						0	Soil sample LGP-1/4-6 submitted for laboratory analysis
4					Sandy clay with trace pebbles, firm/compact, very moist, brownish gray, reworked native till	0	
5						0	
6					Clay with silt, very moist-slightly wet, low to moderate plasticity, dense, light grayish brown with oxidation mottling, till	0	
7						0	
8						0	
9						0	Groundwater sample LGP-1/18-23 submitted for laboratory analysis
10						0	
11						0	
12						0	
13					Very fine-grained sandy clay with silt, firm and dense, light grayish brown with oxidation mottling, very moist - wet, till	0	
14						0	
15						0	
16					some pebbles in clay below 16 feet	0	
17						0	
18					wet and clay is "sticky", rainbow sheen observed on water sample, no odor	0	
19						4	
20						0	
21						0	
22						0	
23					Sand, medium-grained, poorly graded, saturated, brown, aluvium	0	
24						0	
25					EOB = 25 Feet	0	
26						0	

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-2	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382781/5397287	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/7/2014	DATE FINISHED: 10/7/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 20	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: 15	
NUMBER OF SAMPLES: 4		DEPTH TO GROUNDWATER AT COMPLETION: 13	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)		Remarks	
0					Fine-grained sandy silt with trace clay, rootlets and organics throughout, dark grayish brown, topsoil	0	Soil sample LGP-2/1-3 submitted for laboratory analysis
1					Clayey silt with trace sand, very moist, light brown, reworked native till	1	
2						2	
3					Clay with silt, very moist-slightly wet, "sticky", moderate plasticity, dense, light grayish brown with oxidation mottling, till	3	Soil sample LGP-2/6-8 submitted for laboratory analysis
4						4	
5						5	
6						6	
7					Silt with clay, dense, very compact, very moist, gray with oxidation banding, till	7	
8						8	
9						9	
10					Clayey fine-grained sand, dense, "sticky", saturated, grayish brown, till	10	Groundwater sample LGP-2/13-18 submitted for laboratory analysis
11						11	
12						12	
13						13	
14					laminar bedding below 18 feet	14	
15						15	
16					EOB = 20 Feet	16	
17						17	
18						18	
19						19	
20						20	

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-3	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382801/5397266	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/7/2014	DATE FINISHED: 10/7/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 20	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: 14.8	
NUMBER OF SAMPLES: 4		DEPTH TO GROUNDWATER AT COMPLETION: 14	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)		Remarks	
0					Fine-grained sandy silt with trace clay, rootlets and organics throughout, dark grayish brown, topsoil	0	
1					Silt with trace clay, very moist, tree roots throughout, light brown, reworked native	1	0
2						2	
3						3	0
4						4	
5					Clay with silt and trace fine-grained sand, very moist-slightly wet, "sticky", moderate plasticity, dense, light grayish brown with oxidation mottling, till	5	0
6						6	
7						7	0
8						8	
9					sand content increases with depth	9	0
10						10	
11						11	0
12						12	
13					Sand, fine-grained with trace clay, very moist, grayish brown, outwash	13	0
14						14	
15						15	0
16						16	
17					Silt with clay and trace sand, dense, very compact, very moist, gray with oxidation banding, saturated, till	17	0
18					Clayey fine-grained sand, grayish brown with oxidation banding, saturated, outwash-till transition	18	
19						19	0
20						20	
20						EOB = 20 Feet	20

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-4	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382821/5397252	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/8/2014	DATE FINISHED: 10/8/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 15	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: 9.8	
NUMBER OF SAMPLES: 3		DEPTH TO GROUNDWATER AT COMPLETION: 8	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)		Remarks	
0					Fine-grained sandy silt with trace clay, rootlets and organics throughout, dark grayish brown, topsoil	0	Soil sample LGP-4/1-3 submitted for laboratory analysis
1						0	
2					Silt with trace clay, very moist, organics throughout, variegated gray and reddish brown (oxidation mottling), reworked native	2	
3						3	0
4					Clayey silt with trace sand, low- to moderate plasticity, very moist, variegated gray and reddish brown (oxidation staining), very moist - wet, native till	4	Soil sample LGP-4/5-7 submitted for laboratory analysis
5						5	
6						6	
7						7	
8						8	
9						9	Groundwater sample LGP-4/8-13 submitted for laboratory analysis
10					Clay with sand, "sticky", moderate plasticity, light grayish brown with oxidation mottling, saturated, till	10	
11						11	
12					Silty clay with very fine-grained sand, variegated grayish brown and reddish brown, dense, saturated, till	12	below river elevation
13						13	
14						14	
15					EOB = 15 Feet	15	

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-5	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382797/5397351	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/8/2014	DATE FINISHED: 10/8/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 25	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: 21	
NUMBER OF SAMPLES: 5		DEPTH TO GROUNDWATER AT COMPLETION: 19.5	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	PID (ppm)	Remarks
	Sample No.	Sample Interval	GW (ft)				
0					Class 5 sand and gravel, brown, moist, loose, fill	0	
1					Silty clay, moderate plasticity, very moist - slightly wet, soft, pale brown reworked native till	0	
2					slight- to moderate petroleum odor from 3.3 to 14 feet, no sheen clay is more firm with depth	70	Soil sample LGP-5/2-4 submitted for laboratory analysis
3							
4							
5					Silty clay with sand and 15% pebbles, massive/no bedding, variegated gray and yellowish brown, very moist, compact, dense, till	112	
6							
7					Clay with silt, moderate plasticity, yellowish brown, very moist, soft, till	137	
8							
9					Silty clay with 20% coarse-grained sand and pebbles, massive/no bedding, very moist, compact, dense, low plasticity, variegated gray and yellowish brown with oxidation mottling, till	76	Soil sample LGP-5/8-10 submitted for laboratory analysis
10							
11					no petroleum odor below 14 feet	44	
12							
13					1-inch thick sand seam, wet	16	
14							
15					groundwater sample has petroleum odor and light sheen till is soft at 19.5 and wet	0	
16							
17					Sandy clay with some silt, light grayish brown with oxidation mottling, "sticky/soupy", saturated, till	0	Groundwater sample LGP-5/19-24 submitted for laboratory analysis
18							
19					EOB = 25 Feet	0	
20							
21							
22							
23							
24							
25							
26							

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-6	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382799/5397370	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/9/2014	DATE FINISHED: 10/9/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 15	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: 10.3	
NUMBER OF SAMPLES: 3		DEPTH TO GROUNDWATER AT COMPLETION: 10.3	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)		Remarks	
0					Clayey silt with fine-grained sand and organics/rootlets throughout, compact, dark grayish brown, topsoil	0	
1					Sand and silt with gravel, loose, brown, fill	1	0
2							
3					Silty clay, moderate plasticity, soft, slightly wet, pale brown, reworked native material	3	0
4							
5					till is more firm with depth	5	0
6							
7					Silty clay with sand and 15% pebbles, massive/no bedding, variegated gray and yellowish brown, very moist, compact, dense, till	7	0
8							
9					Groundwater sample LGP-6/9-14 submitted for laboratory analysis	9	0
10							
11					Silty clay with 15% coarse sand and pebbles, massive/no bedding, very moist, dense, low plasticity, compact, till	11	0
12							
13					EOB = 15 Feet	13	0
14							
15						15	

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-7	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382821/5397363	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/9/2014	DATE FINISHED: 10/9/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 30	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: NA	
NUMBER OF SAMPLES: 6		DEPTH TO GROUNDWATER AT COMPLETION: NA	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)		Remarks	
0					Clayey silt with fine-grained sand and organics/rootlets throughout, compact, dark grayish brown, topsoil	0	Soil sample LGP-7/1-3 submitted for laboratory analysis
1				Gravelly silt with some peat, loose, dark gray and brown, fill	1	0	
2					2		
3					Clayey silt, variegated gray and yellowish brown, reworked native	3	0
4					Silty clay with 20% pebbles, massive/no bedding, low- to moderate plasticity, variegated gray and yellowish brown with oxidation mottling, very moist, till	4	
5						5	0
6						6	
7						7	2
8						8	
9						9	72
10						10	
11						11	183
12						12	
13						13	138
14					14		
15					15	7	
16					16		
17					17	35	
18					18		
19					19	69	
20					20		
21					21	41	
22					22		
23					23	2	
24					24		
25					25	0	
26					26		
27					27	0	
28					28		
29					29	0	
30					EOB = 30 Feet	30	

PROJECT: Trunk Hwy 72/Bridge 9412		Boring Log No.LGP-8	
PROJECT LOCATION: Baudette, Minnesota		COORDINATES (UTM NAD83): 382800/5397344	
DRILLING CONTRACTOR: MESA		DATE STARTED: 10/8/2014	DATE FINISHED: 10/8/2014
DRILLING METHOD: Geoprobe		TOTAL DEPTH (ft.): 30	MEASURING POINT: Ground Surface
SAMPLING EQUIPMENT: 5-foot Sampler		DEPTH GROUNDWATER ENCOUNTERED: NA	
NUMBER OF SAMPLES: 6		DEPTH TO GROUNDWATER AT COMPLETION: NA	
NUMBER OF ANALYTICAL SAMPLES:		LOGGED BY: Jerry Mullin	

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION		LABORATORY TESTS	
	Sample No.	Sample Interval	GW (ft)	PID (ppm)			Remarks	
0					Clayey silt with fine-grained sand and organics/rootlets throughout, compact, dark grayish brown, topsoil	0		
1					Concrete and sandy gravel, loose, yellowish brown, fill	1	0	
2					Silty clay with trace sand, dense, yellowish brown with oxidation mottling, low- to moderate plasticity, very moist - slightly wet, reworked native till 15% pebbles below 6 feet, firm, very moist, native/undisturbed till color change to gray and moderate petroleum odor from 8.5 to 16 feet as above, variegated yellowish brown and gray, clay is very dense/hard with low plasticity, moist	2		Soil sample LGP-8/2-4 submitted for laboratory analysis
3				3		0		
4				4				
5				5		0		
6				6				
7				7		0		
8				8				
9				9		50		
10				10				
11				11		62		
12				12				
13				13	4			
14				14				
15				15	33			
16				16				
17				17	7			
18				18				
19				19	0			
20				20				
21				21	0			
22				22				
23				23	0			
24				24				
25				25	0			
26				26				
27				27	0			
28				28				
29				29	0			
30				30				

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix H – Draft Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges for Bridge #9412

**Appendix H– DRAFT PROGRAMMATIC SECTION 4(F)
EVALUATION AND APPROVAL FOR FHWA
PROJECTS THAT NECESSITATE THE USE OF
HISTORIC BRIDGES FOR BRIDGE #9412**

PROGRAMMATIC SECTION
4(F) EVALUATION AND
APPROVAL FOR FHWA
PROJECTS THAT
NECESSITATE THE USE OF
HISTORIC BRIDGES –
BAUDETTE / RAINY RIVER
INTERNATIONAL BRIDGE
(BRIDGE #9412)

TRUNK HIGHWAY 72
SP 3905-09
City of Baudette, Minnesota
Lake of the Woods County

Prepared for:
MnDOT

January 30, 2017

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

January 30, 2017

Table of Contents

1.0 REPORT PURPOSE 1

2.0 PURPOSE AND NEED & PROPOSED ACTION FOR PROJECT 2

2.1 PURPOSE STATEMENT 2

2.2 NEEDS / DEFICIENCIES 3

 2.2.1 Primary Need3

 2.2.2 Secondary Needs.....4

 2.2.3 Additional Bridge Operational and Geometric Deficiencies.....5

 2.2.4 Additional Considerations.....6

2.3 PROPOSED PROJECT ACTION 7

 2.3.1 Location7

 2.3.2 Roadway Alignment7

 2.3.3 Pedestrian and Bicycle Accommodations.....8

 2.3.4 Bridge Structure Type8

3.0 SECTION 4(F) PROPERTY 8

3.1 MAP OF SECTION 4(F) PROPERTY 8

3.2 SIZE AND LOCATION..... 8

3.3 OWNERSHIP AND TYPE OF SECTION 4(F) PROPERTY 9

3.4 FUNCTION OF PROPERTY AND AVAILABLE ACTIVITIES..... 9

3.5 DESCRIPTION AND LOCATION OF ALL EXISTING AND PLANNED FACILITIES 9

3.6 ACCESS 9

3.7 APPLICABLE CLAUSES AFFECTING THE OWNERSHIP 9

3.8 UNUSUAL CHARACTERISTICS REDUCING OR ENHANCING THE VALUE OF THE PROPERTY 9

4.0 IMPACTS TO THE SECTION 4(F) PROPERTY.....10

4.1 PREFERRED ALTERNATIVE10

5.0 AVOIDANCE ALTERNATIVES.....10

5.1 “NO BUILD” ALTERNATIVE.....10

5.2 BUILD A NEW STRUCTURE AT A DIFFERENT LOCATION WITHOUT AFFECTING THE HISTORIC INTEGRITY OF THE OLD BRIDGE, AS DETERMINED BY PROCEDURES IMPLEMENTING THE NATIONAL HISTORIC PRESERVATION ACT.10

5.3 REHABILITATE THE HISTORIC BRIDGE WITHOUT AFFECTING THE HISTORIC INTEGRITY OF THE STRUCTURE, AS DETERMINED BY PROCEDURES IMPLEMENTING THE NATIONAL HISTORIC PRESERVATION ACT.....11

6.0 MEASURES TO MINIMIZE HARM.....12

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

January 30, 2017

7.0 COORDINATION12

8.0 CONCLUSION13

9.0 REFERENCES.....13

LIST OF FIGURES

Figure 1: Project Location Map iii

Figure 2: Preferred Alternative iv

Figure 3: Area Map v

LIST OF APPENDICES

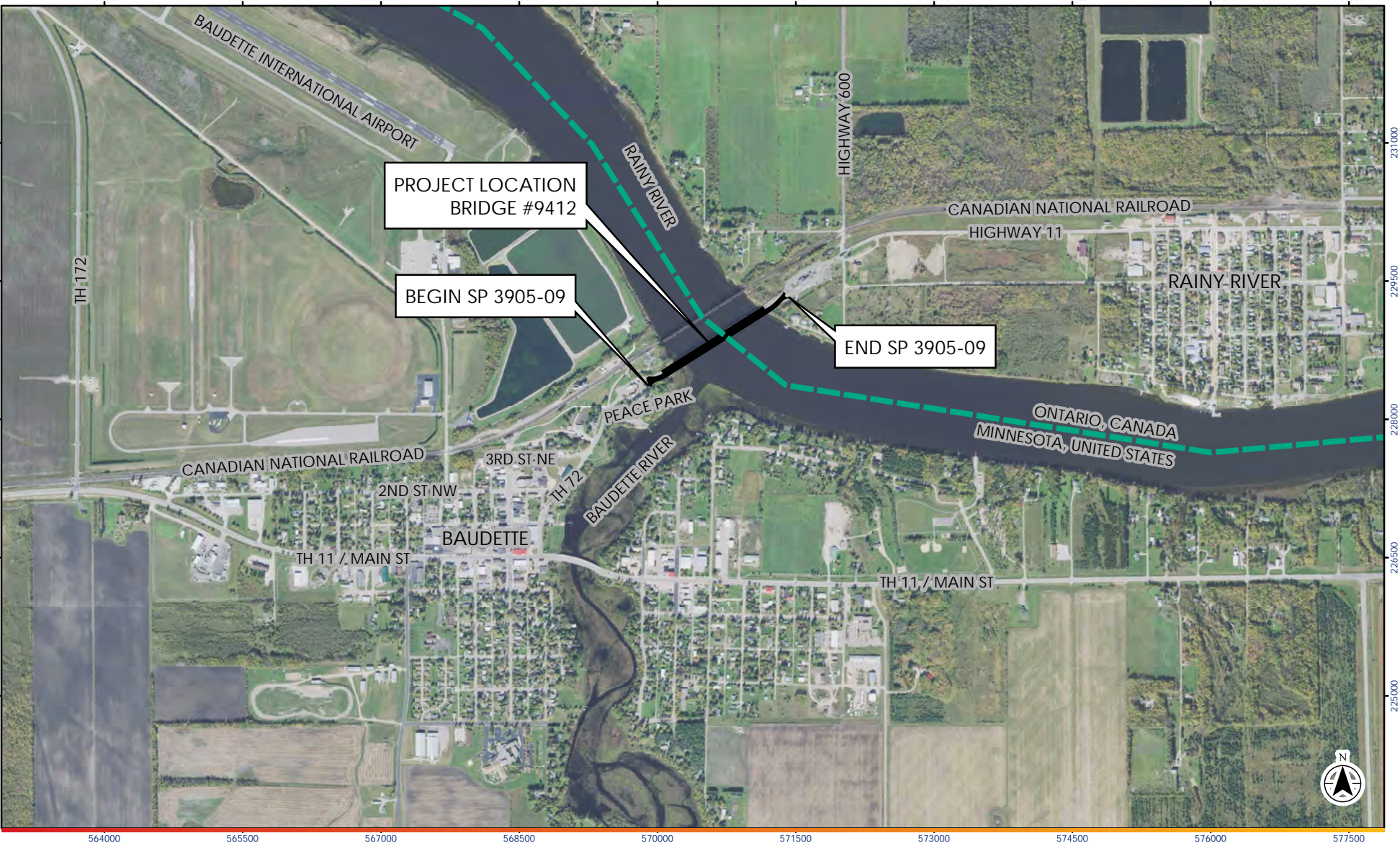
APPENDIX A – SECTION 106 MEMORANDUM OF AGREEMENT (MOA) (IN PROGRESS – DRAFT ATTACHED) A.1

APPENDIX B – COORDINATION B.1

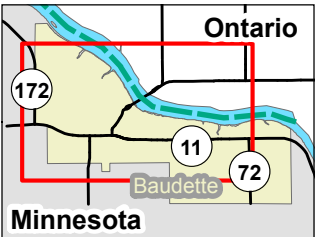
APPENDIX C – MNDOT STRUCTURE INVENTORY REPORT: BRIDGE 9412, TH 72 OVER RAINY RIVER C.1

DRAFT

\\US1291-101\workgroup\193802870\CIS\Projects\Park Impacts\AR Aerial & USGS Figures_2017-01-08.mxd
231000
229500
228000
226500
225000



231000
229500
228000
226500
225000



Notes
1. Coordinate System: NAD 1983 HARN Adj MN Lake of the Woods South Feet.
2. Aerial: MnGEO WMS, 2015 FSA.

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

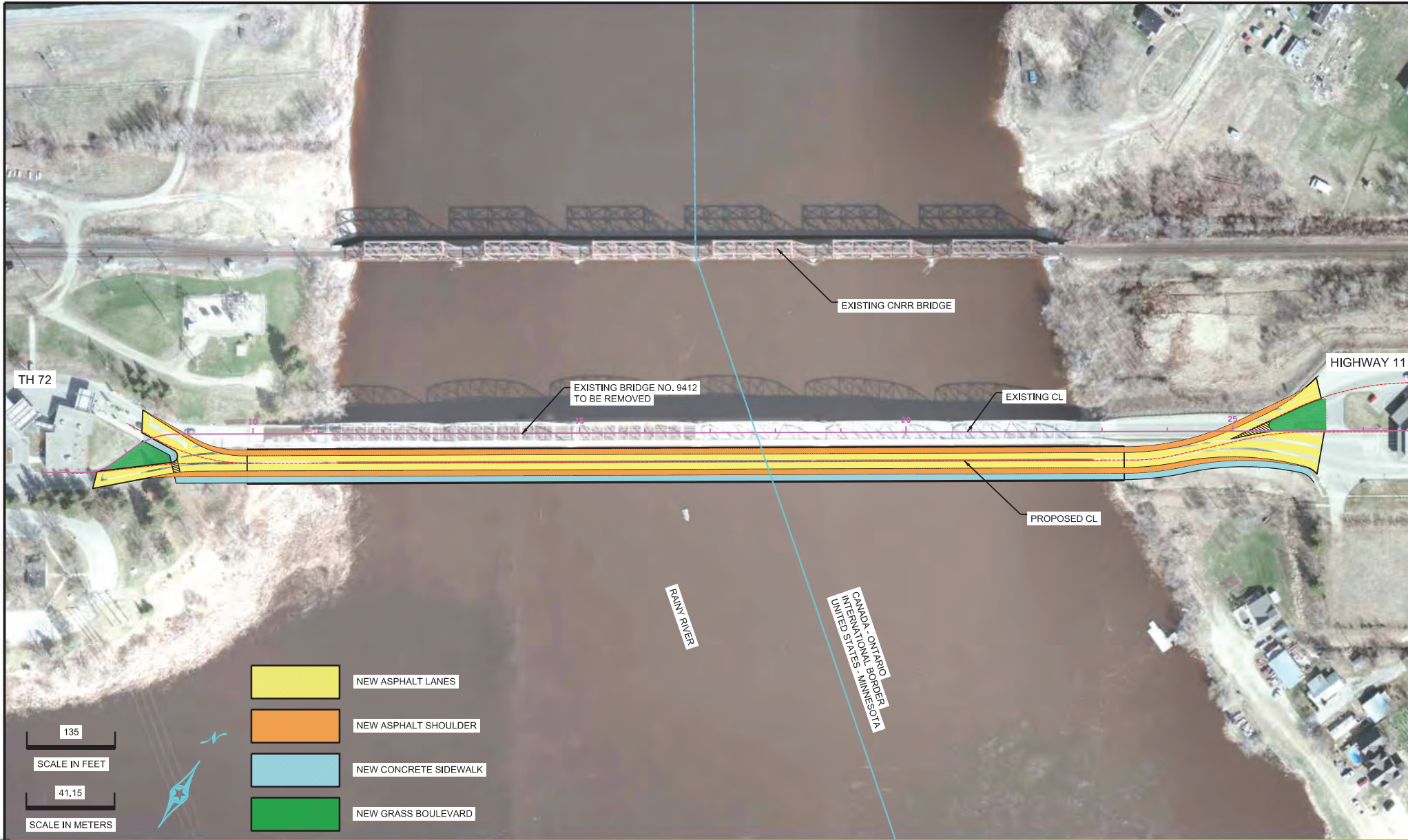
Project Location 193802870
T161N, R31W, S35
City of Baudette, MN

Prepared by arbachonek on 2017-01-08

Client/Project SP 3905-09
MnDOT
Baudette/Rainy River International Bridge
Replacement

Figure No. 1
Title

PROJECT LOCATION AERIAL



PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Report Purpose
January 30, 2017

Bridge Location
Baudette, MN
Lake of the Woods County
SP 3905-09
T 161N, R 31W, S 35

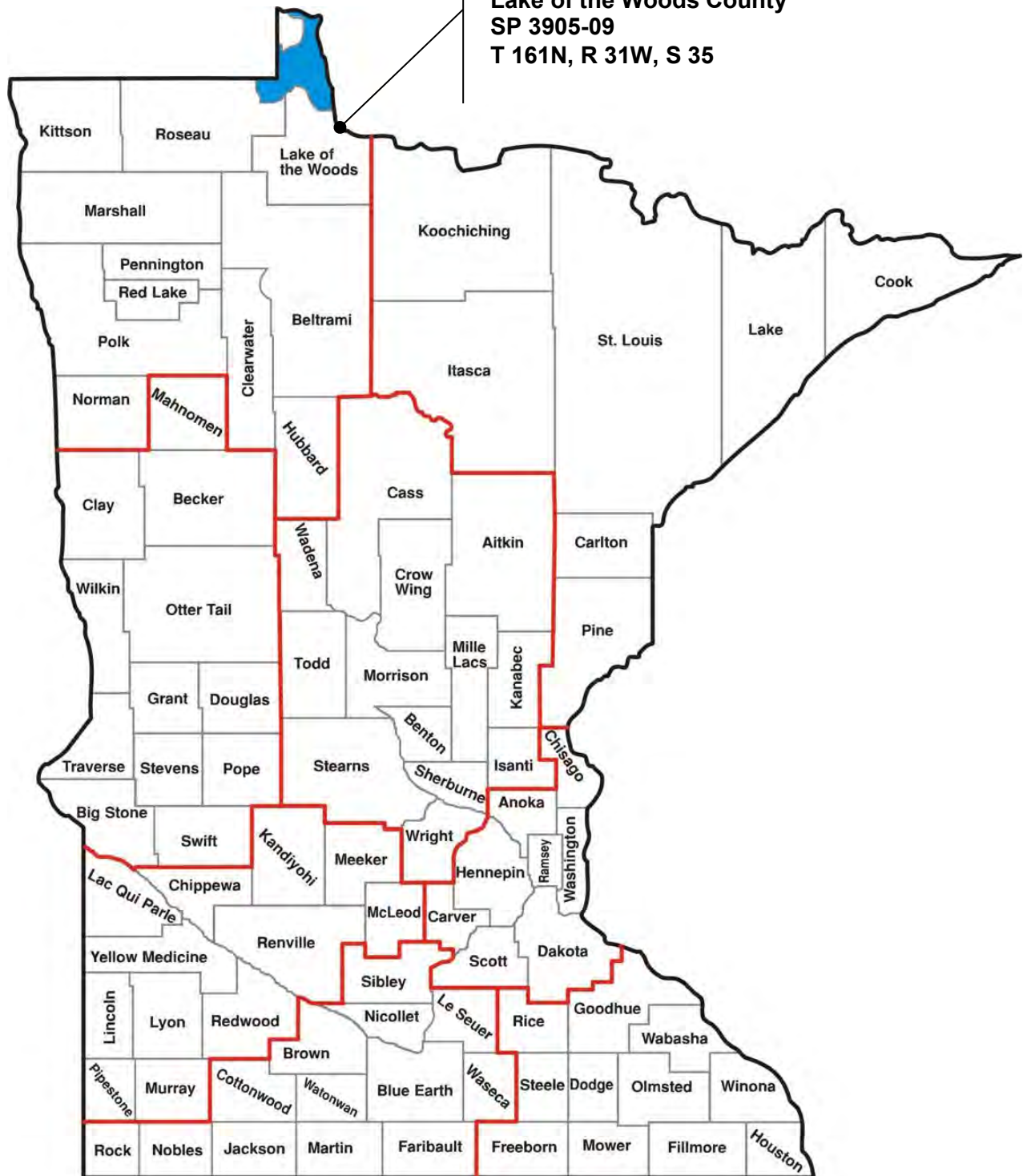


Figure 3: Area Map

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Report Purpose
January 30, 2017

1.0 REPORT PURPOSE

The purpose of this Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges is to document information needed by the FHWA to make a decision regarding the use of a property protected by Section 4(f) legislation (49 USC 303 & 23 USC 138) and FHWA Section 4(f) regulations under 23 CFR 771.135(a).

The Section 4(f) legislation as established under the Department of Transportation Act of 1966 (49 USC 303, 23 USC 138) provides protection for publicly owned parks, recreation areas, historic sites, wildlife and/or waterfowl refuges from conversion to a transportation use. The Federal Highway Administration (FHWA) may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that:

- There is no feasible and prudent alternative to the use of land from the property; and
- The action includes all possible planning to minimize harm to the property resulting from such use (23 CFR 77.135).

Additional protection is provided for outdoor recreational lands under the Section 6(f) legislation (16 USC 4602-8(f) (3)) where Land and Water Conservation (LAWCON) funds were used for the planning, acquisition or development of the property. These properties may be converted to a non-outdoor recreational use only if replacement of land of at least the same fair market value and reasonably equivalent usefulness and location is assured. There are no Section 6(f) properties within the project impact area; therefore, this document will not address Section 6(f) issues or processes.

The purpose of this Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges is to provide the information required by the Secretary of Transportation to make the decision regarding replacement of the Baudette/Rainy River International Bridge, a property protected by Section 4(f) legislation which will be affected as a result of the decommissioning and replacement of the Baudette/Rainy River International Bridge.

This Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges describes the identified Section 4(f) historic site which is proposed to be “used” under the preferred alternative, potential impacts on that property, and possible mitigation measures to minimize impacts. A “use” occurs (1) when land from a Section 4(f) site is acquired for a transportation project, (2) when there is occupancy of land that is adverse in terms of the statute’s preservationist purposes, or (3) when the proximity impacts of the transportation project on the Section 4(f) sites, without acquisition of land, are so great that the purposes for which the Section 4(f) site exists are substantially impaired (normally referred to as a constructive use).

The proposed use of Bridge 9412 satisfies the requirements for use of a Programmatic Section 4(f) Evaluation for FHWA projects that necessitate the use of historical bridges by meeting the following criteria:

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Purpose and Need & Proposed Action for Project
January 30, 2017

- **The bridge is to be replaced or rehabilitated with Federal funds.** The project is programmed in the 2016-2019 Minnesota STIP. The programmed funding includes approximately \$12.4 million of Federal funds. Implementation of the preferred alternative would result in the replacement of Bridge 9412.
- **The resource is a historic bridge that is not a National Historic Landmark.** The bridge has been determined to be eligible for the National Register of Historic Places (NRHP). It is not a National Historic Landmark.
- **If the bridge is replaced, the existing bridge must be made available for alternative use.** The Minnesota Department of Transportation (MnDOT) will comply with the Historic Bridge Requirements and Uniform Relocation Assistance Act of 1987, Section 123(f). The United States' half of the Baudette/Rainy River International Bridge will be marketed for sale. The Ministry of Transportation Ontario (MTO) has decided not to market the Canadian half of the bridge for sale. The demolition and removal of the existing structure will be included in the tender specifications or contract language. Therefore, the Contractor would be solely responsible for the disposal of any material that is removed from the old structure as part of the replacement (see Appendix B for MTO's responses to MnDOT's 2013 Bridge Rehabilitation Study Report).
- **A Programmatic Section 4(f) Evaluation cannot be used for projects that require and Environmental Impact Statement (EIS).** The project does not cross a threshold that would require preparation of an EIS in 23 CFR 771.115. An EIS is not required for the proposed project.
- **The State Historic Preservation Office (MnHPO) must concur in writing with the assessment of impacts and proposed mitigation.** Coordination with MnHPO is underway. MnHPO has concurred with the Section 106 determination of effect and is developing a signatory to the Memorandum of Agreement (MOA) stipulating mitigation for the impact to Bridge 9412 (see Appendix A). *[NOTE: A Section 106 Memorandum of Agreement (MOA) has been accepted by all signatories and is in the process of being executed. The final agreement will be included in the Final Programmatic Section 4(f) Evaluation document, which will be part of the Fact and Conclusions documentation supporting the FHWA's NEPA determination on the EA process.]*

2.0 PURPOSE AND NEED & PROPOSED ACTION FOR PROJECT

2.1 PURPOSE STATEMENT

The Baudette / Rainy River International Bridge (Bridge No. 9412) spans the Rainy River from Baudette, Minnesota to Rainy River, Ontario, Canada. The bridge was originally built in 1959, and has served as an international border crossing since that time. As part of a joint ownership agreement, the Minnesota Department of Transportation (MnDOT) and the Ontario Ministry of Transportation (MTO) maintain and operate the bridge. Minnesota Trunk Highway (TH) 72 and Highway 11 carry traffic over the bridge between the U.S. and Canada. Full service Ports of Entry (Customs) are located immediately after exiting on either end of the bridge.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Purpose and Need & Proposed Action for Project
January 30, 2017

The purpose of the Baudette / Rainy River International Bridge Replacement Project is to address the deteriorating condition of the bridge structure in order to maintain the international exchange of vehicular, freight and pedestrian traffic across the Rainy River at this location as follows:

- To provide a level of service that meets the transportation needs of area residents, tourists, businesses/industries, and farms;
- To address geometric deficiencies; and
- To ensure the continued serviceability of the route.

Additionally, Chapter 152 of the Minnesota Legislature 2008 Session Laws directs MnDOT to establish a bridge improvement program with an emphasis on structurally deficient and fracture critical bridges. The proposed improvements to this bridge are funded under the Chapter 152 program.

2.2 NEEDS / DEFICIENCIES

2.2.1 Primary Need

2.2.1.1 Need for Structurally Sound Bridge Crossing of the Rainy River between the Baudette Minnesota and Rainy River Ontario Ports of Entry

The primary need for the project is to address the deteriorating condition of the international bridge, and in doing so provide the public with a structurally sound bridge crossing over the Rainy River. The existing bridge carries approximately 1,300 vehicles per day, projected to increase to 1,400-1,450 by 2038 (MnDOT/MTO). The closest international crossing is located approximately 70 miles away.

MnDOT's Minnesota Structure Inventory Report indicates that Bridge #9412 is a fracture critical (non-redundant) bridge with a sufficiency rating of 48.8 out of 100 (Appendix C – MnDOT 2016). The bridge inspection notes provided in the Structure Inventory Report also indicate that inspections were performed with both MnDOT and MTO present on an annual basis. Structural deficiencies are described below:

2.2.1.1.1 Superstructure & Deck Deficiencies

Structural elements of the bridge have been observed to be actively corroding, with some members experiencing substantial section loss (up to 50%). Paint failure, microbial induced corrosion, and pack rust were identified on the surfaces and at the interfaces of many structural members and their connections. Additionally, trusses were found to display free edge distortion (buckling of the unfastened sides of gusset plates) as well as pack rust on many gusset plate connections.

The rocker bearings are in full expansion and in most cases are in contact with the lower chord of the superstructure. This condition has existed for several years and has likely contributed to the bending of several anchor bolts.

In certain areas, the open grid deck was observed to have moderate surface corrosion, several broken welds, and pack rust at its interface with the support beams. Several instances of missing and

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Purpose and Need & Proposed Action for Project
January 30, 2017

bent/broken grid bars and other repairs at various locations were noted throughout the field inspection notes (Appendix C – MnDOT 2016).

Due to observations noted in the April 2016 structural inspection report (MnDOT 2016), the superstructure and deck have most recently been given a National Bridge Inventory (NBI) condition rating of 5, indicating that they are in “fair” condition.

2.2.1.1.2 Substructure Deficiencies

The most recent underwater inspection report (Ayres Associates & Collins Engineers, Inc. 2012), found that the six underwater piers (Piers 2 through 7, from west to east) were generally in good condition with no significant, observable structural defects, but that all six underwater piers showed light concrete scaling within a one-foot band from the top of the caissons. Additionally, the steel caisson shells for Piers 2 through 6 had light to moderate surface corrosion from the top to 3.5 feet below the water line. Below this point, there was moderate to heavy surface corrosion with 0.5-inch to 3-inch diameter rust nodules and up to 1/16-inch-deep pitting over 50% of the area. Moderate to heavy timber debris accumulation (1 foot in diameter and smaller) was also observed at Piers 4 and 5 from the channel bottom to the waterline.

Scour depressions up to 3 to 4 feet deep were observed around the downstream sides, particularly in areas where there was minimal riprap.

As noted in the April 2016 structural inspection report (Appendix C – MnDOT 2016), the substructure for the bridge received an NBI rating of 5, indicating a “fair” condition. The piers were given a Minnesota Scour Code of ‘O’ indicating that the bridge foundations have been determined to be stable for predicted scour conditions, but a “Scour Plan of Action” needs to be established to monitor the bridge during high water events. The scour was last evaluated in 1998.

2.2.2 Secondary Needs

2.2.2.1 Maximizing Maintenance of Traffic during Construction

Maintaining the continuity of traffic during construction will be critical as the Baudette/Rainy River International Bridge provides a vital connection within this region’s transportation system. For the approximately 1,300 vehicles per day that use the crossing, the bridge provides access to the many resources that are shared between the two countries, including education and employment facilities, tourism, recreation, as well as timber, mining, and agricultural industries. The closest Customs crossing with continuous operations (open 24/7) is located in International Falls, Minnesota / Fort Francis, Ontario which would add a 140-mile round-trip detour to the local Rainy River and Baudette communities.

While Baudette, Minnesota and Rainy River, Ontario do not have a reciprocity agreement relative to emergency services, the Rainy River ambulance often transports critically ill/injured patients to the Baudette Regional Airport for medical airlift as the Rainy River community does not have an airport facility.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Purpose and Need & Proposed Action for Project
January 30, 2017

2.2.2.2 Pedestrian Facilities Deficiencies

There is a need to provide a structurally sound bridge crossing for pedestrian, bicycle, and non-motorized traffic. The existing bridge has provided a pedestrian crossing for residents of Rainy River and Baudette since the cantilevered walkway was constructed as part of the original bridge in 1959.

Additionally, the current pedestrian facilities are not ADA compliant. The sidewalk is constructed of a timber plank decking over steel beams and stringers that are in similar condition to the other structural members under the main bridge deck. Several instances of broken and generally weathered timber planks are cited in the 2009 bridge inspection field notes that have not been addressed (Appendix C – MnDOT 2016).

2.2.3 Additional Bridge Operational and Geometric Deficiencies

As detailed in the 2013 Bridge Rehabilitation Study Report, there are additional operational and geometric deficiencies identified in the current bridge related to the vertical clearance, load capacity, and geometric standards.

2.2.3.1 Vertical Clearance

The current bridge experiences daily over-dimensional load traffic. Due to the limited existing vertical clearance of 14.8 feet, the port authorities currently implement special procedures to accommodate over-dimensional loads. First, as documented in the bridge inspection notes, portal frames and sway frames in all spans have distortion from traffic impacts. The inspection notes also indicate that sway frames continue to get bumped by over-dimensional loads; bent members are documented but may be bent slightly more from year to year (Appendix C – MnDOT 2016). To avoid collisions, over-dimensional loads (over 14.8 feet high) are required to unload or otherwise reduce heights to cross the existing structure or use an alternative route. Second, some over-dimensional loads require travel down the center of the bridge structure where the vertical clearance is maximized, prohibiting two-way traffic, and causing delays for on-coming traffic.

2.2.3.2 Load Capacity

Currently, the structural condition of the bridge can support legal loads of 80,000 lbs. traveling at a maximum of 10 mph, and permitted loads up to 88,000 lbs. when additional special procedures are followed. The bridge structural loading capacity is not consistent with special permitted roadway loading limits on TH 72 which allows loads up to 100,000 lbs., creating a limiting segment on an international corridor. Efficient travel of trucks with permitted overweight loads is not well-accommodated since the closest international crossing is 70 miles away; this inefficiency impedes international commerce.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Purpose and Need & Proposed Action for Project
January 30, 2017

2.2.3.3 Safety Standards

The main span guardrail and approach span guardrails do not meet current NCHRP 350 safety standards.

2.2.4 Additional Considerations

The following describes additional considerations that would be desirable to address:

2.2.4.1 Structural Redundancy

The Baudette/Rainy River International Bridge is a fracture critical bridge with non-redundant design. Current designs in compliance with MnDOT design standards do not contain fracture critical design components. Chapter 152 of the Minnesota Legislature 2008 Session Laws directs MnDOT to establish a bridge improvement program with an emphasis on structurally deficient and fracture critical bridges.

2.2.4.2 Regulatory Requirements

2.2.4.2.1 Joint Ownership with the Ontario Ministry of Transportation (MTO)

The State of Minnesota and Province of Ontario operate the bridge under a joint bridge ownership agreement. As part of the joint ownership agreement, each transportation agency is responsible for the maintenance on their respective half of the bridge structure. Since the bridge is jointly owned, decisions regarding how to address the needs of this bridge need to be made jointly by MnDOT and the MTO.

2.2.4.2.2 Historic Resources

The current bridge structure is eligible for listing in the National Register of Historic Places (NRHP). Additionally, the project location is within the Minnesota and Manitoba Railroad Corridor Historic District, which includes the Canadian National (CN) Railway Bridge, located directly downstream of the Baudette/Rainy River International Bridge. The CN Railway Bridge has been determined eligible for listing in the NRHP. See Appendix B for the State of Minnesota Historic Preservation Office (MnHPO)'s letter of determination of no effect to the Canadian National (CN) Railway Bridge dated 10 December 2015.

Because federal funds will be used to complete this project, effects to the bridge must be evaluated in accordance with Section 106 of the National Historic Preservation Act, as well as Section 4(f) of the Department of Transportation Act. See Appendix B for additional coordination with MnHPO.

2.2.4.2.3 Parkland

In addition to protecting historic resources as described above, Section 4(f) provides protections for publicly owned parks, trails, recreational areas, and wildlife and waterfowl refuges. Section 4(f) requires avoidance unless there is no prudent and feasible alternative to the use. If avoidance is not possible, then Section 4(f) requires all possible planning to minimize harm to the park property. Peace Park is a Section 4(f) protected park property located directly adjacent to the current bridge.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Purpose and Need & Proposed Action for Project
January 30, 2017

2.2.4.2.4 Airport

The Baudette International Airport is located approximately 0.5 miles northwest of the Baudette / Rainy River International Bridge. The proposed bridge lies under the approach surface on that end of the Baudette International Airport runway and will need to stay under a 50:1 slope from the end of the primary surface (200 feet beyond the end of the runway). As such, coordination with the Federal Aviation Administration (FAA) has been initiated to verify compliance with these regulations.

2.2.4.2.5 Navigational Channel

The United States Coast Guard (USCG) maintains a navigational channel on the Rainy River and has jurisdiction over structures spanning the channel on the U.S. side of the river. Transport Canada has similar jurisdiction over the navigational channel on the Canadian side of the river. The USCG has determined that the use of the Rainy River in this location is almost entirely recreational and therefore has determined that the CN Railway Bridge located just downstream will be the controlling structure to set the required navigational clearances.

The following requirements were advised by the USCG to apply to the U.S. side of the river:

- The low steel elevation on the proposed bridge needs to be higher than the low steel of the current CN Railway Bridge. If possible, the proposed bridge should be 5 feet higher than the current CN Railway Bridge low elevation.
- The horizontal navigation channel provided beneath the current bridge would:
 - need to have a channel width of 100 feet or more;
 - not need to be in a specific location; and
 - not need to be offset of the border.

2.2.4.2.6 Stormwater

The current bridge deck is an open grate, allowing stormwater to drain directly to the Rainy River without treatment. Roadway contaminants (gasoline, oil, salt, etc.) or accidental spills of hazardous materials also discharge directly into the Rainy River. The existing infrastructure meets current stormwater management standards but does not meet recommended agency practices. Construction of bridge and/or roadway improvements may require incorporation of stormwater management practices consistent with current regulations.

2.3 PROPOSED PROJECT ACTION

2.3.1 Location

The bridge is located on Minnesota Trunk Highway 72 and Highway 11 between the US and Canadian Port of Entry.

2.3.2 Roadway Alignment

The preferred alternative recommends locating the new bridge just upstream (south) of the existing bridge with an offset of approximately three feet from the outer rail of the existing bridge to that of the new

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Section 4(f) Property
January 30, 2017

bridge. There will be no change in the alignment and little or no change in the overall length of the crossing (1,286 feet). The roadway on the proposed bridge will include a two-lane section, consisting of an 11.5-foot through lane and an 8-foot shoulder in each direction.

2.3.3 Pedestrian and Bicycle Accommodations

The 8-foot shoulders will accommodate bicyclists and snowmobilers. A 6-foot sidewalk will be constructed to provide pedestrians an ADA compliant route across the bridge.

2.3.4 Bridge Structure Type

The preferred alternative recommends a five-span continuous steel I-girder with a haunched shape based on its ability lower the roadway profile and aesthetic preference.

3.0 SECTION 4(F) PROPERTY

3.1 MAP OF SECTION 4(F) PROPERTY

The Section 4(f) property discussed in this report is illustrated in Figure 1 located at the front of this report.

3.2 SIZE AND LOCATION

Completed in 1959, the Baudette/Rainy River International Bridge is approximately 1,286 feet in length and spans the Rainy River from Baudette, MN to Rainy River, Ontario, Canada. The bridge serves as an international border crossing between the United States and Canada and currently supports 1,300 vehicles per day, 14.8% of which involves truck traffic. The bridge cannot currently accommodate overweight or over-dimensional loads. In part, this is due to the existing bridge structure's low vertical clearance of 14.8 feet.

The bridge consists of six 192.5-foot long Pennsylvania through-truss main spans and six steel-beam approach spans for a total structural length of 1,286 feet. On the US side, there are four south approach spans and three south main spans; on the Canadian side, there are three north main spans and two north approach spans. The truss components include riveted built-up members and rolled members. Members are connected with riveted gusset plates. The open steel grate deck includes a two-lane, 24-foot wide roadway and a six-foot wide sidewalk is cantilevered on the east side of the northbound bridge.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Section 4(f) Property
January 30, 2017

3.3 OWNERSHIP AND TYPE OF SECTION 4(F) PROPERTY

The historic bridge is jointly owned and maintained by MnDOT and MTO, ownership is split at the international border. As part of the joint ownership agreement, each transportation agency is responsible for their respective half of the bridge structure. Additionally, decisions regarding how to address the needs of the bridge are to be made jointly by MnDOT and the MTO.

The MnHPO and FHWA determined that Baudette/Rainy River International Bridge (MnDOT Bridge #9412 and MTO Bridge #45-110) is eligible for listing in the National Register of Historic Places under Criterion A: Transportation and Criterion C: Engineering (MnDOT & Mead and Hunt, 2013). Under these respective criteria, the bridge was found to be a significant example of major river crossings in Minnesota and an uncommon bridge type (Pennsylvania through-truss).

3.4 FUNCTION OF PROPERTY AND AVAILABLE ACTIVITIES

The bridge provides international access across the Rainy River between the United States and Canada. Available activities include driving vehicles, walking or biking on the bridge.

3.5 DESCRIPTION AND LOCATION OF ALL EXISTING AND PLANNED FACILITIES

The existing bridge facility is described above. Prior to the proposed action (described in Section 4.1 Preferred Alternative) and shown in Figure 2, there were no plans for modifying the existing facility.

3.6 ACCESS

Minnesota Trunk Highway 72 and Highway 11 provide vehicular, bicycle and pedestrian access to and from Baudette, Minnesota and Rainy River, Ontario. The bridge also serves as a connection between United States and Canadian full-service, 24-hour Port of Entry facilities in each country.

3.7 APPLICABLE CLAUSES AFFECTING THE OWNERSHIP

As discussed previously in Section 3.3, Ownership and Type of Section 4(f) Property, Bridge #9412 is jointly owned by MnDOT and MTO. Due to this joint ownership dynamic, rehabilitation options and mitigation are constrained by some of MTO's current practices. MTO provided its determination that the bridge is not eligible for inclusion on the Ontario Heritage Bridge List. MTO also explained that the bridge is nearing the end of its useful life and it does not consider rehabilitation as a viable option.

3.8 UNUSUAL CHARACTERISTICS REDUCING OR ENHANCING THE VALUE OF THE PROPERTY

None

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Impacts to the Section 4(f) Property
January 30, 2017

4.0 IMPACTS TO THE SECTION 4(F) PROPERTY

4.1 PREFERRED ALTERNATIVE

The proposed project includes the replacement of the Baudette/Rainy River International Bridge, causing a direct impact to the historic resource due to its removal and replacement of the bridge.

5.0 AVOIDANCE ALTERNATIVES

5.1 “NO BUILD” ALTERNATIVE

The “No Build” alternative would avoid a direct impact to the Baudette/Rainy River International Bridge. However, this alternative does not meet Chapter 152 of the Minnesota Legislature 2008 Session Laws, as well as the basic transportation needs; therefore, it is neither feasible nor prudent. Normal maintenance does not correct the structural and operational issues listed in Section 2.0, Purpose and Need & Proposed Action for Project. Without action, the bridge will continue to deteriorate requiring increased inspections and on-going maintenance.

5.2 BUILD A NEW STRUCTURE AT A DIFFERENT LOCATION WITHOUT AFFECTING THE HISTORIC INTEGRITY OF THE OLD BRIDGE, AS DETERMINED BY PROCEDURES IMPLEMENTING THE NATIONAL HISTORIC PRESERVATION ACT.

Alternatives for this project were developed with the intent to provide little to no disruption to either the U.S. and Canadian Ports of Entry (POE) facilities. Relocation of the port facilities would impart impacts and costs that would be outside of the scope of this project.

Additionally, as discussed in EA Sections 4.3.10 (Aviation) and 4.3.11 (Rainy River and Baudette River Navigational Traffic Impacts), other existing constraints within the project area include the Baudette International Airport airspace and navigational vertical clearance for the Rainy River. These airspace/navigational constraints, along with the need to tie into the existing POEs prohibited the development of a feasible replacement bridge in a new location.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Avoidance Alternatives
January 30, 2017

5.3 REHABILITATE THE HISTORIC BRIDGE WITHOUT AFFECTING THE HISTORIC INTEGRITY OF THE STRUCTURE, AS DETERMINED BY PROCEDURES IMPLEMENTING THE NATIONAL HISTORIC PRESERVATION ACT.

MnDOT completed a bridge rehabilitation study in May 2013 to evaluate rehabilitation/replacement options. The rehabilitation study included minor rehabilitation options that result in relatively low impacts to the historic integrity of the bridge as well as major rehabilitation alternatives with a greater potential for impacts to historic features. In general, these rehabilitation options would provide longer service life and/or address more of the project's secondary needs and additional considerations. Five rehabilitation alternatives were presented in the study as feasible.

However, MnDOT's mitigation and rehabilitation options are constrained by some of MTO's current practices. As discussed in Section 2.2.4.2.1 (Joint Ownership with the Ontario Ministry of Transportation), MnDOT and MTO are required to make joint decisions when addressing the needs of the bridge. Accordingly, MnDOT provided the May 2013 Bridge Rehabilitation Study to the MTO who offered the following determinations:

1. The Baudette/Rainy River Bridge is not eligible for the inclusion on the Ontario Heritage Bridge List.
2. The bridge is nearing the end of its useful life.
3. MTO does not consider rehabilitation of the existing bridge to be a viable option.

Following the MTO review of the Rehabilitation Study Report, the Minnesota State Historic Preservation Office (MnHPO) provided MnDOT with comments regarding the proposed rehabilitation alternatives. MnHPO's historic architect concurred that two of the five alternatives recommended in the report meet the U.S. Secretary of the Interior's Standards for preservation of a National Register eligible bridge, and that a third alternative could meet the Secretary's Standards if designed appropriately.

In October 2015, MnDOT requested that MTO staff review the Bridge Rehabilitation Study and reconsider the two alternatives that MnHPO determined meet U.S. Secretary of the Interior's Standards for preservation.

Based on MTO's investigations, the Ontario Heritage Bridge Guidelines application for Bridge 45-110 resulted in the determination of moderate heritage value. This determination disqualifies the bridge from the Ontario Heritage Bridge List; therefore, MTO concluded that rehabilitation of the existing bridge is not a viable option and recommended replacement. MTO supported their recommendation by indicating that the bridge is experiencing serious ongoing maintenance issues (i.e. scour) and operational deficiencies, as supported by its fracture critical classification. See the correspondence letters in Appendix B for additional details on the MTO's determination. Without MTO support, rehabilitation is not a prudent or feasible avoidance alternative.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Measures to Minimize Harm
January 30, 2017

Therefore, rehabilitation of the existing bridge was eliminated from consideration.

A public meeting was held to present the need for the project and the determination that the project would include a full bridge replacement.

6.0 MEASURES TO MINIMIZE HARM

The FHWA Programmatic Section 4(f) guidance includes the following measures to minimize harm for historic bridges that are to be replaced:

- The existing bridge is to be made available for an alternative use provided a responsible party agrees to maintain and preserve the bridge.

As noted above, MnDOT will market the United States' half of the Baudette/Rainy River International Bridge for sale. MTO has no policy or directive that would allow the agency to sell its half of the bridge structure. To avoid potential liability issues, MTO typically includes the demolition/removal of such an existing structure in the contract language and specifications. Therefore, MTO has decided not to market the Canadian half of the bridge for sale.

- For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, the FHWA ensures that, in accordance with the Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation, fully adequate records are made of the bridge.

A MOA, among MnDOT, the FHWA, and the MnHPO stipulates that MnDOT will have the Baudette/Rainy River International Bridge documented to the Minnesota Historic Property Record (MHPR) and HAER standards as mitigation for the project impact.

- For bridges that are adversely affected, agreement among the FHWA, MnHPO, and Advisory Council on Historic Preservation (ACHP) (as applicable) is reached through the Section 106 process of the National Historic Preservation Act (NHPA) on measures to minimize harm and those measures are incorporated into the project.

7.0 COORDINATION

MnHPO and FWHA were consulted to discuss impacts and solicit recommendations regarding mitigation of the bridge. See Appendix B for the following correspondence:

In a letter to the MnDOT Cultural Resources Unit (CRU), MnHPO confirmed Bridge #9412 to be eligible for the NRHP. MnHPO also concurred with CRU's determination that the proposed project will result in an adverse effect to the existing bridge. MnHPO confirmed this determination again on December 10, 2015 following a revision to the proposed project's area of potential effects.

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Conclusion

January 30, 2017

On December 11, 2015, the CRU indicated that it will be coordinating a Memorandum of Agreement (MOA) with MnHPO to mitigate the adverse effect to the bridge. A Section 106 Memorandum of Agreement (MOA) has been accepted by all signatories and is in the process of being executed. The MOA is intended to include documentation to the MHPR with photographs and a narrative that discusses the importance of the bridge type and setting. The final agreement will be included in Appendix A of this report and the Findings of Fact and Conclusions later in the environmental review documentation process.

8.0 CONCLUSION

Based upon the above considerations, there is no feasible and prudent alternative to the replacement of the Baudette/Rainy River International Bridge and the proposed action includes all possible planning to minimize harm to the Bridge resulting from the removal of the historic structure.

9.0 REFERENCES

Ayres Associates & Collins Engineers, Inc. Underwater Inspection Report: Structure No. 9412. 2012 Aug 15.

Minnesota Department of Transportation (MnDOT). Minnesota Structure Inventory Report: Bridge 9412, TH 72 over Rainy River. Accessed 2016 April 21.

Minnesota Department of Transportation (MnDOT) & Mead and Hunt. Bridge Rehabilitation Study Report for Baudette Bridge No. 9412. 2013 May 14.

DRAFT

APPENDICES

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Appendix A – Section 106 Memorandum of Agreement (MOA) (in progress – Draft ATTACHED)
January 30, 2017

Appendix A– SECTION 106 MEMORANDUM OF AGREEMENT (MOA) (IN PROGRESS – DRAFT ATTACHED)

[NOTE: The final agreement will be included in the Final Programmatic Section 4(f) Evaluation document.]

DRAFT

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

WHEREAS, the Federal Highway Administration (FHWA) plans to provide Federal-Aid Highway Program funds to the Minnesota Department of Transportation (MnDOT) to replace the Rainy River International Bridge (MnDOT Bridge 9412/Ontario Bridge 45-110) carrying Minnesota Trunk Highway 72/Ontario Provincial Highway (King's Highway) 11 over the Rainy River between Baudette, Minnesota, and Rainy River, Ontario, with a new bridge, and reconstruct a portion of the bridge approaches (S.P. 3905-09) (PROJECT); and

WHEREAS, FHWA has determined that the PROJECT is a federal undertaking with the potential to affect historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP) and is therefore subject to review under Section 106 of the National Historic Preservation Act (54 USC § 306108) and its implementing regulations at 36 CFR 800; and

WHEREAS, review of this PROJECT has been conducted per the terms of the *2005 Programmatic Agreement Among the Federal Highway Administration; the Minnesota State Historic Preservation Office; the Advisory Council on Historic Preservation; the Department of the Army, Corps of Engineers, St. Paul District; and the Minnesota Department of Transportation Regarding Implementation of the Federal-Aid Highway Program in Minnesota* (as amended 2014) (Statewide PA), various stipulations of which are incorporated by reference; and

WHEREAS, the PROJECT will require permits from the U.S. Army Corps of Engineers, St. Paul District (Corps), pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 USC § 403) and Section 404 of the Clean Water Act (33 USC § 1344); and

WHEREAS, in accordance with 36 CFR 800.2(a)(2) and per the terms of the Statewide PA, FHWA and the Corps have agreed that FHWA is the lead federal agency in the Section 106 review of this PROJECT; and

WHEREAS, MnDOT's Cultural Resources Unit (MnDOT CRU), on behalf of FHWA and in consultation with the Minnesota Historic Preservation Office (MnHPO), has defined the PROJECT area of potential effects (APE) as shown in Attachments A and B to this Memorandum of Agreement (AGREEMENT); and

WHEREAS, MnDOT CRU, in consultation with MnHPO, has completed surveys of the PROJECT APE and has identified two historic properties within the APE: the Minnesota and Manitoba Railroad Corridor Historic District (LW-RRD-001) and the Rainy River International Bridge (LW-BDC-031), both of which are eligible for listing in the NRHP; and

WHEREAS, MnDOT CRU has determined, and MnHPO has concurred, that based on the draft preliminary alternative layouts dated July 21, 2015, the PROJECT will have no adverse effect

on the Minnesota and Manitoba Railroad Corridor Historic District (LW-RRD-001) but will have an adverse effect on the Rainy River International Bridge (LW-BDC-031) by removing the structure; and

WHEREAS, in accordance with 36 CFR 800.2(c)(2)(ii), MnDOT CRU, on behalf of FHWA, has, in a good faith effort, contacted by letter dated February 16, 2012, the federally recognized American Indian tribes listed in Attachment C to this AGREEMENT, asking if they knew of any properties of historical and/or cultural significance within the APE and inviting their participation in consultation, and none have indicated that they are aware of the presence of these properties and they have not requested to participate in the consultation; and

WHEREAS, in accordance with 36 CFR 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its finding of adverse effect for the PROJECT and has provided ACHP with documentation specified in 36 CFR 800.11(e), and ACHP has chosen not to participate in the consultation; and

WHEREAS, FHWA has consulted with MnHPO and MnDOT pursuant to 36 CFR 800 to resolve the adverse effect of the PROJECT on the Rainy River International Bridge (LW-BDC-031); and

WHEREAS, MnDOT has assumed certain responsibilities under this AGREEMENT and FHWA has invited MnDOT to become a signatory to this AGREEMENT pursuant to 36 CFR 800.6(c)(2); and

WHEREAS, the Rainy River International Bridge (LW-BDC-031) is jointly owned and maintained by MnDOT and the Ministry of Transportation - Ontario (MTO) and FHWA has consulted with MTO and has asked them to concur with this AGREEMENT pursuant to 36 CFR 800.6(c)(3); and

WHEREAS, MnDOT CRU has consulted with the Lake of the Woods County Historical Society (LOW County Historical Society) per 36 CFR 800.3(f) and has asked them to concur with this AGREEMENT pursuant to 36 CFR 800.6(c)(3); and

WHEREAS, FHWA has conducted public participation in this review in coordination with the scoping, public review and comment, and public hearings conducted to comply with the National Environmental Policy Act (NEPA) and its implementing regulations as allowed per 36 CFR 800.2(d)(3); and

NOW, THEREFORE, FHWA and MnHPO agree that upon FHWA's approval of the PROJECT, FHWA will ensure that the following stipulations are implemented in order to take into account the effects of the PROJECT on historic properties, and that these stipulations shall govern the PROJECT and all of its parts until this AGREEMENT expires or is terminated.

STIPULATIONS

FHWA shall ensure that the following measures are carried out:

I. HAER RECORDATION OF THE RAINY RIVER INTERNATIONAL BRIDGE (LW-BDC-031)

A. Prior to awarding a contract for construction, MnDOT CRU shall have the Rainy River International Bridge (LW-BDC-031) documented according to the standards and guidelines of the Historic American Engineering Record (HAER) by an individual who meets the *Secretary*

of the Interior's Professional Qualifications Standards in architecture, historic architecture, or architectural history (36 CFR 61). The recordation shall be Level II and will include: select existing drawings that will be photographed with large-format negatives or photographically reproduced on Mylar; photographs with large-format negatives of the bridge and its relationship to the cities of Baudette, Minnesota, and Rainy River, Ontario, and historic views, where available; an index to photographs; and a written narrative (history and description) of the historic bridge.

- B. MnDOT CRU shall submit a copy of the draft HAER documentation package including a set of example photographs and negatives (both original and of the drawing sets) to the National Park Service (NPS) Midwest Regional Office for review.
- C. MnDOT CRU shall incorporate any changes required by NPS and submit one original final HAER documentation package (including photographs and negatives) to the NPS Midwest Regional Office, one original final HAER documentation package and a PDF copy on an archivally stable CD to MnHPO, and one original final documentation package and a PDF copy on an archivally stable CD to LOW County Historical Society. MnDOT CRU shall upload a PDF copy of the final documentation onto its Historic Bridges website.

II. PUBLIC INTERPRETATION AND EDUCATION

- A. Within two (2) years following execution of this AGREEMENT, MnDOT shall develop and install an interpretive panel in the vicinity of the new bridge that will include photos, graphics and text relating the history and importance of the Rainy River International Bridge (LW-BDC-031) crossing to the history of Baudette and detailing the historical significance and unique features of the bridge structure. MnDOT shall develop the content of the interpretive panel and determine an appropriate location in consultation with LOW County Historical Society and MnHPO. MnDOT CRU shall submit draft interpretive panel content and proposed location to LOW County Historical Society and MnHPO for a sixty-day (60-day) review and comment period. Any written comments received by MnDOT CRU within the sixty-day (60-day) review period will be incorporated into the final interpretive panel design.
- B. Within two (2) years following execution of this AGREEMENT, MnDOT CRU shall prepare an exhibit panel or panels regarding the historical significance of the Rainy River International Bridge (Bridge 9412) (LW-BDC-031) for display at the Lake of the Woods County Museum. Designed for public education, the exhibit shall include photographs and other images of the Rainy River International Bridge (LW-BDC-031), including images from the HAER documentation, and information about its NRHP eligibility within the context of Minnesota's historic bridges and its importance in the history of Baudette and the surrounding area. MnDOT CRU shall develop the content of the exhibit in consultation with LOW County Historical Society, who will take ownership of the exhibit, and MnHPO. MnDOT CRU shall submit draft exhibit content to LOW County Historical Society and MnHPO for a sixty-day (60-day) review and comment period. Any written comments received by MnDOT CRU within the sixty-day (60-day) review period will be incorporated into the final exhibit design.

III. POST-REVIEW DISCOVERIES

If MnDOT CRU determines that the PROJECT will affect a previously unidentified property that may be historic or affect a known historic property in an unanticipated manner, MnDOT CRU shall ensure that the measures contained in Stipulation 5 of the Statewide PA are carried out.

The terms of any mitigation for adverse effects to historic properties identified during post-review discovery shall be addressed by amending this AGREEMENT.

III. TREATMENT OF HUMAN REMAINS

If MnDOT or its contractors discover human remains, possible human remains, or artifacts associated with mortuary features during PROJECT-related construction activities, MnDOT CRU shall follow the terms and conditions of Stipulation 6 of the Statewide PA.

IV. DISPUTE RESOLUTION

Should any party to this AGREEMENT object at any time to any actions proposed or the manner in which the terms of the AGREEMENT are implemented, MnDOT CRU on behalf of FHWA shall consult with the objecting party (or parties) to resolve the objection. If objections cannot be resolved, FHWA shall follow the steps outlined in Stipulation 7 of the Statewide PA. FHWA's responsibility to carry out all other actions subject to the terms of this AGREEMENT that are not subjects of the dispute remain unchanged pending resolution.

V. DURATION, AMENDMENTS AND TERMINATION

- A. This AGREEMENT shall remain in effect from the date of full execution for a period not to exceed five (5) years. If FHWA anticipates that the terms of the AGREEMENT cannot be completed within this timeframe, it shall notify the parties in writing at least thirty (30) days prior to the AGREEMENT's expiration date. The AGREEMENT may be extended by the written concurrence of the signatories and invited signatories. If the AGREEMENT expires and FHWA elects to continue with the undertaking, FHWA shall reinstate review of the undertaking in accordance with 36 CFR 800.
- B. Any signatory or invited signatory to this AGREEMENT may propose to FHWA that the terms of the AGREEMENT be amended. FHWA shall use the same consultation process exercised in creating the original AGREEMENT to consider the proposed amendment. If the signatories and relevant invited signatories elect to amend this AGREEMENT, FHWA shall file the amendment with ACHP upon execution.
- C. If any signatory or invited signatory to this AGREEMENT determines that the AGREEMENT cannot be fulfilled, or that an amendment to the terms of the AGREEMENT must be made, the signatories shall consult to seek an amendment to its terms using the same consultation process as that exercised in creation of the original AGREEMENT. FHWA shall file any amendments with ACHP upon execution.
- D. Any signatory or invited signatory to this AGREEMENT may terminate the AGREEMENT by providing sixty (60) days' written notice to the other parties, provided the parties consult during the period prior to termination to agree on amendments or other actions that would avoid termination. If the AGREEMENT is terminated and FHWA elects to continue with the undertaking, FHWA shall reinstate review of the undertaking in accordance with 36 CFR 800.

VI. IMPLEMENTATION

- A. This AGREEMENT may be implemented in counterparts, with a separate signature page for each party. This AGREEMENT shall become effective on the date of the final signature by the signatories and invited signatories. The refusal of any concurring party to sign the

AGREEMENT does not invalidate the AGREEMENT. FHWA shall ensure each party is provided with a fully executed copy of the AGREEMENT and that the final AGREEMENT, updates to attachments, and any amendments are filed with ACHP.

- B. Execution of this AGREEMENT by FHWA and MnHPO and implementation of its terms is evidence that FHWA has taken into account the effects of its undertaking on historic properties and has afforded ACHP opportunity to comment pursuant to Section 106 of the National Historic Preservation Act.

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING**

**REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) BETWEEN BAUDETTE, LAKE OF THE WOODS COUNTY,
MINNESOTA, AND RAINY RIVER, ONTARIO**

SIGNATORY :

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

By: _____
Arlene Kocher, Minnesota Division Administrator

Date: _____

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

SIGNATORY :

MINNESOTA HISTORIC PRESERVATION OFFICE (MnHPO)

By: _____
Amy H. Spong, Deputy State Historic Preservation Officer

Date: _____

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

INVITED SIGNATORY:

MINNESOTA DEPARTMENT OF TRANSPORTATION (MnDOT)

By: _____
Charles E. Zelle, Commissioner

Date: _____

FINAL DRAFT

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

CONCURRING PARTY:

MINISTRY OF TRANSPORTATION - ONTARIO (MTO)

By: _____

Date: _____

The Ministry of Transportation-Ontario was invited to sign this AGREEMENT and has elected not to take a signature action. Since this concurring party does not have a duty or responsibility under the AGREEMENT, the AGREEMENT is valid without their signature per ACHP guidance documents.

SIGNATORY PAGE

**MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE MINNESOTA HISTORIC PRESERVATION OFFICE
REGARDING THE
REPLACEMENT OF THE RAINY RIVER INTERNATIONAL BRIDGE (MINNESOTA BRIDGE
9412/ONTARIO BRIDGE 45-110) (S.P. 3905-09) BETWEEN BAUDETTE, LAKE OF THE
WOODS COUNTY, MINNESOTA, AND RAINY RIVER, ONTARIO**

CONCURRING PARTY:

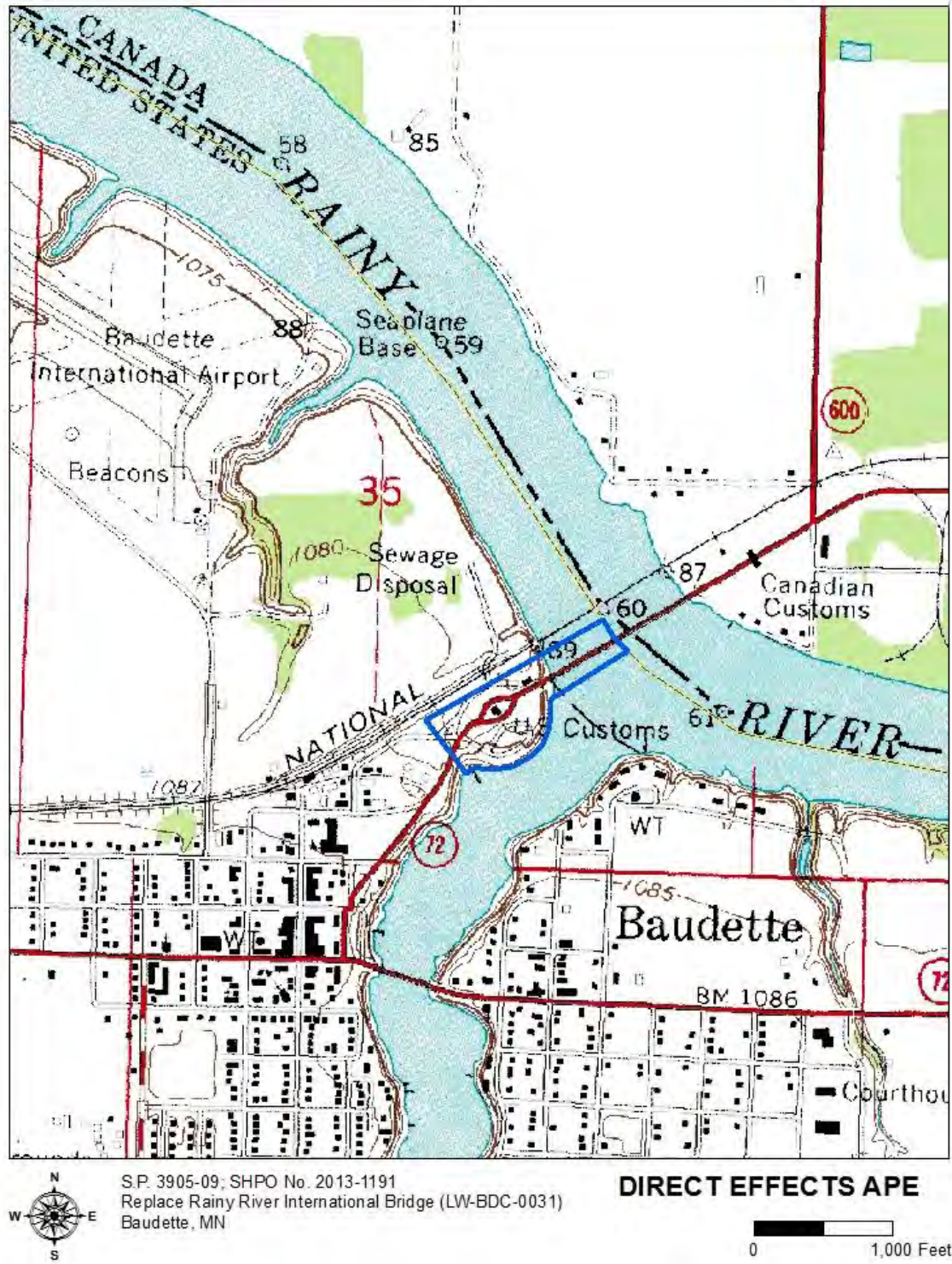
LAKE OF THE WOODS COUNTY HISTORICAL SOCIETY

By: _____
Gary Aery, President, Board of Directors

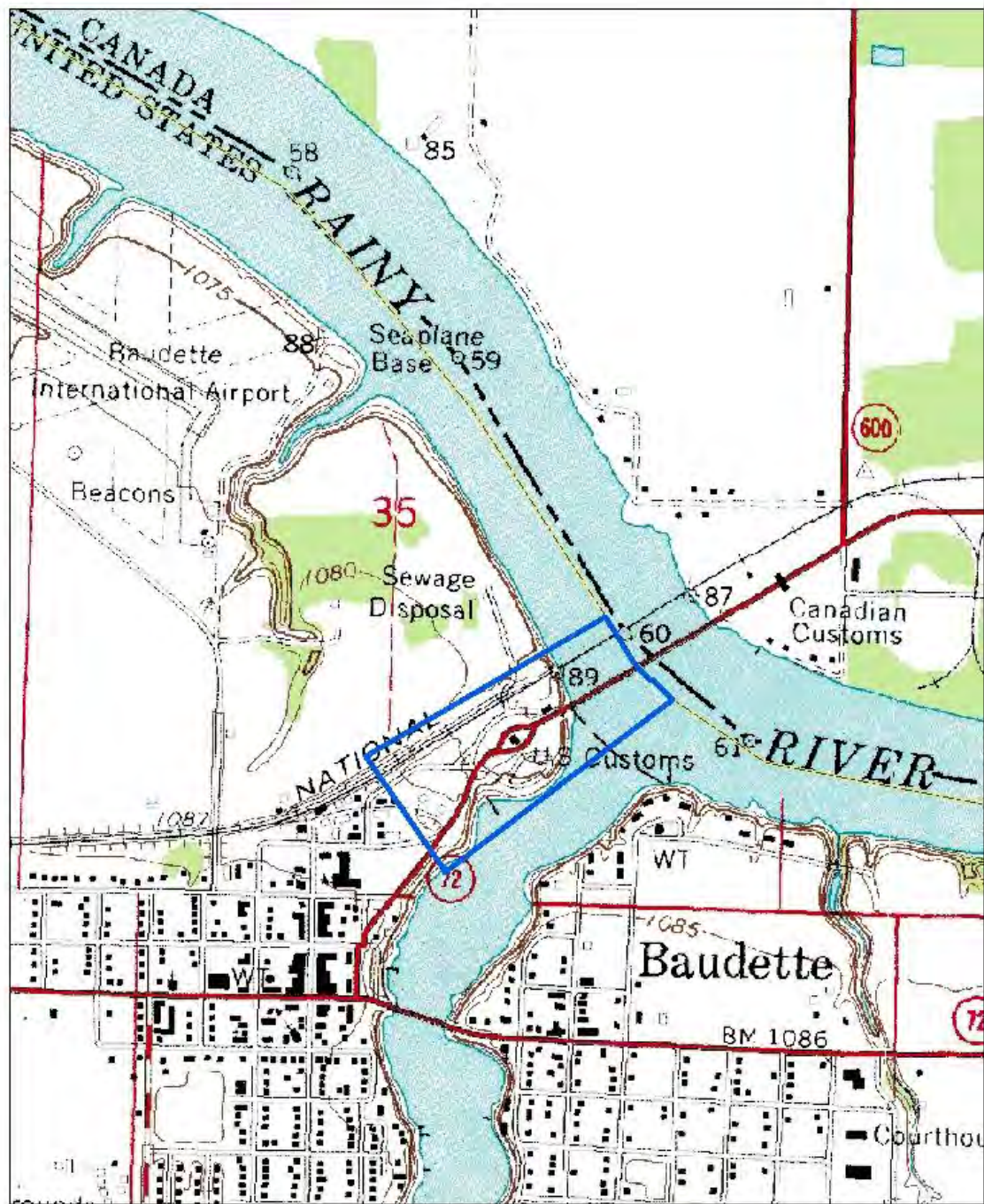
Date: _____

FINAL DRAFT

ATTACHMENT A



ATTACHMENT B



S.P. 3905-09; SHPO No. 2013-1191
Replace Rainy River International Bridge (LW-BDC-0031)
Baudette, MN

INDIRECT EFFECTS APE



**ATTACHMENT C
CONTACTED TRIBES**

Bad River Band of Lake Superior Chippewa
Fort Peck Tribes
Flandreau Santee Sioux Tribe
Keweenaw Bay Indian Community
Lac Courte Oreilles Band of Lake Superior Chippewa
Lac du Flambeau Band of Lake Superior Chippewa
Lac Vieux Desert Band of Lake Superior Chippewa
Red Cliff Band of Lake Superior Chippewa
Red Lake Band of Chippewa
St. Croix Chippewa Indians of Wisconsin
Santee Sioux Tribe
Shakopee Mdewakanton Sioux Community
Sokaogon Chippewa Community
Spirit Lake Tribe
Standing Rock Sioux Tribe
Turtle Mountain Band of Chippewa

FINAL DRAFT

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Appendix B – Coordination
January 30, 2017

Appendix B– COORDINATION

1. MnDOT and MnHPO: regarding Bridge #9412
2. MTO Responses to the Bridge Rehabilitation Study

DRAFT

July 21, 2015

Elizabeth Abel
MnDOT Cultural Resources Unit
Transportation Building, Mail Stop 620
395 John Ireland Boulevard
St. Paul MN 55155-1899

RE: S.P. 3905-09
Replace Bridge No. 9412 over the Rainy River
Baudette, Lake of the Woods County
SHPO Number: 2013-1191

Dear Ms. Abel:

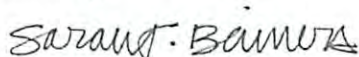
Thank you for continuing consultation on the above project. Information received in our office on 11 June 2015 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800, responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act, and per the terms of the 2005 Programmatic Agreement between the Federal Highway Administration, the Minnesota Department of Transportation and the Minnesota State Historic Preservation Office.

We have completed our review of your correspondence dated June 10, 2015 which provides updated information regarding your agency's determination that the preferred alternative for the project is replacement, not repair, of **Bridge 9412**, a property which has previously been determined eligible for listing in the National Register of Historic Places (NRHP). Also located within the currently delineated area of potential effect (APE) for this bridge replacement project is the **Minnesota and Manitoba Railroad Corridor Historic District**, which has also been determined eligible for listing in the NRHP.

We agree with your agency's determination that the bridge replacement project would constitute an **adverse effect** to Bridge 9412. It is our understanding that your agency is currently developing preliminary engineering plans for the project and that the assessment of adverse effects to the Minnesota Railroad Corridor Historic District will be completed in conjunction with plan development. We look forward to continuing consultation with your agency as we seek to resolve the adverse effect to Bridge 9412 and review effect determinations to the historic district.

Feel free to contact me if you have any questions or concerns regarding our review. I may be reached at 651-259-3456 or by e-mail at sarah.beimers@mnhs.org.

Sincerely,



Sarah J. Beimers, Manager
Government Programs and Compliance

Maahs-Henderson, Theresa

From: Abel, Elizabeth (DOT) <elizabeth.abel@state.mn.us>
Sent: Friday, December 11, 2015 8:59 AM
To: Maahs-Henderson, Theresa
Cc: Moynihan, Debra (DOT); McKinnon, Joseph (DOT)
Subject: Baudette Bridge SHPO letter
Attachments: SP3905-09 12_10_15 SHPO concurrence with adverse effect.pdf

Hi, Theresa,

Attached is a copy of the SHPO's 12-10-15 concurrence with our finding of adverse effect for the project. The next step in consultation with the SHPO will be to develop a Memorandum of Agreement to mitigate the adverse effect to the bridge. Please call or email if you have any questions.

Liz

Elizabeth J. Abel
Cultural Resources Unit / Office of Environmental Stewardship
Minn. Dept. of Transportation
395 John Ireland Blvd., Mail Stop 620
St. Paul, MN 55155-1800
Office: 651-366-3604 / Fax: 651-366-3603
elizabeth.abel@state.mn.us

STATE HISTORIC PRESERVATION OFFICE

December 10, 2015

Elizabeth Abel
MnDOT Cultural Resources Unit
Transportation Building, Mail Stop 620
395 John Ireland Boulevard
St. Paul MN 55155-1899

RE: S.P. 3905-09
Replace Bridge 9412 over the Rainy River
Baudette, Lake of the Woods County
SHPO Number: 2013-1191

Dear Ms. Abel:

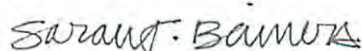
Thank you for continuing consultation on the above project. Information received in our office on 13 November 2015 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800, responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act, and per the terms of the 2005 Programmatic Agreement between the Federal Highway Administration, the Minnesota Department of Transportation and the Minnesota State Historic Preservation Office.

Your correspondence dated 11/12/2015 provided further information regarding your assessment of archaeological potential within the revised area of potential effects (APE) for this project. We appreciate this information and we agree with your assessment that the revised APE is unlikely to contain unidentified archaeological resources, in particular submerged historic properties.

To summarize, we agree that Bridge 9412 is the only historic property within the direct APE for this project and we have concurred with your agency's adverse effect determination.

We look forward to continuing consultation regarding resolution of adverse effects to Bridge 9412. Feel free to contact me if you have any questions or concerns regarding our review. I may be reached at 651-259-3456 or by e-mail at sarah.beimers@mnhs.org.

Sincerely,



Sarah J. Beimers, Manager
Government Programs and Compliance

Ministry of Transportation

Ministère des Transports



615 South James Street
3rd Floor
Thunder Bay, Ontario P7E 6P6
Tel: (807) 473-2187
Fax: (807) 473-2168

615 rue James
3^{ième} étage
Thunder Bay (Ontario) P7E 6P6
Tél: (807) 473-2187
Télé: (807) 473-2168

July 5, 2013

Mr. J.T. Anderson, P.E.
Assistant District Engineer
MnDOT District 2
1320 Sunflower Street
Crookston, MN 56716

Dear Mr. Anderson:

**Re: Rehabilitation of the International Bridge between Baudette, Minnesota and
Rainy River, Ontario**

Thank you for providing the MTO an opportunity to comment on MnDOT's report assessing the rehabilitation options for the Rainy River/Baudette International Bridge located on Highway 11.

The MTO agrees that the rehabilitation alternatives are possible but has concluded that the Rainy River Bridge is nearing the end of its useful life. The current condition of the existing bridge is experiencing serious ongoing maintenance issues (i.e. scour), operational deficiencies and is classified as fracture critical.

The MTO is of the opinion that the bridge requires replacement and that the rehabilitation of the existing bridge is not a viable option.

Please call if you have any questions or require additional information.

Yours truly,

A handwritten signature in black ink, appearing to read "Rick DeCal".

Rick DeCal
Sr. Project Manager
Northwestern Region

Ministry of Transportation

Northwestern Region
Engineering Office
615 South James Street, 3rd Floor
Thunder Bay ON P7E 6P6
Tel.: 807-473-2001
Fax: 807-473-2168
Email: iain.galloway@ontario.ca

Ministère des Transports

Région du Nord-Ouest
Bureau du génie
615, rue James Sud, 3^e étage
Thunder Bay ON P7E 6P6
Tél.: 807-473-2001
Télééc.: 807-473-2168
Courriel: iain.galloway@ontario.ca



December 16, 2015

Minnesota Department of Transportation
District 2
3920 Highway 2 West
Bemidji, MN 56601

Attention: Mr. Joe McKinnon, MnDOT Project Manager

Dear Mr. McKinnon,

Re: Rehabilitation of the Baudette/Rainy River International Bridge

Thank you for providing the MTO an opportunity to comment on the Minnesota State Historic Preservation Office (SHPO) evaluation of the proposed rehabilitation alternatives included in the MnDOT 2013 Bridge Rehabilitation Study Report on the Rainy River/Baudette International Bridge.

At this time MnDOT has requested that MTO provide our decision process and conclusions regarding the two alternatives that SHPO has determined meet Standards: Rehab Alternatives 1a and 1b. As previously noted in our 2013 correspondence regarding rehabilitation of this structure and in the MTO 2011 Position Paper we have determined the following: the Baudette/Rainy River Bridge is not eligible for inclusion on the Ontario Heritage Bridge List, the bridge is nearing the end of its useful life, and MTO does not consider rehabilitation of the existing bridge to be a viable option. MTO maintains this position and, as requested by MnDOT, the following provides additional details regarding MTO's conclusion that the proposed rehabilitation alternatives are not viable or cost effective solutions to prolong the life of this structure and ensure our key priorities are achieved.

Alternative 1a – Minimal Rehabilitation (Straight Forward Rehab)

In the description of this alternative it is stated that the treatment “would not prolong the service life of the bridge to the same extent as a more extensive rehabilitation alternative that addresses the condition of both the superstructure and the substructure”. This treatment does not address the fact that the bridge is fracture critical, functionally obsolete, has potential pier stability issues, and evidence of microbial induced corrosion (MIC) on the steel caissons.

Ministry of Transportation

Northwestern Region
Engineering Office
615 South James Street, 3rd Floor
Thunder Bay ON P7E 6P6
Tel.: 807-473-2001
Fax: 807-473-2168
Email: iain.galloway@ontario.ca

Ministère des Transports

Région du Nord-Ouest
Bureau du génie
615, rue James Sud, 3^e étage
Thunder Bay ON P7E 6P6
Tél.: 807-473-2001
Télééc.: 807-473-2168
Courriel: iain.galloway@ontario.ca



The current open grating steel deck has been identified as one of the factors contributing to the deterioration of floorbeams and stringers. The grating is also a maintenance issue as the steel bars can come loose and pop up causing a hazard to the travelling public. Alternative 1a involves replacing the existing open grating steel deck with a new matching steel grid deck and states the “alternative provides no improvement to the problem of water and chlorides permeating to the supporting stringers and floorbeams”. Since only select floor system members are replaced as part of this alternative that leaves the remaining members prone to continued deterioration at an accelerated rate due to the severe environmental exposure conditions. MTO is not willing to invest in a rehab strategy that fails to provide any improvement to the current conditions and does not halt or, at a minimum, slow the progress of any ongoing deterioration.

Alternative 1a fails to address the functionally obsolete vertical clearance issue caused by the existing overhead portal bracing. This bracing has a history of impact damage caused by overheight loads. Repairing the bracing typically requires closure of the bridge which, as detailed in Appendix D of the study, is a key issue due to the fact that the site is a major border crossing between the US and Canada and the only available detour route is 90 miles long.

Baudette/Rainy River International Bridge has a long history of scour issues at the pier locations. The most recent MTO underwater inspection reports identify the underwater components to be in poor condition. There is detailed evidence of MIC occurring on the steel caissons. MnDOT also reports that pier movement is suspected and continuous monitoring is recommended. Alternative 1a does not consider halting the deterioration, ensuring stability or preserving the submerged substructure components. Ignoring the underwater issues could eventually lead to overall structural instability. Addressing these deficiencies would be a complex undertaking and would add significant value to the project. MTO would not consider a plan that invests millions of dollars in superstructure upgrades while ignoring the serious issues occurring with substructure components.

MTO is also concerned with the following statement included in Alternative 1a: “It is anticipated that these procedures would extend the life of the bridge for a limited period of time and continued investigation and repairs would need to be done on a regular basis. This option also carries the largest amount of risk, as many areas of concern would not be addressed, such as the substructures, in order to maintain an initial low level of investment.”

The estimated value of this rehabilitation alternative is \$12,660,000 dollars (US) based on a series of assumptions outlined in appendix D of the study. MTO considers this to be a significant investment to achieve such minimal results. There is risk and uncertainty with the extent of floorbeam and stringer repair work required and the bearings may not be salvageable. The life

Ministry of Transportation

Northwestern Region
Engineering Office
615 South James Street, 3rd Floor
Thunder Bay ON P7E 6P6
Tel.: 807-473-2001
Fax.: 807-473-2168
Email : iain.galloway@ontario.ca

Ministère des Transports

Région du Nord-Ouest
Bureau du génie
615, rue James Sud, 3^e étage
Thunder Bay ON P7E 6P6
Tél.: 807-473-2001
Télééc.: 807-473-2168
Courriel : iain.galloway@ontario.ca



gained from this investment is limited and the active deterioration of structural elements due to the open grating deck and MIC will continue unabated. The ongoing investigations and monitoring are also deterrents, as they require long term funding and staff resources and costly repairs will likely continue to be identified as a result. The MTO does not see this as a prudent solution to improve the condition of the bridge for any significant amount of time.

Alternative 1b – Mid-level Rehabilitation (Replace all floorbeams and stringers)

This alternative is essentially the same as Alternative 1a, the only difference being complete replacement of all stringers and floorbeams rather than select members only. The plan does not include elimination of the open grating deck system, thus the structural steel floor system will still be prone to water and chloride exposure and will experience a shortened life expectancy.

Alternative 1b offers no significant improvement compared to Alternative 1a with respect to addressing the majority of the concerns outlined by MTO (see Alternative 1a section above). For this reason the MTO does not endorse considering Alternative 1b as a viable option for rehabilitation of this structure.

Conclusion

The numerous issues with this bridge are well documented and it is agreed by both MTO and MnDOT that the structure is near the end of its useful life. The MTO does not consider this bridge to be a candidate for inclusion on the Ontario Heritage Bridge list, thus our priority is to ensure the work carried out provides the travelling public with a safe, reliable and sustainable structure that ensures good value for the dollars invested. The MTO does not support either of these rehabilitation alternatives as effective strategies to achieve that priority.

Yours truly,

A handwritten signature in black ink that reads "Iain Galloway".

Iain Galloway, P.Eng.
Manager, Engineering
Northwestern Region

Ministry of Transportation

Northwestern Region
Engineering Office
615 South James Street, 3rd Floor
Thunder Bay ON P7E 6P6
Tel.: 807-473-2001
Fax.: 807-473-2168
Email : iain.galloway@ontario.ca

Ministère des Transports

Région du Nord-Ouest
Bureau du génie
615, rue James Sud, 3^e étage
Thunder Bay ON P7E 6P6
Tél.: 807-473-2001
Télééc.: 807-473-2168
Courriel : iain.galloway@ontario.ca



December 16, 2015

Minnesota Department of Transportation
District 2
3920 Highway 2 West
Bemidji, MN 56601

Attention: Mr. Joe McKinnon, MnDOT Project Manager

Dear Mr. McKinnon,

Re: Rehabilitation of the Baudette/Rainy River International Bridge

Thank you for providing the Ministry of Transportation (MTO) with an opportunity to respond to the Minnesota Department of Transportation's (MnDOT's) request to "sell" our half of the Rainy River/Baudette International Bridge as part of the replacement of the structure.

At this time, MTO has no policy or directive that would allow us to simply sell the structure. Current practice is to include the demolition/removal of the existing structure via tender specifications/language in a contract package. This inclusion would indicate that the Contractor is solely responsible for the disposal of any material that is removed from the old structure as part of the replacement. With some structural replacements, there is value in the steel that is removed so salvage by the contractor for resale can and has become part of their bid price. As well, the Ministry of Transportation avoids the potential liability issues. "Selling" a structure to another group/private party could put the Ministry in a potential liability situation despite all legal actions taken. It has been and remains the Ministry's policy to avoid such situations.

Yours truly,

A handwritten signature in black ink, appearing to read "Iain Galloway".

Iain Galloway, P.Eng.
Manager, Engineering
Northwestern Region

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL FOR FHWA PROJECTS THAT NECESSITATE THE USE OF HISTORIC BRIDGES – BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE (BRIDGE #9412)

Appendix C – MnDOT Structure Inventory Report: Bridge 9412, TH 72 over Rainy River
January 30, 2017

**Appendix C – MNDOT STRUCTURE INVENTORY REPORT:
BRIDGE 9412, TH 72 OVER RAINY RIVER**

DRAFT

MINNESOTA DEPARTMENT OF TRANSPORTATION
DISTRICT 2

ALL BRIDGE INSPECTIONS

1 BRIDGE INSPECTION

SORTED BY INSPECTION DATE

Individual Bridge(s) 9412

Report Type: Inventory and Inspection

MINNESOTA STRUCTURE INVENTORY REPORT

Bridge ID: 9412

TH 72 over RAINY RIVER

Date: 04/21/2016

+ GENERAL +	+ ROADWAY +	+ INSPECTION +
Agency Br. No. 45-110	Bridge Match ID (TIS) 1	Deficient Status ADEQ
District 2 Maint. Area 2A	Roadway O/U Key 1-ON	Sufficiency Rating 48.8
County 39 - LAKE OF THE WOODS	Route Sys/Nbr MNTH 72	Last Inspection Date 06-17-2015
City BAUDETTE	Roadway Name or Description	Inspection Frequency 12
Township MN 72	Roadway Function MAINLINE	Inspector Name DISTRICT2
Desc. Loc. IN BAUDETTE	Roadway Type 2 WAY TRAF	Status A-OPEN
Sect., Twp., Range 02 - 160N - 31W	Control Section (TH Only) 3905	+ NBI CONDITION RATINGS +
Latitude 48d 43m 08.75s	Ref. Point 076+00.864	Deck 5
Longitude 94d 35m 25.72s	Date Opened to Traffic 01-01-1959	Superstructure 5
Custodian STATE HWY	Detour Length 98 mi.	Substructure 5
Owner STATE HWY	Lanes 2 Lanes ON Bridge	Channel 6
Inspection By DISTRICT 2	ADT (YEAR) 1,950 (2006)	Culvert N
Year Built 1959	HCA DT 59	+ NBI APPRAISAL RATINGS +
MN Year Remodeled	Functional Class. RUR/PR ART OTH	Structure Evaluation 5
FHWA Year Reconstructed	+ RDWY DIMENSIONS +	Deck Geometry 4
Bridge Plan Location DISTRICT	If Divided NB-EB SB-WB	Underclearances N
ABC Suitable	Roadway Width 24.0 ft	Waterway Adequacy 8
	Vertical Clearance 14.6 ft	Approach Alignment 7
+ STRUCTURE +	Max. Vert. Clear. 14.6 ft	+ SAFETY FEATURES +
Service On HWY;PED	Horizontal Clear. 23.9 ft	Bridge Railing 0-SUBSTANDARD
Service Under STREAM	Lateral Clr. - Lt/Rt	GR Transition 0-SUBSTANDARD
Main Span Type STEEL HIGH TRUSS	Appr. Surface Width 36.0 ft	Appr. Guardrail 1-MEETS STANDARDS
Main Span Detail PENNSYLVANIA	Bridge Roadway Width 24.0 ft	GR Termini 0-SUBSTANDARD
Appr. Span Type STEEL BM SPAN	Median Width on Bridge	+ IN DEPTH INSP. +
Appr. Span Detail	+ MISC. BRIDGE DATA +	Frac. Critical Y 24 mo 06/2015
Skew	Structure Flared NO	Underwater Y 60 mo 08/2012
Culvert Type	Parallel Structure NONE	Pinned Asbly.
Barrel Length	Field Conn. ID RIVETED	Spec. Feat.
Number of Spans	Cantilever ID	+ WATERWAY +
MAIN: 6 APPR: 6 TOTAL: 12	Foundations	Drainage Area
Main Span Length 192.5 ft	Abut. CONC - FTG PILE	Waterway Opening 99999 sq ft
Structure Length 1,285.0 ft	Pier CONC - FTG PILE	Navigation Control NO PRMT REQD
Deck Width 26.5 ft	Historic Status NOT ELIGIBLE	Pier Protection
Deck Material OPEN GRATING	On - Off System ON	Nav. Vert./Horz. Clr.
Wear Surf Type OTHER	+ PAINT +	Nav. Vert. Lift Bridge Clear.
Wear Surf Install Year	Year Painted 2003 Pct. Unsound 20 %	MN Scour Code O-STBL;ACT REQD
Wear Course/Fill Depth	Painted Area 220,037 sf	Scour Evaluation Year 1998
Deck Membrane NONE	Primer Type ORGANIC ZINC	+ CAPACITY RATINGS +
Deck Rebars N/A	Finish Type CHLORINATED RUBBER ALU	Design Load H 20
Deck Rebars Install Year	+ BRIDGE SIGNS +	Operating Rating HS 22.50
Structure Area 34,053 sq ft	Posted Load NOT REQUIRED	Inventory Rating HS 15.70
Roadway Area 30,839 sq ft	Traffic NOT REQUIRED	Posting
Sidewalk Width - L/R 6.4 ft	Horizontal NOT REQUIRED	Rating Date 07-22-2008
Curb Height - L/R 0.75 ft 0.75 ft	Vertical ROADWAY RESTRICTION	Overweight Permit Codes
Rail Codes - L/R 35 35		A: 3 B: X C: X

04/21/2016

MINNESOTA BRIDGE INSPECTION REPORT

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

County: LAKE OF THE WOODS Location: IN BAUDETTE Length: 1,285.0 ft
 City: BAUDETTE Route: MNTH 72 Ref. Pt.: 076+00.864 Deck Width: 26.5 ft
 Township: Control Section: 05 Maint. Area: 2A Rdwy. Area / Pct. Unsnd: 30,839 sq ft
 Section: 02 Township: 160N Range: 31W Local Agency Bridge Nbr: 45-110 Paint Area / Pct. Unsnd: 220,037 sq ft 20 %
 Span Type: STEEL HIGH TRUSS Culvert: N/A
 NBI Deck: 5 Super: 5 Sub: 5 Chan: 6 Culv: N
 Open, Posted, Closed: OPEN
 Appraisal Ratings - Approach: 7 Waterway: 8 MN Scour Code: O-STBL;ACT REQD Def. Stat: ADEQ Suff. Rate: 48.8
 Required Bridge Signs - Load Posting: NOT REQUIRED Traffic: NOT REQUIRED
 Horizontal: NOT REQUIRED Vertical: ROADWAY RESTRICTION

ELEM NBR	ELEMENT NAME	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
800	CRITICAL DEFS OR SAFETY HAZARDS	06-17-2015	1 EA	1	0	0	0
Notes: NO CRITICAL FINDINGS OBSERVED DURING THE LAST INSPECTION. No critical findings were identified during this inspection FC 6/2011. [2015] No critical findings were noted.							
28	STEEL GRID DECK OPEN	06-17-2015	34,053 SF	30,648	0	3,405	0
Notes: 1 grid bar missing in the EBL of truss span #6 near the west end, 2 others missing-same span EBL & WBL. Paint has failed on the grid, US side. Canada painted there Grid in 05 & starting to rust in wheel tracks. There are several broken welds in the grid, Canada side, US side was repaired 6/2010. Bottom of grid and support beams corroded with some pack rust. Grid was tack welded to sliding plates @ piers but pulled apart with 1/8 - 1/4 in gap all the way accross deck @ 3 US center piers,cracked with no gap @ pile bents. **Repaired broken grid bars @ various locations on the US side on2/7/06, 6/16/08, 6/14&15/2010. DSH Numerous loose and missing bars throughout deck. Loose bars rattle under traffic. Widespread surface corrosion throughout deck on west approach and truss spans 1-3.Fc 6/2011 Gridbars broken at various locations but br. crew welds grid on an annual basis. GK 5/2012 [2013] No change noted. 2014 br crew tack welded broken grid bars. Mn side has surface corrosion, Canada po							
301	POURED SEAL JOINT	06-17-2015	50 LF	0	50	0	0
Notes: Bridge has a steel grid deck, with concrete approach panels west end, with bituminous sealant on ends. GK 6/15/10 **Sealed jts. / pourable on 11/09. DSH Quantity includes poured joints at west edge and along center of concrete approach slab at west end of bridge.FC 6/2011 Poured jts on ends of bridge need sealing							
305	ASSEMBLY DECK JOINT	06-17-2015	132 LF	0	132	0	0
Notes: The welds holding exp. plates to grid deck are cracked & seperated slightly. 6/15/10 GK 2009 FC inspection: Pier 1 joint closed tight JZink 6-10-2009 Pier 1 joint open 1.00" (was reported closed tight in 2009). Other joints open 1.25" to 2.88"FC 6/2011 Pier 1 joint was open slightly but not much room for expansion looking at angles on end before impacting chanfer on angle plate. GK 5/2012 Assembly deck jts are functioning. GK 4/14 [2015] Deck joint measurements were taken at 60° and are as follows: Span 1-2 South 1 3/4" , North 1 3/4", Span 2-3 South 3", North 2 3/4", Span 3-4 South 3 1/4", North 2 3/4", Span 4-5 South 2 1/2", North 2 1/2", Span 5-6 South 1 3/8", North 1 3/16".							
330	METAL BRIDGE RAILING	06-17-2015	3,855 LF	3,431	424	0	0
Notes: Some areas of paint failure & corrosion on pedestrian railing.Rail seperated at Canada end SE corner GK 6/15/2010 2009 FC inspection: impact damage at southeast Canadian approach. JZink6/10/2009 38 LF in CS3 moved to CS2. Traffic impact damage at SE corner has been repaired.FC 6/2011 Metal br rail has minor corrosion near the bases, and a few scattered areas. GK 4/14 [2015] No significant change noted.							
515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	999	0	0	0
Notes: [2016] Migrator assumed CS1 and a quantity of 999 SF.							
321	CONCRETE APPROACH SLAB	06-17-2015	720 SF	720	0	0	0

Notes: [2016] Migrator assumed an approach slab length of 20FT and used the inventory quantity of 36FT for the width.
20 foot approach panel added to the west end, scaling.
Minor cracks and small spalls developing @ SE corner of west appr. slab. GK 6/15/2010
West end of bridge. Good condition with minor scaling from tire wear.FC 6/2011
Approach slab looks good with the tining being worn away in the wheel tracks and a few minor spalls along the steel edge of deck. GK 4/14
[2015] No significant change noted.

822	BITUMINOUS APPROACH ROADWAY	06-17-2015	1 EA	1	0	0	0
Notes: East end of bridge. Good condition with a few minor cracks.FC 6/2011 East approach slab has a moderate crack at centerline GK 4/14 [2015] No significant change noted.							
107	STEEL GIRDER OR BEAM	06-17-2015	840 LF	0	830	10	0
Notes: 2009 FC inspection: New element Quantity applies to approach span beams that were once included under the stringer element. Approach Span 1 Beam 2 north face at Pile Bent 1 has new through corrosion in web at splice. Approach Span 2: Beam 3 north face, Beam 4 south face and Beam 2 north face has bottom flange and web surface corrosion. J Zink 6/10/2009 Bridge crew added web splices/ stiffeners to several girders where section loss was most prevelant.GK 6/15/2010 Through corrosion at Bent #1 has been repaired, and web splices added to other areas with large amounts of section loss. Active pitting and corrosion at east end of approach span 6 where girders attach to east abutment.FC 6/2011 Paint failed at a few locations where appears paint thickness was not sufficeant, continues to rust at east abut. GK 5/2012 [2013] No significant change noted. Bottom flanges continue to rust at abuts.Paint pealing bottom flanges beams 5 & 6 between bent 1 & 2 GK 4/14 [2015] Span A4 Beam 3 has a							
515	STEEL PROTECTIVE COATING	06-17-2015	220,037 SF	0	0	110,019	110,019
Notes: [2016] Migrator used inventory quantity of 220,037 SF and estimated the condition states.							
113	STEEL STRINGER	06-17-2015	8,133 LF	3,067	4,966	100	0
Notes: Paint system new in 2003 on west " US " 1/2 of bridge. Paint system is new 2005 on east " Canada " 1/2 of bridge. corrosion and section loss is most prevalent at floor beam connections.Stringer conection plates,corrosion behind causing deformation of the plates. . 4th base-south fascia stringer west span-electricians drilled 1/4" hole in web. Top flange of sidewalk stringer is rusting under conc curb on S side. East end Span #1, 3rd. stringer from north has 2 popped rivets @ floor beam connection. Paint failing small 5 ft area bottom of stringer,4th from the south mid span, 1st span.Br. crew added gusset plates to several stringers over sect. loss areas, various locations. Approach span 1, S1, bolted repair, 50 % sect. loss.S4, severe pitting bottom flange. App. span 2, S2, pitting and hole in web at bent 1. App. span 4, S2,S3,& S4,pockets of pitting in web over east pier. Truss span 1, bay 5, S4 &S5, light to severe pitting of bottom flanges.Bay 8,S3, moderate pitting over FB9.Bay							
515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	377	0	499	123
Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.							
120	STEEL TRUSS	06-17-2015	2,324 LF	0	2,324	0	0
Notes: Bottom Chord Notes: West 1/2 painted 2003. East 1/2 -Painted by Canada in 2005. Pack rust on some gusset plates on the bottom chord. Pack rust between some connection points @ piers. There are cracked welds between gusset plate & end post channel on the south side @ the W end of the E truss and several other truss end locations(low tension areas). These cracks do not propagate into the structural members. 1 broken rivet at the sidewalk cantilever at the end of the floor beam side at the 4th pier from the U.S. **Bridge Maint. completed the spot painting of the gusset plates (US Side) the wk. of 6/22/09. The paint system that was done in 2003 was still looking good. A couple of areas were touched up with paint and (all gusset seams on the lower cord were caulked to repel moisture. DSH Isolated areas of paint failure, but underlying primer still intact. A few locations (Span 5 @ L9S, Span 6 @ L9N) show evidence of plug-welded mis- drilled holes in lower chord member (also noted in 2009)							
515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	0	0	999	0
Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.							
152	STEEL FLOORBEAM	06-17-2015	1,744 LF	174	1,570	0	0
Notes: West 1/2 repainted in 2003. East 1/2 Painted by Canada in 2005- Was a considerable amount of layered rust w/sect loss. Paint on floor beams & stringers was in very poor condition w/pack rust forming on both flanges section loss in small areas near mid-point. Knee braces (stringer to floor beam) at the east pier have pack rust between angles causing minor deformation. See section loss report in file - 2003.. Between piers 3 & 4 2nd. stringer from the south,2 1/2 in. holes drilled in bottom flange, Canada plated floorbeams over piers 5 & 6 US plated bottom flanges of some floor beams spans 1 & 2. Truss span 1,FB 1 light to moderate pitting of web and bottom flange at center of span.FB4 cracked tack weld so. side,no propagation.FB 7, 8, 9 & 11,light to moderate pitting on bottom flanges. Truss span 2, FB 1, moderate to severe pitting,FB 2-4, light to moderate pitting of top & bottom flanges, FB 5-7, moderate to severe pitting, strengh. plates bolted to bottom flanges.FB 10,11, moderate							

515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	100	0	699	200
	<i>Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.</i>						
162	STEEL GUSSET PLATE	06-17-2015	276 EA	276	0	0	0
	<p>Notes: 2009 FC inspection All gussets exhibit minimal to no pack rust and no paint failure. Gussets at Piers 3-6 are impacted due to fully expanded bearings (see element #967 notes). Tack welds are present on gusset plate interfaces mainly at the pier locations. Some are cracked, but none have propagated into the base metal. JZink 6/10/2009.</p> <p>** A (3) stage spot painting of gussets was completed the wk. of 6/22/09. DSH</p> <p>Several outer gusset plates at L4N locations have plug-welded misdrilled holes (also noted in 2009)FC 6/2011.</p> <p>No problems noted in 2014 GK</p> <p>[2015] No significant change noted.</p> <p>Gusset Plate Distortion Notes: 2009 FC inspection: Added element Most bottom chord and a few upper chord gusset plates exhibit free edge distortion up to 1/8" attributed to fit-up or very minor pack rust. Span 6 L10N inside gusset is bowed out slightly more than 1/8" that is not attributed to pack rust or fit-up. Possibly due to impact of gusset on fully expanded bearing. This type of distortion shou</p>						
515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	999	0	0	0
	<i>Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.</i>						
202	STEEL COLUMN	06-17-2015	20 EA	5	15	0	0
	<p>Notes: Mn west approach span columns painted 2003, east in 05</p> <p>Layered/ speckled rust forming at west approach span.GK 6/15/2010</p> <p>Quant. reflects 5 columes per bent.3 bents at west end and 1 bent at east end.</p> <p>West end columes have some diag. bracing, bent to bent.GK 6/15/2010</p> <p>Steel columns in approach span bents are in good condition. Some corrosion and minor pack rust is present between columns and diagonal bracing members FC 6/2011.</p> <p>Corrosion along bottoms of columns at connection points,mid and upper connection points beginning to rust, repainted areas have some minor section loss, but all connections are sound and in proper position. GK 4/14</p> <p>[2015] No significant change noted.</p>						
515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	250	0	749	0
	<i>Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.</i>						
231	STEEL PIER CAP	06-17-2015	142 LF	0	142	0	0
	Notes: [2013-2015] Scattered areas of failed paint with surface corrosion.						
515	STEEL PROTECTIVE COATING	06-17-2015	999 SF	0	0	999	0
	<i>Notes: [2016] Migrator assumed quantity of 999 SF and estimated the condition states.</i>						
205	REINFORCED CONCRETE COLUMN	06-17-2015	14 EA	0	14	0	0
	<p>Notes: Base of columns & web walls are are heavily scaled @ E pier.</p> <p>The top of the pier webs are cracked & deteriorating w/heavy scaling-should be sealed.</p> <p>Pier 6, top of concrete web / diaph. is scaling badly, both caps map cracked near center.</p> <p>The bottom of the columns & web walls are heavily scaled up to 3" deep - 2004 underwater inspection.</p> <p>2009 FC inspection: 2008 UW report---light scaling with .25 inches to 1 inch penetration and exposed aggregate from top of caissons to 1 foot above top of caissons. Scaling around waterline. JZink 6/10/2009</p> <p>Pier columns have light spalling and staining. Scaling is prevalent near water line above caissons. Due to concerns about possible pier movement, tilt measurements were taken on east and west faces of all pier columns with a 4' level. The numbers represent amount of tilt over 4 feet, with the direction of tilt (East or West). All readings were small, and could partially be the result of uneven placement of forms when they were cast. Meas. in</p>						
210	REINFORCED CONCRETE PIER WALL	06-17-2015	151 LF	0	129	22	0
	<p>Notes: The top of the east pier wall is heavily scaled and deteriorated. The bottom of the east pier wall is map-cracked & spalling-approx. 16 sq. ft.</p> <p>1st pier br. crew repaired top 8-10 in.</p> <p>Top of pier walls have heavy scalingFC 6/2011</p> <p>Pier walls are encased at the bottom with a metal caison with shows signs of corrosion at and below the waterline. GK 5/2012.</p> <p>[2015] No significant change noted.</p>						
215	REINFORCED CONCRETE ABUTMENT	06-17-2015	106 LF	36	63	7	0

Notes: [2016] Migrator added 40 LF to abutment quantity to account for wingwalls (CS1:10 CS2:30 CS3:0 CS4:0). 12 SQ. FT. of deteriorated concrete @ the NE corner of east abut. (rebar exposed & corroding). Approx. 5 Lin Ft of parapet @ east abut is spalled & cracked. .
West abut. was patched and repaired by br. crew in 2004. east abutment has numerous cracks w/leaching. End blocks are cracked & deteriorated. E end block has been patched. East seat needs to be flushed.
East abutment has moderate staining, spalling and scaling. A vertical crack extends from the bottom to 3/4 of the way up the abutment face between STR5 & STR6. Between STR4 and STR5, there is a 4' X 2' area of delamination below the bearing seat, and another area about 3 feet in diameter below that. Heavy dirt accumulation on bearing ledge holding moisture against beam ends. West abutment has numerous repairs and timber bracing. FC 6/2011
Bridge crew flushed abut in spring of 2012, and abut. ledge was fairly clean and dry bu

220	REINFORCED CONCRETE FOOTING	06-17-2015	160 LF	20	140	0	0
<p>Notes: [2016] Migrator assumed 10LF per EA quantity, a total of 160 LF. Bridge crew repaired bent 1 & 2 footings on W. end in 2004. Footings under bents have light to moderate cracking, spalling and scaling.FC 6/2011 ** Bridge crew made repairs to 2nd & 3rd bent footings on10/03/05. DSH [2011] Piers 2-7 have caissons visible above the water line. Visible elements have light to moderate surface corrosion on steel shells and moderate to heavy scaling in concrete surface. See 2008 Underwater Report for further details. FC 6/2011. [2013] Element 382 deleted and Under Water Inspection notes moved to this element. The bent footings consist of reinforced concrete supported by driven pile. Pier 1 and 7 footings consist of reinforced concrete supported by driven pile for each column, the footings are below grade and therefore not included in the rated quantity. piers 2 through 6 consist of 19 driven pile surrounded by a steel tube filled with concrete. The entire footing is generally submerged</p>							
234	REINFORCED CONCRETE PIER CAP	06-17-2015	241 LF	0	145	96	0
<p>Notes: Concrete on top of main pier caissons is deteriorated up to 3IN deep. Rebar is exposed on the cap @ the center pier. Spall under base plate-N & S side-7IN X 2IN X 2-1/2IN D on N side of pier #2. Caps are also cracked & scaled w/minor spalls. Mortar pad is breaking up under base plate @ SW cor of pier #2. There is a 6 SQ IN spall on the N end of the bottom of the cap @ pier #3.Approx. 4 sq. ft. of spall top of pier 1. Column caps are cracked.Pier 7 top of web has been overlaid with concrete by Canada. Pier caps have moderate to heavy scaling. Vertical cracks through the cap are present in several locations, mostly on the piers on the Canadian side. FC 6/2011 **Bridge crew repaired concrete cap w/ delam in 10/06., approx. 3yds. of concrete MN side. DSH [2015] No significant change noted.</p>							
228	TIMBER PILING	06-17-2015	4 EA	4	0	0	0
<p>Notes: Minor splitting & checking of timber columns under W appr span. Minor splitting and checking. No change from 2009 FC 6/2011. Columns tend to see alot of moisture, moderately weathered in 2014 / GK [2015] No significant change noted.</p>							
235	TIMBER PIER CAP	06-17-2015	30 LF	30	0	0	0
<p>Notes: Minor splitting & checking of timber cap under W appr span. Minor splitting and checking. Unchanged from 2009. FC 6/2011. Moisture and sand accumulate on this element. GK 4/14 [2015] No significant change noted.</p>							
311	EXPANSION BEARING	06-17-2015	12 EA	0	4	0	8
<p>Notes: Rockers could be adjusted, gusset plates @ pier 3 & 4 " USA portion inspected" are restricting bearing movement-attention is needed to this area."see pictuers in Br. 9412 file" Pier 5 SE rocker " 4 in. nut "coming loose, some movement noticed because of rusting of new paint, pics on file 2007 inspect, in 2010 same cond. Br inspect in 08, by Br. office and follow up with snooper on routine inspect. found that all rocker bearings are in maximum expansion with the gusset plate resting on the bearing causing an indentation of the gusset plate. All bearings were measured" with comps on file in D2 br. office" & will monitor for movement over time and temps to see if they are frozen or moving as designed 2009 FC inspection: All bearings in full expansion tipping to the west on piers 3-6; impacting gusset plates at 8 of the 12 locations (not at piers 1 and 2). Full expansion of these bearings was first noted in 2000; however 1995 inspection notes indicate that the bearing displacement was a</p>							
313	FIXED BEARING	06-17-2015	12 EA	0	12	0	0
<p>Notes: Rusting at various locations. Base plates have pack rust @ the W bents.Br. crew installed new base plates @ west abutment. Base plates @ the E abut have pack rust w/minor sect loss-paint failed. Bearings are in good condition with minimal deterioration (unchanged from 2009).FC 6/2011. Bearings were painted and look good but anchor bolts have moderate corrosion along with the bearing seat. GK 4/14 [2015] No significant change noted.</p>							
855	SECONDARY MEMBERS (SUPER)	06-17-2015	1 EA	0	0	1	0

Notes: 2009 FC inspection: New element Used to rate lateral bracing, truss portal, and sway bracing. Most bracing in all spans is bent or loose due to previous impact damage. Bent bracing includes: Span 3 U4, U6; Span 4 U4. Loose bracing includes: Span 3 U8 to U9, Span 4 U8 to U9 and U1 to U2. Portal damage in Span 5. JZink 6/10/2009
Several portal frames and sway frames are bent due to traffic impact.
Maximum distortion is in Span 1, where both sway frames are bent 8" out of plane. Heavy pitting and corrosion present in horizontal member between bents #2 and #3. FC 6/2011
Sway frames continue to get bumped from high loads and bent members are documented but may be bent slightly more from year to year. GK 5/2012.
Below deck, some of the wind bracing threaded ends are impacting lower chord, bolt heads and rivet heads at various locations. GK 4/14
[2015] Span 6 east portal frame has impact damage and is bent out of plane; also the sway frame at L6-U6N has a bow at the bottom of the sway fram

880	IMPACT DAMAGE	06-17-2015	1 EA	0	1	0	0
Notes: **Doug Zarling & Davis Holthusen inspected traffic impact to guard rail on 3/13/08 N. side (middle of the bridge) accident took place on 3/10/08. Very minor damage and no Repair is needed. DSH Portal frames and sway frames in all spans have distortion from traffic impact. See note for element #380.FC 6/2011. [2015] Span 6 east portal frame has impact damage and is bent out of plane; also U9-L10 have some distorion.							
881	STEEL SECTION LOSS	06-17-2015	1 EA	0	1	0	0
Notes: 2003 Bridge office report details section loss for MN Approach spans and 3 truss spans. 5 corrections have been identified for installation in 2004. Heavy section loss in floorbeams and stringers due to pitting is present in many areas. Most section loss has been arrested by cleaning and repainting. FC 6/2011. [2015] No significant change noted.							
882	STEEL CRACKING	06-17-2015	1 EA	0	1	0	0
Notes: 2009 FC inspection: New smart flag Span 2 Floorbeam 8 had crack-like indication found in 2008 at top cope at south truss connection; 3/4" hole drilled to arrest. Additional top cope linear fabrication defects found in 2009 at these locations: Sp2 FB2N, Sp2 FB5S, Sp2 FB8N, Sp3 FB3S, Sp3 FB5N, Sp5 FB2S, Sp5 FB7N, Sp6 FB3S – 1/4" (cracked tack weld only), Sp6 FB3N – 1/8" (cracked tack weld only), Sp6 FB4N & S (cracked tack welds only), Sp6 FB5S – 5/8". These areas were marked to be monitored during future inspections. Span 6 FB5S indication does originate from top cope into tack weld, but was marked for future inspection as crack did not extend through thickness of web. Jzink 6/10/2009 2010 inspection these areas were inspected with no propagation of cracks.GK 6/15/2010 Span 2 Floorbeam 8 had crack-like indication found in 2008 at top cope at south truss connection; 3/4" hole drilled to arrest. No change to that crack or others observed during this inspection.FC 6/2011 Observed cracked tac							
883	CONCRETE SHEAR CRACKING	06-17-2015	1 EA	1	0	0	0
Notes: Use this element to monitor the presence of shear cracking on concrete elements. Pay particular attention to the concrete pier caps.							
884	SUBSTRUCTURE SETTLEMENT & MVMT	06-17-2015	1 EA	0	1	0	0
Notes: 2009 FC inspection: New smart flag Evidence of continuing substructure settlement/sliding (see element #311). Evidence of abutment or pier tipping not apparent at this time. Monitor during all future inspections. JZink 6/10/2009 All truss rocker bearings tipped to the east. Measurement of pier column slopes indicated little or no tipping (see notes for element #205). Continue to monitor. FC 6/2011. [2013-2015] Substructure movement may have occurred, however movement cannot be confirmed with rudimentary measurement available during inspections. Recommend survey targets be permanently mounted on each pier to enable more accurate monitoring.							
885	SCOUR	06-17-2015	1 EA	0	1	0	0
Notes: There has been a pier scour problem. Monitoring in the past 5 years does not indicate any change. See monitoring plan. 2 2009 FC inspection: Scour depressions exist at Pier 6 (see 2008 Underwater Report) – 6' diameter by 5' deep downstream north caisson and 5' diameter by 3' deep upstream south caisson. Scour issues have been troublesome at this bridge in the past since the mid-1970's – see element #311 notes. JZink 6/10/2009 Scour depressions exist at Pier 6 (see 2008 Underwater Report) – 6' diameter by 5' deep downstream north caisson and 5' diameter by 3' deep upstream south caisson. New underwater inspection will be performed in 2012.FC 6/2011. [2015] 2012 Underwater Report states: Riprap, 2 foot to 3 foot in diameter, was observed around the perimeters of Piers 2 through 5. At the downstream nose of Pier 6 a scour depression was observed, 8 feet in diameter and up to 2 feet deep. Otherwise large riprap was observed around the perimeter of the caissons at Pier 6. No other ch							
891	OTHER BRIDGE SIGNING	06-17-2015	1 EA	0	1	0	0

Notes: Signs Required: Vertical Clearance . Vert clearance signs inplace, 14 ft 8 in. Knee brace signs removed, because knee braces removed.
Vertical clearance signs have minor deterioration but are in place and readable. FC 6/2011.
[2015] No significant change noted.

892	SLOPES & SLOPE PROTECTION	06-17-2015	1 EA	0	1	0	0
Notes: 2009 FC inspection: Added element 2008 UW Report – downstream sides of caissons, there is minimal ripap. Jzink6/10/2009 According to 2008 Underwater report, the downstream sides of caissons have minimal riprap. New underwater inspection will be performed in 2012. FC 6/2011 A stream x section was preformed in winter of 2011 and found some of the rip rap had migrated downstream of the piers. GK. [2015] No significant change noted.							
893	GUARDRAIL	06-17-2015	1 EA	0	1	0	0
Notes: Platebeam terminal end has been hit and damaged at the southeast corner. New platebeam installed at the northeast corner, new curb here also. Bolt loose on west rail. Guardrail on SE corner of bridge has minor damage due to traffic impact. FC 6/2011. Same in 2014 / GK [2015] Guardrail end treatments at the Southeast and Northeast are damaged.							
894	DECK & APPROACH DRAINAGE	06-17-2015	1 EA	1	0	0	0
Notes: Bridge crew installed sheet pile and drain tile @ west abut. on north bank. drain tile exposed on 8/24/05. DSH Deck has no drainage system due to open-grid deck. Sheet pile and drain tile on north end of west abutment unchanged from 2009. FC 6/2011. [2015] No significant change noted.							
895	SIDEWALK, CURB, & MEDIAN	06-17-2015	1 EA	0	1	0	0
Notes: Small void under sidewalk @ SW cor. Sidewalk stringers & planking showing signs of deterioration. Outside face of curbs are spalled w/rebar exposed, whole length of bridge. Inside face of curb @ NE & SW corners heavily scaled. Numerous cracks in curb faces. 1 plank split in sidewalk-2nd span from the W & the 2nd & 3rd spans from the E. There is a 4IN vert lip(new wall on MN side-ok) @ start of the timber walk @ E end. New sidewalk at the southwest corner-new bit in west end in 1997, concrete walk settled 1 1/2" @ beginning of wood walk in SW corner. Curb fractured from traffic damage at the end of pipe rail-southwest corner. Appr curb scaled from plows-SW corner. Conc walk @ SE cor has settled approx. 3IN-a bit wedge has been placed. 1" opening at sidewalk joint, also settled at wood sidewalk approach. Pier 3 sidewalk slide plate missing 1 of 3 screws holding, plate loose, needs attention. **Br. maint. repaired sidewalk slide plate (screws missing) in 08. DSH Trees should be pruned/ cu							
899	MISCELLANEOUS ITEMS	06-17-2015	1 EA	0	1	0	0
Notes: Conduit pulled apart on N side-2nd floor beam W of pier #2. 1 light conduit pulled apart on N side(vert member)1st truss span from the E, & 3rd truss span from the E. Top of chain link fence bent in 2 places @ southwest corner. Telephone box on span 4, should have a padlock, " next to sidewalk" 6/09 Conduit along north lower chord has exposed (insulated) wiring between feed conduit, transformer and lighting conduit. This appears to be by design, since it is present at all lighting locations. Feed conduit running along span 6, FB10, has rusted-through holes. FC 6/2011. [2015] Span 4 at L4N electrical transformer has blown up and there is tar splattered all over.							
900	PROTECTED SPECIES	06-17-2015	1 EA	0	1	0	0
Notes: [2016] Migrator determined the presence of swallows on this structure based on data in the inventory or comments in the general/miscellaneous notes.							

General Notes: Bridge layout ="" USA"" west abut, bent 1, bent 2 , bent 3, Pier 1, P2,P3,P4,P5,P6,P7, bent 4, east abutment ""Canada""

Some pigeon nesting on truss. Swallow nests are inplace. FC INSP-MAY 2000-DIVER INSP-AUG 2000-SEE REPORTS. Inspected with canadian Dept of Province of Ontario & MN. DOT 10/22/2001 snooper inspected USA portion 4/26/2006 GK/DZ & BR.crew, 5/2/07 GK, DZ, & JL/ Snooper Inspect. and with Highlift Canada MTO 9/24-26th/2007 GK & DZ observing " inspect. with Gary Weiss & John Canada MTO" Br. office" ST. Paul" did courtesy reveiw,/ special gusset,inspect June 16th-19th 2008, & D2 did routine snooper inspect. sept. 9th 2008 MN. DOT walk through inspection, USA side 6/09, as fracture crit. crew doing inspection with 2 snoopers and man lift. 6/09 Snooper inspected 6 /14 - 15/ 2010 GK, Mn. DOT & Gary Weiss Canada MOT .
FC inspection June 27th - 29th 2011
Snooper inspected 5/1 2012, 4 /29/ 2014 routine

MINNESOTA BRIDGE INSPECTION REPORT OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
28	STEEL GRID DECK-OPEN	2	06-17-2015 04-29-2014	34,053 SF 34,053 SF	0 0	0 0	34,053 34,053	0 0	0 0
<p>Notes: 1 grid bar missing in the EBL of truss span #6 near the west end, 2 others missing-same span EBL & WBL. Paint has failed on the grid, US side. Canada painted there Grid in 05 & starting to rust in wheel tracks. There are several broken welds in the grid, Canada side, US side was repaired 6/2010. Bottom of grid and support beams corroded with some pack rust. Grid was tack welded to sliding plates @ piers but pulled apart with 1/8 - 1/4 in gap all the way across deck @ 3 US center piers, cracked with no gap @ pile bents. **Repaired broken grid bars @ various locations on the US side on 2/7/06, 6/16/08, 6/14&15/2010. DSH Numerous loose and missing bars throughout deck. Loose bars rattle under traffic. Widespread surface corrosion throughout deck on west approach and truss spans 1-3. Fc 6/2011 Gridbars broken at various locations but br. crew welds grid on an annual basis. GK 5/2012</p> <p>[2013] No change noted.</p> <p>2014 br crew tack welded broken grid bars.</p> <p>Mn side has surface corrosion, Canada portion has moderate paint failure CS3 GK 4/14</p> <p>[2015] The first section of deck on Span A6 is loose and deflecting up and down when traffic moves over; condition state quantities where changed to reflect this.]</p>									
301	POURED DECK JOINT	2	06-17-2015 04-29-2014	50 LF 50 LF	0 0	50 50	0 0	N/A N/A	N/A N/A
<p>Notes: Bridge has a steel grid deck, with concrete approach panels west end, with bituminous sealant on ends. GK 6/15/10</p> <p>**Sealed jts. / pourable on 11/09. DSH</p> <p>Quantity includes poured joints at west edge and along center of concrete approach slab at west end of bridge. FC 6/2011</p> <p>Poured jts on ends of bridge need sealing </p>									
303	ASSEMBLY DECK JOINT	2	06-17-2015 04-29-2014	132 LF 132 LF	0 0	132 132	0 0	N/A N/A	N/A N/A
<p>Notes: The welds holding exp. plates to grid deck are cracked & seperated slightly. 6/15/10 GK</p> <p>2009 FC inspection: Pier 1 joint closed tight JZink 6-10-2009</p> <p>Pier 1 joint open 1.00" (was reported closed tight in 2009). Other joints open 1.25" to 2.88" FC 6/2011</p> <p>Pier 1 joint was open slightly but not much room for expansion looking at angles on end before impacting chanfer on angle plate. GK 5/2012</p> <p>Assembly deck jts are functioning. GK 4/14</p> <p>[2015] Deck joint measurements were taken at 60° and are as follows: Span 1-2 South 1 3/4", North 1 3/4", Span 2-3 South 3", North 2 3/4", Span 3-4 South 3 1/4", North 2 3/4", Span 4-5 South 2 1/2", North 2 1/2", Span 5-6 South 1 3/8", North 1 3/16".]</p>									
320	CONC APPR SLAB-BITOL	2	06-17-2015 04-29-2014	1 EA 1 EA	1 1	0 0	0 0	0 0	N/A N/A
<p>Notes: East end of bridge. Good condition with a few minor cracks. FC 6/2011</p> <p>East approach slab has a moderate crack at centerline GK 4/14</p> <p>[2015] No significant change noted.</p>									
321	CONC APPROACH SLAB	2	06-17-2015 04-29-2014	1 EA 1 EA	1 1	0 0	0 0	0 0	N/A N/A
<p>Notes: 20 foot approach panel added to the west end, scaling.</p> <p>Minor cracks and small spalls developing @ SE corner of west appr. slab. GK 6/15/2010</p> <p>West end of bridge. Good condition with minor scaling from tire wear. FC 6/2011</p> <p>Approach slab looks good with the tining being worn away in the wheel tracks and a few minor spalls along the steel edge of deck. GK 4/14</p> <p>[2015] No significant change noted. </p>									

MINNESOTA BRIDGE INSPECTION REPORT OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
334	METAL RAIL-COATED	2	06-17-2015 04-29-2014	3,855 LF 3,855 LF	3,431 3,431	424 424	0 0	0 0	0 0
Notes: Some areas of paint failure & corrosion on pedestrian railing.Rail seperated at Canada end SE comer GK 6/15/2010 2009 FC inspection: impact damage at southeast Canadian approach. JZink6/10/2009 38 LF in CS3 moved to CS2. Traffic impact damage at SE corner has been repaired.FC 6/2011 Metal br rail has minor corrosion near the bases, and a few scattered areas. GK 4/14 [2015] No significant change noted.									
107	PAINTED STEEL GIRDER	1	06-17-2015 04-29-2014	840 LF 840 LF	0 0	420 420	410 410	10 10	0 0
Notes: 2009 FC inspection: New element Quantity applies to approach span beams that were once included under the stringer element. Approach Span 1 Beam 2 north face at Pile Bent 1 has new through corrosion in web at splice. Approach Span 2: Beam 3 north face, Beam 4 south face and Beam 2 north face has bottom flange and web surface corrosion. J Zink 6/10/2009 Bridge crew added web splices/ stiffeners to several girders where section loss was most prevelant.GK 6/15/2010 Through corrosion at Bent #1 has been repaired, and web splices added to other areas with large amounts of section loss. Active pitting and corrosion at east end of approach span 6 where girders attach to east abutment.FC 6/2011 Paint failed at a few locations where appears paint thickness was not sufficeant, continues to rust at east abut. GK 5/2012 [2013] No significant change noted. Bottom flanges continue to rust at abuts.Paint peeling bottom flanges beams 5 & 6 between bent 1 & 2 GK 4/14 [2015] Span A4 Beam 3 has a 2 3/4" crack in web just above bottom flange above Pier 1 (Photo 69).									
113	PAINT STEEL STRINGER	2	06-17-2015 04-29-2014	8,133 LF 8,133 LF	3,067 3,067	4,066 4,066	900 900	100 100	0 0
Notes: Paint system new in 2003 on west " US " 1/2 of bridge. Paint system is new 2005 on east " Canada " 1/2 of bridge. corrosion and section loss is most prevalent at floor beam connections.Stringer conection plates,corrosion behind causing deformation of the plates. . 4th base-south fascia stringer west span-electricians drilled 1/4" hole in web. Top flange of sidewalk stringer is rusting under conc curb on S side. East end Span #1, 3rd. stringer from north has 2 popped rivets @ floor beam connection. Paint failing small 5 ft area bottom of stringer,4th from the south mid span, 1st span.Br. crew added gusset plates to several stringers over sect. loss areas, various locations. Approach span 1, S1, bolted repair, 50 % sect. loss.S4, severe pitting bottom flange. App. span 2, S2, pitting and hole in web at bent 1. App. span 4, S2,S3,& S4,pockets of pitting in web over east pier. Truss span 1, bay 5, S4 &S5, light to severe pitting of bottom flanges.Bay 8,S3, moderate pitting over FB9.Bay 10, S1-S5, moderate to severe pitting on web & bottom flanges, web repair of S3,one rivit missing on S5. Truss span 2, bay 1, S3 & S4, lighth to severe pitting, Bay 3 & 4, S2-S5, light to moderate pitting, web strength, repair, of S3 @ FB 4.Bay 5, S3,severe sect. loss with holes. Bay 6, S4, light to moderate pitting.Bay 10, S2, web repair, strength plates, added due to severe sect. loss @ FB 11. Truss span 3, bays 9&10, S3 & S4, light to moderate pitting. Inspect. in 08 detected some stringers in spans 1-3 have surface corrosion. 2009 FC inspection: Stringer quantities apply only to truss stringers. Sapan 2 corrosion on Stringer 3 near FB4; new web through corrosion--two 1/4 " diameter holes. Span 2 corrosion on Stringer 4 midpoint bottom flange corrosion.JZink 6/10/2009 Areas of through corrosion in web reported previously have been arrested by cleaning and repainting. Isolated areas of active pitting in bottom flange of STR5, Span									

MINNESOTA BRIDGE INSPECTION REPORT

OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
121	P/STL THRU TRUSS/BOT	2	06-17-2015 04-29-2014	2,324 LF 2,324 LF	0 0	2,324 2,324	0 0	0 0	0 0
<p>Notes: West 1/2 painted 2003. East 1/2 -Painted by Canada in 2005. Pack rust on some gusset plates on the bottom chord. Pack rust between some connection points @ piers. There are cracked welds between gusset plate & end post channel on the south side @ the W end of the E truss and several other truss end locations(low tension areas). These cracks do not propagate into the structural members. 1 broken rivet at the sidewalk cantilever at the end of the floor beam side at the 4th pier from the U.S. **Bridge Maint. completed the spot painting of the gusset plates (US Side) the wk. of 6/22/09. The paint system that was done in 2003 was still looking good. A couple of areas were touched up with paint and (all gusset seams on the lower cord were caulked to repel moisture. DSH Isolated areas of paint failure, but underlying primer still intact. A few locations (Span 5 @ L9S, Span 6 @ L9N) show evidence of plug-welded mis- drilled holes in lower chord member (also noted in 2009).FC 6/2011</p> <p>2012 inspection looked at bottom chord closely and no problems found.Paint failing at ends of chords under jts, in areas that were hard to blast and paint, behind rivet heads, and rockers. GK 5/2012.</p> <p>[2013] The parallel faces of the horizontal legs of the angles were not cleaned and painted and surface corrosion exists.</p> <p>S</p> <p>All connections are sound.</p> <p>Wind bracing impacting lower chord span 6, FB2 east. GK 4/14</p> <p>[2015] No significant change noted.]</p>									
126	P/STL THRU TRUSS/TOP	2	06-17-2015 04-29-2014	2,324 LF 2,324 LF	1,785 1,785	346 346	193 193	0 0	0 0
<p>Notes: High loads were impacting knee braces so all knee braces removed. Corrosion beginning at the interface of vertical members. Minor surface corrosion of upper portion of truss. Span #1 , vert. #2 no. truss,cracked tack welds at diag. knee brace, not propagating.Diag. #12, of the no. truss,"fabrication defect, as per disscussion with br. office" in inner flange at midpoint marked for propagation / monitering.Inpact damage of trans. bracing.1st trans.brace bent approx. 7 inches,connect. bent at truss connection , 2d & 3rd trans braces are bent,impacted,clip angles bent also. 6/09 Span #2, rivet missing @ diag. brace connection on vert #1 of no. truss.Minor impact damage of trans. bracing. Span #3, cracked tack welds @ diag. bracing, knee brace locations.Vert #2 so. truss, minor impact damage to trans. bracing. Approx 9-08-08 a truck with a load of hay, impacted trans. bracing,span 6 east U4 vert. Trans. bracing bent and pulled away from U4, bending angle connecting,cracking some tack welds and popping one rivit. Three of the diag. braces bent and some minor tearing of the edge of U4 member, D2 br. crew replaced rivet with a bolt.GK 08 Canada br. personel notified and will follow up with there own inspect. & repair. 2009 FC inspection: Paint failure and surface corrosion is prevalent on most rivet heads. Built-up members exhibit localized areas of pack rust which are starting to cause spreading. JZink6/10/2009 Paint failure and surface corrosion is prevalent on most rivet heads. Built-up members exhibit localized areas of pack rust which are starting to cause minor scalloping. No change from 2009. Span 6 member U1S-L1S has slight bend in flange near bottom, probably due to traffic impact. Span 4 member U4NL4N has plug-welded mis-drilled holes in lower portion near L4N (previously noted in 2009).FC 6/2011 Paint failiure bottom side Span 2 SE GK 5/2012.</p> <p>[2013] There are some areas of paint failure with minor surfac</p>									

MINNESOTA BRIDGE INSPECTION REPORT

OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
152	PAINT STL FLOORBEAM	2	06-17-2015 04-29-2014	1,744 LF 1,744 LF	174 174	1,220 1,220	350 350	0 0	0 0
<p>Notes: West 1/2 repainted in 2003. East 1/2 Painted by Canada in 2005- Was a considerable amount of layered rust w/sect loss. Paint on floor beams & stringers was in very poor condition w/pack rust forming on both flanges section loss in small areas near mid-point. Knee braces (stringer to floor beam) at the east pier have pack rust between angles causing minor deformation. See section loss report in file - 2003.. Between piers 3 & 4 2nd. stringer from the south, 2 1/2 in. holes drilled in bottom flange, Canada plated floorbeams over piers 5 & 6 US plated bottom flanges of some floor beams spans 1 & 2. Truss span 1, FB 1 light to moderate pitting of web and bottom flange at center of span. FB4 cracked tack weld so. side, no propagation. FB 7, 8, 9 & 11, light to moderate pitting on bottom flanges. Truss span 2, FB 1, moderate to severe pitting, FB 2-4, light to moderate pitting of top & bottom flanges, FB 5-7, moderate to severe pitting, strength. plates bolted to bottom flanges. FB 10, 11, moderate to severe pitting on flanges. Truss span 3, FB 5, 7, 9, 10 & 11, light to moderate pitting of flanges and webs. The floor beams have been repainted arresting most corrosion : however there are some connections with active pack rust, & bottom flanges are starting to corrode with paint peeling, most noticeably near west end spans 1 & 2. GK 6/15/2010 Floor beam 8 span 2 had a crack like indication that was stop drilled by D2 br. crew. Many floorbeams have moderate to severe pitting in lower webs and flanges, which has been arrested by repainting. Several floorbeams reinforced with bolted cover plates, with paint failure and active corrosion occurring on Span 4 FB10. Active corrosion present under bottom flange connection to truss panel points at many locations. Span 2, FB8, south end has a crack in the top flange cope that was drilled out in 2008. Other flange copes and tack welds should be monitored for possible cracking. FC 6/2011 2012 insp</p>									
423	GUSSET PLATE (PAINT)	1	06-17-2015 04-29-2014	276 EA 276 EA	276 276	0 0	0 0	0 0	0 0
<p>Notes: 2009 FC inspection All gussets exhibit minimal to no pack rust and no paint failure. Gussets at Piers 3-6 are impacted due to fully expanded bearings (see element #967 notes). Tack welds are present on gusset plate interfaces mainly at the pier locations. Some are cracked, but none have propagated into the base metal. JZink 6/10/2009. ** A (3) stage spot painting of gussets was completed the wk. of 6/22/09. DSH Several outer gusset plates at L4N locations have plug-welded misdrilled holes (also noted in 2009) FC 6/2011. No problems noted in 2014 GK [2015] No significant change noted.</p>									
380	SECONDARY ELEMENTS	1	06-17-2015 04-29-2014	1 EA 1 EA	0 0	0 0	1 1	0 0	N/A N/A
<p>Notes: 2009 FC inspection: New element Used to rate lateral bracing, truss portal, and sway bracing. Most bracing in all spans is bent or loose due to previous impact damage. Bent bracing includes: Span 3 U4, U6; Span 4 U4. Loose bracing includes: Span 3 U8 to U9, Span 4 U8 to U9 and U1 to U2. Portal damage in Span 5. JZink 6/10/2009</p> <p>Several portal frames and sway frames are bent due to traffic impact. Maximum distortion is in Span 1, where both sway frames are bent 8" out of plane. Heavy pitting and corrosion present in horizontal member between bents #2 and #3. FC 6/2011 Sway frames continue to get bumped from high loads and bent members are documented but may be bent slightly more from year to year. GK 5/2012. Below deck, some of the wind bracing threaded ends are impacting lower chord, bolt heads and rivet heads at various locations. GK 4/14 [2015] Span 6 east portal frame has impact damage and is bent out of plane; also the sway frame at L6-U6N has a bow at the bottom of the sway frame and the sway frame is bent 11 3/4" to the west and 2" up. </p>									

MINNESOTA BRIDGE INSPECTION REPORT OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
311	EXPANSION BEARING	2	06-17-2015 04-29-2014	12 EA 12 EA	0 0	4 4	8 8	N/A N/A	N/A N/A
<p>Notes: Rockers could be adjusted, gusset plates @ pier 3 & 4 " USA portion inspected" are restricting bearing movement-attention is needed to this area."see pictuers in Br. 9412 file" Pier 5 SE rocker " 4 in. nut "coming loose, some movement noticed because of rusting of new paint, pics on file 2007 inspect, in 2010 same cond. Br inspect in 08, by Br. office and follow up with snooper on routine inspect. found that all rocker bearings are in maximum expansion with the gusset plate resting on the bearing causing an indentation of the gusset plate. All bearings were measured" with comps on file in D2 br. office" & will monitor for movement over time and temps to see if they are frozen or moving as designed 2009 FC inspection: All bearings in full expansion tipping to the west on piers 3-6; impacting gusset plates at 8 of the 12 locations (not at piers 1 and 2). Full expansion of these bearings was first noted in 2000; however 1995 inspection notes indicate that the bearing displacement was at about 10 - 15 degrees away from center of span at a temperature of 65 degrees. Exp joints in 1995 had about 1 inch of possible additional expansion. In 2008, pier 1 exp joint was closed tight. Sliding movement of the bearings is also evident at pier 4 (fixed bearing bolt hole elongation) and pier 6 (1/2 inch movement to the east from 2008 to 2009) perhaps indicating substructure movment/settlement eastward. Measurements of bearing movment were taken in 2008 and 2009 to establish evidence of movement. There are signs of bearing movement from 2008 to 2009. Meaurements should continue to be taken, especially during different temperature extremes JZink6/10/2009. Measurement grid on file in N drive. All bearings in full expansion tipping to the west on Piers 3-6; impacting gusset plates at these locations. Bent anchor bolt at Span 4 LOS. Short anchor bolt with exposed internal threads on nut at Span 5 LOS. Marks made on bearing</p>									
313	FIXED BEARING	2	06-17-2015 04-29-2014	12 EA 12 EA	0 0	12 12	0 0	N/A N/A	N/A N/A
<p>Notes: Rusting at various locations. Base plates have pack rust @ the W bents.Br. crew installed new base plates @ west abutment. Base plates @ the E abut have pack rust w/minor sect loss-paint failed.</p> <p>Bearings are in good condition with minimal deterioration (unchanged from 2009).FC 6/2011. Bearings were painted and look good but anchor bolts have moderate corrosion along with the bearing seat. GK 4/14 [2015] No significant change noted. </p>									
202	PAINT STL COLUMN	2	06-17-2015 04-29-2014	20 EA 20 EA	5 5	15 15	0 0	0 0	0 0
<p>Notes: Mn west approach span columns painted 2003, east in 05 Layered/ speckeled rust forming at west approach span.GK 6/15/2010 Quant. reflects 5 columes per bent.3 bents at west end and 1 bent at east end. West end columes have some diag. bracing, bent to bent.GK 6/15/2010</p> <p>Steel columns in approach span bents are in good condition. Some corrosion and minor pack rust is present between columns and diagonal bracing members FC 6/2011. Corrosion along bottoms of columns at connection points,mid and upper connection points beginning to rust, repainted areas have some minor section loss, but all connections are sound and in proper position. GK 4/14 [2015] No significant change noted. </p>									

MINNESOTA BRIDGE INSPECTION REPORT

OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
205	CONCRETE COLUMN	2	06-17-2015 04-29-2014	14 EA 14 EA	0 0	14 14	0 0	0 0	N/A N/A
<p>Notes: Base of columns & web walls are heavily scaled @ E pier. The top of the pier webs are cracked & deteriorating w/heavy scaling-should be sealed. Pier 6, top of concrete web / diaph. is scaling badly, both caps map cracked near center. The bottom of the columns & web walls are heavily scaled up to 3" deep - 2004 underwater inspection. 2009 FC inspection: 2008 UW report---light scaling with .25 inches to 1 inch penetration and exposed aggregate from top of caissons to 1 foot above top of caissons. Scaling around waterline. JZink 6/10/2009</p> <p>Pier columns have light spalling and staining. Scaling is prevalent near water line above caissons. Due to concerns about possible pier movement, tilt measurements were taken on east and west faces of all pier columns with a 4' level. The numbers represent amount of tilt over 4 feet, with the direction of tilt (East or West). All readings were small, and could partially be the result of uneven placement of forms when they were cast. Meas. in FC report. FC 6/2011 [2013] The 2012 Under Water report identified Light scaling with 1/4-inch typical to 1-inch maximum penetration and exposed aggregate was observed at Piers 2 through 7 on the concrete columns from the top of the caissons to 1 foot above the top of the caisson. At Pier 7, scaling was concentrated near and around the waterline. Sounded columns at various suspect locations and found no delams. GK 4/14 [2015] No significant change noted. </p>									
206	TIMBER COLUMN	2	06-17-2015 04-29-2014	4 EA 4 EA	4 4	0 0	0 0	0 0	N/A N/A
<p>Notes: Minor splitting & checking of timber columns under W appr span. Minor splitting and checking. No change from 2009 FC 6/2011. Columns tend to see alot of moisture, moderately weathered in 2014 / GK [2015] No significant change noted. </p>									
210	CONCRETE PIER WALL	2	06-17-2015 04-29-2014	151 LF 151 LF	0 0	129 129	22 22	0 0	N/A N/A
<p>Notes: The top of the east pier wall is heavily scaled and deteriorated. The bottom of the east pier wall is map-cracked & spalling-approx. 16 sq. ft.. 1st pier br. crew repaired top 8-10 in. Top of pier walls have heavy scaling FC 6/2011 Pier walls are encased at the bottom with a metal caison with shows signs of corrosion at and below the waterline. GK 5/2012. [2015] No significant change noted. </p>									
215	CONCRETE ABUTMENT	2	06-17-2015 04-29-2014	66 LF 66 LF	26 26	33 33	7 7	0 0	N/A N/A
<p>Notes: 12 SQ. FT. of deteriorated concrete @ the NE corner of east abut. (rebar exposed & corroding). Approx. 5 Lin Ft of parapet @ east abut is spalled & cracked. . West abut. was patched and repaired by br. crew in 2004. east abutment has numerous cracks w/leaching. End blocks are cracked & deteriorated. E end block has been patched. East seat needs to be flushed.</p> <p>East abutment has moderate staining, spalling and scaling. A vertical crack extends from the bottom to 3/4 of the way up the abutment face between STR5 & STR6. Between STR4 and STR5, there is a 4' X 2' area of delamination below the bearing seat, and another area about 3 feet in diameter below that. Heavy dirt accumulation on bearing ledge holding moisture against beam ends. West abutment has numerous repairs and timber bracing. FC 6/2011 Bridge crew flushed abut in spring of 2012, and abut. ledge was fairly clean and dry but open grated deck allows material to accumulate, and corrosion to continue. GK 5/2012. Canada did some concrete repair to the top of the east abut, as the surface was crumbling. Delams beggining to spall on east abut below bearing seats CS3 GK 4/14 [2015] 2 sq ft of delam in the about 5' up from the bottom. No other changes noted. </p>									

MINNESOTA BRIDGE INSPECTION REPORT

OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
220	CONCRETE FOOTING	2	06-17-2015 04-29-2014	16 EA 16 EA	2 2	14 14	0 0	0 0	N/A N/A
<p>Notes: Bridge crew repaired bent 1 & 2 footings on W. end in 2004. Footings under bents have light to moderate cracking, spalling and scaling.FC 6/2011 ** Bridge crew made repairs to 2nd & 3rd bent footings on10/03/05. DSH [2011] Piers 2-7 have caissons visible above the water line. Visible elements have light to moderate surface corrosion on steel shells and moderate to heavy scaling in concrete surface. See 2008 Underwater Report for further details. FC 6/2011.</p> <p>[2013] Element 382 deleted and Under Water Inspection notes moved to this element. The bent footings consist of reinforced concrete supported by driven pile. Pier 1 and 7 footings consist of reinforced concrete supported by driven pile for each column, the footings are below grade and therefore not included in the rated quantity. piers 2 through 6 consist of 19 driven pile surrounded by a steel tube filled with concrete. The entire footing is generally submerged and is inspected during scheduled under water inspection. (2008 UW Report - Steel caissons exhibit light to moderate surface corrosion extending from top of caisson to 3.5 feet below waterline. From the channel bottom to 3.5' below the waterline, the caissons exhibit moderate to heavy surface corrosion 1/ 11/2" diameter to 3" diameter nodules and up to 1/16" deep pitting over 50% of the area. Scour holes undercutting the pier steel caissons (mostly at pier 6) have been noted since the mid-1970. The 1991 underwater inspection report recommended a scour and foundation stability analysis of the channel bottom at pier 6 along with reirap placement. JZink 6/10/2009) The 2012 Under Water Report identifies surface corrosion on the caissons up to 3 inches in diameter and 1/16 inch deep. Rip rap was observed around 2 through 6, however a scour hole 8 feet in diameter and 2 feet deep exists at the nose of Pier 6.</p> <p>[2015] Footing at Bent has 6' feet of spall with exposed rebar. </p>									
231	PAINTED STEEL CAP	2	06-17-2015 04-29-2014	142 LF 142 LF	0 0	142 142	0 0	0 0	0 0
<p>Notes: [2013-2015] Scattered areas of failed paint with surface corrosion. </p>									
234	CONCRETE CAP	2	06-17-2015 04-29-2014	241 LF 241 LF	0 0	145 145	96 96	0 0	N/A N/A
<p>Notes: Concrete on top of main pier caissons is deteriorated up to 3IN deep. Rebar is exposed on the cap @ the center pier. Spall under base plate-N & S side-7IN X 2IN X 2-1/2IN D on N side of pier #2. Caps are also cracked & scaled w/minor spalls. Mortar pad is breaking up under base plate @ SW cor of pier #2. There is a 6 SQ IN spall on the N end of the bottom of the cap @ pier #3.Approx. 4 sq. ft. of spall top of pier 1. Column caps are cracked.Pier 7 top of web has been overlaid with concrete by Canada. Pier caps have moderate to heavy scaling. Vertical cracks through the cap are present in several locations, mostly on the piers on the Canadian side. FC 6/2011 **Bridge crew repaired concrete cap w/ delam in 10/06., approx. 3yds. of concrete MN side. DSH</p> <p>[2015] No significant change noted. </p>									
235	TIMBER CAP	2	06-17-2015 04-29-2014	30 LF 30 LF	30 30	0 0	0 0	0 0	N/A N/A
<p>Notes: Minor splitting & checking of timber cap under W appr span.</p> <p>Minor splitting and checking. Unchanged from 2009. FC 6/2011.</p> <p>Moisture and sand accumulate on this element. GK 4/14</p> <p>[2015] No significant change noted. </p>									
387	CONCRETE WINGWALL	2	06-17-2015 04-29-2014	4 EA 4 EA	1 1	3 3	0 0	0 0	N/A N/A
<p>Notes: 1/8IN diag crack in NE w/wall-concrete continues to deteriorate (to a depth of 6IN+) @ top of this w/wall. The SW w/wall was repaired by bridge crew in 2004. 1/4" diagonal crack in the southwest wingwall has been sealed. Top of north east wingwall continues to spall & delaminate. 20 s.f. concrete top of southeast wingwall cracking with efflorescence.</p> <p>Light to moderate cracking, spalling and scaling. No change from 2009. FC 6/2011.</p> <p>[2015] No significant change noted. </p>									

MINNESOTA BRIDGE INSPECTION REPORT OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
356	FATIGUE CRACKING	1	06-17-2015 04-29-2014	1 EA 1 EA	1 1	0 0	0 0	N/A N/A	N/A N/A
<p>Notes: 2009 FC inspection: New smart flag Span 2 Floorbeam 8 had crack-like indication found in 2008 at top cope at south truss connection; 3/4" hole drilled to arrest. Additional top cope linear fabrication defects found in 2009 at these locations: Sp2 FB2N, Sp2 FB5S, Sp2 FB8N, Sp3 FB3S, Sp3 FB5N, Sp5 FB2S, Sp5 FB7N, Sp6 FB3S – 1/4" (cracked tack weld only), Sp6 FB3N – 1/8" (cracked tack weld only), Sp6 FB4N & S (cracked tack welds only), Sp6 FB5S – 5/8". These areas were marked to be monitored during future inspections. Span 6 FB5S indication does originate from top cope into tack weld, but was marked for future inspection as crack did not extend through thickness of web. Jzink 6/10/2009</p> <p>2010 inspection these areas were inspected with no propagation of cracks.GK 6/15/2010</p> <p>Span 2 Floorbeam 8 had crack-like indication found in 2008 at top cope at south truss connection; 3/4" hole drilled to arrest. No change to that crack or others observed during this inspection.FC 6/2011</p> <p>Observed cracked tack welds and drilled area and found no changes in 2012 inspection GK.</p> <p>2014 two FB's appeared to have crack like indications " See element 152" These areas were marked to be monitored during future inspections. GK 4/14</p> <p>[2015] No significant change noted. </p>									
357	PACK RUST	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	0 0	N/A N/A
<p>Notes: Pack rust @ bott chord connection points</p> <p>Minor pack rust distortion (1/16" or less) is present between some gusset plates and lower chord.</p> <p>Pack rust up to 1/4" present between horizontal shelf plates and floorbeams. A few stringer splice plates over floorbeams have pack rust distortion of 1/8" or less.FC 6/2011</p> <p>Staining from pack rust behind plates. GK 5/2012.</p> <p>Pier 2 and Pier 3 west appeared to have the heaviest pack rust between the shelf plate and floorbeam GK 4/14</p> <p>[2015] No significant change noted. </p>									
360	SETTLEMENT	1	06-17-2015 04-29-2014	2 EA 2 EA	0 0	2 2	0 0	N/A N/A	N/A N/A
<p>Notes: 2009 FC inspection: New smart flag Evidence of continuing substructure settlement/sliding (see element #311). Evidence of abutment or pier tipping not apparent at this time. Monitor during all future inspections. JZink 6/10/2009 All truss rocker bearings tipped to the east. Measurement of pier column slopes indicated little or no tipping (see notes for element #205). Continue to monitor. FC 6/2011.</p> <p>[2013-2015] Substructure movement may have occurred, however movement cannot be confirmed with rudimentary measurement available during inspections. Recommend survey targets be permanently mounted on each pier to enable more accurate monitoring.]</p>									
361	SCOUR	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
<p>Notes: There has been a pier scour problem. Monitoring in the past 5 years does not indicate any change. See monitoring plan. 2</p> <p>2009 FC inspection: Scour depressions exist at Pier 6 (see 2008 Underwater Report) – 6' diameter by 5' deep downstream north caisson and 5' diameter by 3' deep upstream south caisson. Scour issues have been troublesome at this bridge in the past since the mid-1970's – see element #311 notes. JZink 6/10/2009</p> <p>Scour depressions exist at Pier 6 (see 2008 Underwater Report) – 6' diameter by 5' deep downstream north caisson and 5' diameter by 3' deep upstream south caisson. New underwater inspection will be performed in 2012.FC 6/2011.</p> <p>[2015] 2012 Underwater Report states: Riprap, 2 foot to 3 foot in diameter, was observed around the perimeters of Piers 2 through 5. At the downstream nose of Pier 6 a scour depression was observed, 8 feet in diameter and up to 2 feet deep. Otherwise large riprap was observed around the perimeter of the caissons at Pier 6. No other changes were noted.]</p>									

MINNESOTA BRIDGE INSPECTION REPORT

OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
362	TRAFFIC IMPACT	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
Notes: **Doug Zarling & Davis Holthusen inspected traffic impact to guard rail on 3/13/08 N. side (middle of the bridge) accident took place on 3/10/08. Very minor damage and no Repair is needed. DSH Portal frames and sway frames in all spans have distortion from traffic impact. See note for element #380.FC 6/2011. [2015] Span 6 east portal frame has impact damage and is bent out of plane; also U9-L10 have some distortio[n].									
363	SECTION LOSS	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	0 0	N/A N/A
Notes: 2003 Bridge office report details section loss for MN Approach spans and 3 truss spans. 5 corrections have been identified for installation in 2004. Heavy section loss in floorbeams and stringers due to pitting is present in many areas. Most section loss has been arrested by cleaning and repainting. FC 6/2011. [2015] No significant change noted.									
964	CRITICAL FINDING	2	06-17-2015 04-29-2014	1 EA 1 EA	1 1	0 0	N/A N/A	N/A N/A	N/A N/A
Notes: DO NOT DELETE THIS CRITICAL FINDING SMART FLAG. No critical findings were identified during this inspection FC 6/2011. [2015] No critical findings were noted.									
966	FRACTURE CRITICAL	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
Notes: Do Not Remove. See in-depth report for location of F/C members. 2009 FC inspection: Prior to 2003, section loss was prevalent on the bottom flange of numerous truss span floorbeams. As a result, UT thickness testing was performed in 2003 and repairs were made to many of the bottom flanges by way of bolted cover plates along the bottom flange. The floorbeam top copes at the truss connections are stress risers that should also be monitored during all future inspections. Jzink6/10/2009 [2015] No significant change noted. Fracture-critical floorbeams have significant section loss, but this has been arrested by cleaning and repainting. Floorbeams with most significant loss have been reinforced with bolted cover plates. FC 6/2011.									
981	SIGNING	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	0 0	0 0
Notes: Signs Required: Vertical Clearance . Vert clearance signs in place, 14 ft 8 in. Knee brace signs removed, because knee braces removed. Vertical clearance signs have minor deterioration but are in place and readable. FC 6/2011. [2015] No significant change noted.									
982	GUARDRAIL	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
Notes: Platebeam terminal end has been hit and damaged at the southeast corner. New platebeam installed at the northeast corner, new curb here also.Bolt loose on west rail. Guardrail on SE corner of bridge has minor damage due to traffic impact. FC 6/2011. Same in 2014 / GK [2015] Guardrail end treatments at the Southeast and Northeast are damaged.									
984	DRAINAGE	2	06-17-2015 04-29-2014	1 EA 1 EA	1 1	0 0	0 0	N/A N/A	N/A N/A
Notes: Bridge crew installed sheet pile and drain tile @ west abut. on north bank. drain tile exposed on 8/24/05. DSH Deck has no drainage system due to open-grid deck. Sheet pile and drain tile on north end of west abutment unchanged from 2009. FC 6/2011. [2015] No significant change noted.									

MINNESOTA BRIDGE INSPECTION REPORT

OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER**INSP. DATE: 06-17-2015**

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
985	SLOPES	1	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
<p>Notes: 2009 FC inspection: Added element 2008 UW Report – downstream sides of caissons, there is minimal riprap. Jzink6/10/2009</p> <p>According to 2008 Underwater report, the downstream sides of caissons have minimal riprap. New underwater inspection will be performed in 2012. FC 6/2011</p> <p>A stream x section was performed in winter of 2011 and found some of the rip rap had migrated downstream of the piers. GK.</p> <p>[2015] No significant change noted.]</p>									
986	CURB & SIDEWALK	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
<p>Notes: Small void under sidewalk @ SW cor. Sidewalk stringers & planking showing signs of deterioration. Outside face of curbs are spalled w/rebar exposed, whole length of bridge. Inside face of curb @ NE & SW corners heavily scaled. Numerous cracks in curb faces. 1 plank split in sidewalk-2nd span from the W & the 2nd & 3rd spans from the E. There is a 4IN vert lip(new wall on MN side-ok) @ start of the timber walk @ E end. New sidewalk at the southwest corner-new bit in west end in 1997, concrete walk settled 11/2" @ beginning of wood walk in SW corner. Curb fractured from traffic damage at the end of pipe rail-southwest corner. Appr curb scaled from plows-SW corner. Conc walk @ SE cor has settled approx. 3IN-a bit wedge has been placed. 1" opening at sidewalk joint, also settled at wood sidewalk approach. Pier 3 sidewalk slide plate missing 1 of 3 screws holding, plate loose, needs attention. **Br. maint. repaired sidewalk slide plate (screws missing) in 08. DSH</p> <p>Trees should be pruned/ cut on both east & west ends, north side for snooper bucket access. GK 6/14/2010</p> <p>Concrete curb is in good condition, with isolated cracking and spalling. Steel stay-in-place form on bottom of curb has extensive pitting, corrosion and rust-through holes. Timber sidewalk has minor cracking and checking, with broken out pieces in some areas. Surface of sidewalk has pitting from snowmobile studs. FC 6/2011</p> <p>Sidewalk on Mn portion was repaired and or replaced by br. crew. GK 5/2012.</p> <p>NE and SE curbs continue to deteriorate GK 4/14</p> <p>[2015] No significant change noted.]</p>									
988	MISCELLANEOUS	2	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	N/A N/A	N/A N/A
<p>Notes: Conduit pulled apart on N side-2nd floor beam W of pier #2. 1 light conduit pulled apart on N side(vert member)1st truss span from the E, & 3rd truss span from the E. Top of chain link fence bent in 2 places @ southwest corner. Telephone box on span 4, should have a padlock, " next to sidewalk" 6/09</p> <p>Conduit along north lower chord has exposed (insulated) wiring between feed conduit, transformer and lighting conduit. This appears to be by design, since it is present at all lighting locations. Feed conduit running along span 6, FB10, has rusted-through holes. FC 6/2011.</p> <p>[2015] Span 4 at L4N electrical transformer has blown up and there is tar splattered all over.]</p>									
967	GUSSET DISTORTION	1	06-17-2015 04-29-2014	1 EA 1 EA	0 0	1 1	0 0	0 0	N/A N/A
<p>Notes: 2009 FC inspection: Added element Most bottom chord and a few upper chord gusset plates exhibit free edge distortion up to 1/8" attributed to fit-up or very minor pack rust. Span 6 L10N inside gusset is bowed out slightly more than 1/8" that is not attributed to pack rust or fit-up. Possibly due to impact of gusset on fully expanded bearing. This type of distortion should be monitored in the future for all pier gussets due to the impacted gussets. JZink6/10/2009</p> <p>Most bottom chord and a few upper chord gusset plates exhibit free edge distortion up to 1/8" due to fit-up or very minor pack rust. Eight gusset plate connections (LOS & LON on spans 3-6) have gouges due to impact from rocker bearings. FC 6/2011.</p> <p>[2015] There is a bulge at Span 6 M3N Exterior Gusset Plate .125" bulge between members L6-M3 & U6-M3 appears to have been caused by impacts to the back.]</p>									

MINNESOTA BRIDGE INSPECTION REPORT OLD ELEMENT SYSTEM

04/21/2016

Inspected by: DISTRICT 2

BRIDGE 9412 TH 72 OVER RAINY RIVER

INSP. DATE: 06-17-2015

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
-------------	--------------	-----	------------	----------	-------------	-------------	-------------	-------------	-------------

General Notes: Bridge layout ="" USA"" west abut, bent 1, bent 2 , bent 3, Pier 1, P2,P3,P4,P5,P6,P7, bent 4, east abutment ""Canada""

Some pigeon nesting on truss. Swallow nests are in place. FC INSP-MAY 2000-DIVER INSP-AUG 2000-SEE REPORTS. Inspected with canadian Dept of Province of Ontario & MN. DOT 10/22/2001 snooper inspected USA portion 4/26/2006 GK/DZ & BR.crew, 5/2/07 GK, DZ, & JL/ Snooper Inspect. and with Highlift Canada MTO 9/24-26th/2007 GK & DZ observing " inspect. with Gary Weiss & John Canada MTO" Br. office" ST. Paul" did courtesy review, / special gusset, inspect June 16th-19th 2008, & D2 did routine snooper inspect. sept. 9th 2008 MN. DOT walk through inspection, USA side 6/09, as fracture crit. crew doing inspection with 2 snoopers and man lift. 6/09 Snooper inspected 6 /14 - 15/ 2010 GK, Mn. DOT & Gary Weiss Canada MOT . FC inspection June 27th - 29th 2011 Snooper inspected 5/1 2012, 4 /29/ 2014 routine

Appendix I – NOISE STUDY

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix I – Noise Study

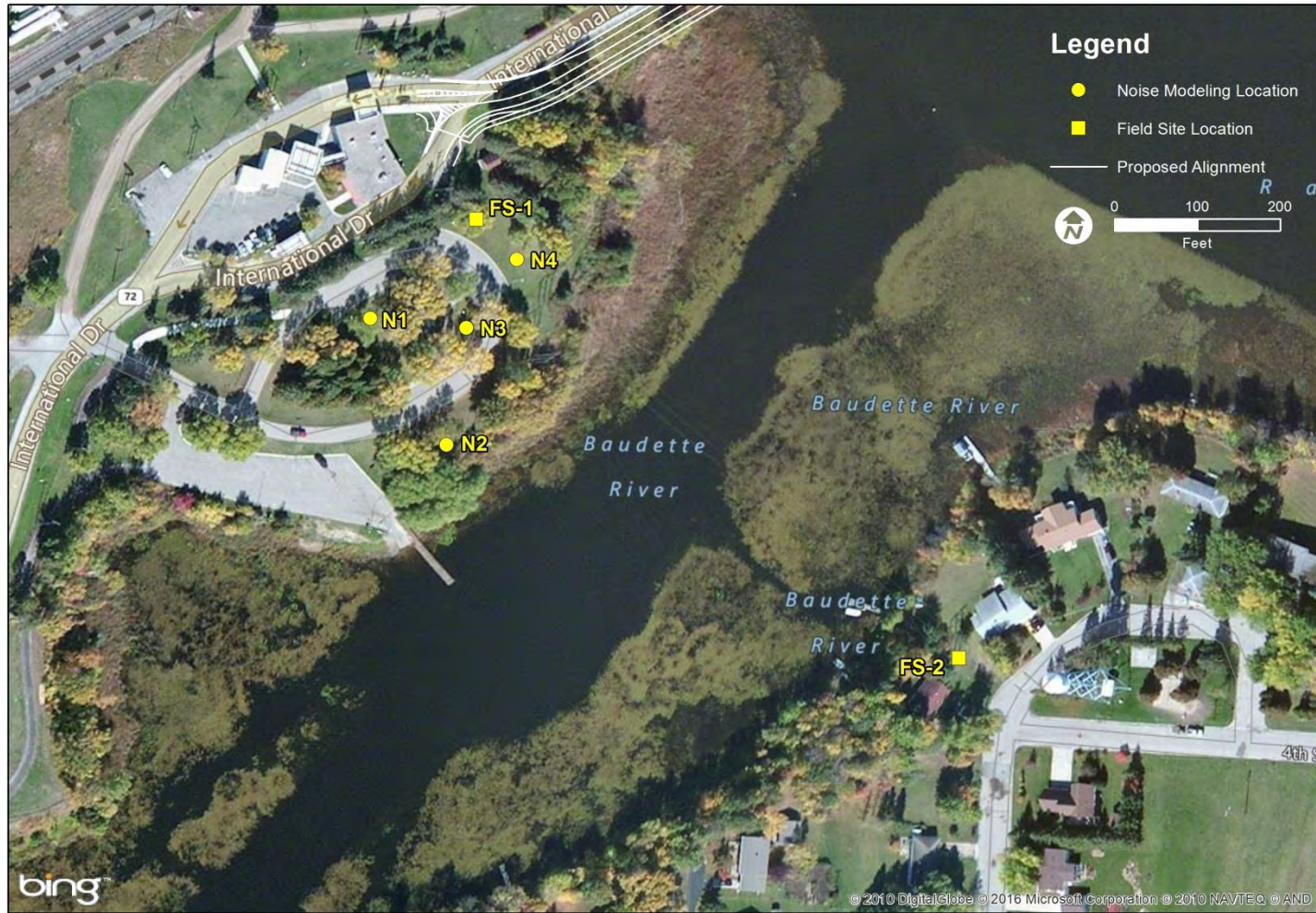


Figure 35: Noise Modeling Locations

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix I – Noise Study

Table 26: Daytime Model Results (12:00 p.m. - 1:00 p.m.), Baudette Bridge, Baudette, Minnesota

Receptor	Land Use	Number of Units	Monitored Noise Levels (2015)		Existing Conditions (2013)		No-Build Alternative (2038)		Difference No-Build (2038) - Existing (2013)		Preferred Alternative (2038)		Difference Pref. Alt. (2038) - Existing (2013)	
			L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
FS-1	Park	--	53.0	47.4	58.2	50.2	58.6	50.8	0.4	0.6	56.4	48.2	-1.8	-2.0
FS-2	Residential	2	48.3	41.9	54.9	47.9	55.3	48.4	0.4	0.5	49.7	43.6	-5.2	-4.3
N1	Park	--	--	--	56.2	48.9	56.6	49.5	0.4	0.6	54.6	47.0	-1.6	-1.9
N2	Park	--	--	--	53.9	46.5	54.3	47.1	0.4	0.6	51.1	44.1	-2.8	-2.4
N3	Park	--	--	--	55.5	47.8	55.9	48.4	0.4	0.6	52.8	45.3	-2.7	-2.5
N4	Park	--	--	--	56.9	48.8	57.3	49.3	0.4	0.5	54.1	45.9	-2.8	-2.9
MPCA Residential Daytime Standard			65	60	65	60	65	60	-	-	65	60	-	-
FHWA Activity Category B, C			70	-	70	-	70	-	-	-	70	-	-	-
FHWA Activity Category E			75	-	75	-	75	-	-	-	-	-	-	-
MPCA Commercial Daytime Standard			70	65	70	65	70	65	-	-	70	65	-	-
MPCA Industrial Daytime Standard			80	75	80	75	80	75	-	-	80	75	-	-
FHWA Activity Category F			-	-	-	-	-	-	-	-	-	-	-	-

BAUDETTE / RAINY RIVER INTERNATIONAL BRIDGE REPLACEMENT PROJECT

Appendix I – Noise Study

Table 27: Nighttime Model Results (6:00 a.m. - 7:00 a.m.), Baudette Bridge, Baudette, Minnesota

Receptor	Land Use	Number of Units	Existing Conditions (2013)		No-Build Alternative (2038)		Difference No-Build (2038) - Existing (2013)		Preferred Alternative (2038)		Difference Pref. Alt. (2038) - Existing (2013)	
			L10	L50	L10	L50	L10	L50	L10	L50	L10	L50
FS-1	Park	--	54.1	44.6	54.8	45.5	0.7	0.9	52.6	43.0	-1.5	-1.6
FS-2	Residential	2	50.9	42.3	51.6	43.2	0.7	0.9	46.3	38.6	-4.6	-3.7
N1	Park	--	52.2	43.3	52.9	44.3	0.7	1.0	50.9	41.8	-1.3	-1.5
N2	Park	--	49.8	40.9	50.5	41.8	0.7	0.9	47.4	38.9	-2.4	-2.0
N3	Park	--	51.4	42.2	52.2	43.1	0.8	0.9	49.1	40.2	-2.3	-2.0
N4	Park	--	52.7	43.1	53.5	44.0	0.8	0.9	50.3	40.7	-2.4	-2.4
MPCA Residential Nighttime Standard			55	50	55	50	-	-	55	50	-	-
FHWA Activity Category B, C			70	-	70	-	-	-	70	-	-	-
FHWA Activity Category E			75	-	75	-	-	-	75	-	-	-
MPCA Commercial Nighttime Standard			70	65	70	65	-	-	70	65	-	-
MPCA Industrial Nighttime Standard			80	75	80	75	-	-	80	75	-	-
FHWA Activity Category F			-	-	-	-	-	-	-	-	-	-