IA 9 /WI 82 Bridge Replacement
Lansing, Iowa - Mississippi River
Questions & Comments are encouraged

- Participants are encouraged to put questions or comments in chat window during meeting

- Email to **Ejon.Ranney@iowadot.us** during or after the meeting

- Questions and comments will be made available after the meeting
Meeting Objective
- Raise early awareness of the project with industry
- Obtain industry comment that may affect course of design

Introduction of Speakers

General Project Overview
- Key Milestones
- Required Permits / Environmental Restrictions
- Construction Laydown Sites
- D5 Roadway Summary
- Structural Project Overview
- 30% Drawing Overview
- Navigation Considerations
- Construction Access & Staging
- Foundation and Substructure Construction
- Truss Erection Concepts

Comments & Questions
- Reply to pre-submitted questions
- Open discussion
Lansing Iowa is located near the Iowa and Minnesota border along the Mississippi River.

191 miles from Minneapolis, MN
240 Miles from Chicago, IL
35 Miles from La Crosse, WI
35 miles from Prairie du Chien, WI
IA9 Bridge over Mississippi River

Who is Involved

Governmental Agencies
- Iowa Department of Transportation, Lead Agency
- Wisconsin Department of Transportation, Partnering DOT
- Federal Highway Administration
- US Coast Guard
- US Fish and Wildlife
- State Highway Historic Preservation Officials, IA & WI
- Departments of Natural Resources, Iowa and Wisconsin
- City of Lansing, Iowa
- Canadian Pacific Railroad

Consultants
- Parsons
- Stanley
- HDR
- Burns and McDonnell
The IA 9 Black Hawk Bridge was built in 1931 as a cantilevered steel truss, 3 span arch.

- Navigational channel span is 650 feet
- 67.5 feet above normal water elevation
- Total length of 1,653 feet
- 21-foot-wide travel way and has 18.5 feet of clearance.

The bridge is historic, and the community has adopted its unique character.
IA9 Bridge over Mississippi River

River Channel, Existing Bridge, Slough and Wildlife Refuge
Sharpest Turn on Mississippi River

Simulation of a barge turning the tight corner of the river and through the bridge piers which are 650 feet apart.
Sensitive

IA 9 Bridge Replacement

Existing cross section, slough and wildlife refuge, dolphins, railroad

EXHIBIT 1-2
Existing Bridge Dimensions
Construction Items

• Letting July 2023, Construction timeframe – 2 to 3 years
• Demolition of existing bridge anticipated in 2026
• Steel Truss structure with a 750-foot Navigational Span
• Vertical Clearance 64 feet over the green light or mid-span
• Potential for main span construction off-site;
  • Construction Staging Area to be determined
  • 72-hour closure window for float-in operations
• Operating railroad on west shore
• Roadway reconstruction on west side and east end tie-ins
• Restricted Environmental Areas
• Anticipated Permits to be approved
Anticipated Permits

- **Section 404 Individual Permit** under the Clean Water Act from the USACE, Rock Island and/or St. Paul Districts
- **Section 10 Permit** under the Rivers and Harbors Act and General Bridge Act from the USACE, St. Paul District, (If required in addition to the USCG Section 9 Permit)
- **Section 408 Permit** under Section 14 of the Rivers and Harbor Act, codified at 33 USC 408
- **Section 9 Permit** under the Rivers and Harbors Act and ‘General Bridge Act from the USCG
- **Section 401 Water Quality Certification** under the Clean Water Act from Wisconsin DNR
- **National Pollution Discharge Elimination System General Permit No. 2** for Storm Water Discharges Associated with Construction Activities (NPEDS) from the Iowa DNR
- **Construction Site Storm Water Runoff General Permit No. WI-S067831-5** from the Wisconsin DNR
- **Sovereign Lands Permit** from the Iowa DNR
IA9 Bridge over Mississippi River

Construction Advisory Meeting

Sensitive

The Restricted Areas shall be marked off with orange snow fence and no ground disturbance is permitted within these areas. If the contractor has questions they can contact the construction engineer at 515-723-1280, or Stiffer Crenner Dulan at 515-723-1780.
IA9 Bridge over Mississippi River
Construction Advisory Meeting
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Note 1: Transition superelevation of both lanes at constant rate between stations as follows:
Sta. 126+62.00, e = 3.42
Sta. 126+79.00, e = 3.06

Note 2: Roadway is WIS 87 on east side of Mississippi River.
IA9 Bridge over Mississippi River
Construction Advisory Meeting
IA9 Bridge over Mississippi River
Construction Advisory Meeting

30% Drawing Overview
Navigation Considerations
Navigation Considerations
Navigation Considerations

- Outstanding questions to US Coast Guard:

  - Will the contractor be allowed to install temporary falsework and/or temporary trestle to limits shown?
  - Demolition
    - Will blasting of the superstructure be allowed?
    - Will blasting of the substructure be allowed?
    - What restrictions are there to blasting?
    - To what depth/limit does the substructure need to be removed?
    - Can any portion of the existing bridge be allowed to remain at the bottom of the river?
  - What temporary reduced navigation clearances will be allowed during construction?
    - Current bridge = 640 ft horizontal clearance
    - Proposed bridge = 750 ft horizontal clearance
Navigation Considerations

Figure 1. Proposed Limits for Construction Trestles and Falsework

Area within which USCG approval is requested for temporary construction trestles and falsework.
Potential Construction Laydown Sites
Construction Access & Staging
Iowa End Span
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Construction Access & Staging
Island
Construction Access & Staging Island
Pier 1
Support of Excavation Concept
29

IA9 Bridge over Mississippi River
Construction Advisory Meeting

Pier 2
Waterline Footing

![Diagram of Pier 2 Waterline Footing]

- Cap, Column, Footing & Drilled Shaft, Rock Socket
- 2% Flow Line + Cessation of Navigation Elevation 630.3 (NAV88)
- Normal Pool Elevation 619.3 (NAV88)
- Bottom of Footing Elevation 614.0 (NAV88)

Mudline Elevation ~597
Assumed Top of Rock Elevation ~497

Elevation
Side Elevation
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Truss Erection Concept
Iowa End Span

L1-L3 ERECTION
L3-L4 ERECTION
L4-U4 ERECTION
Truss Erection Concept
Cantilever method
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Truss Erection Concept
Cantilever method

ELEVATION - STAGE 2
PLAN - STAGE 2
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Truss Erection Concept
Cantilever method

ELEVATION - STAGE 3

PLAN - STAGE 3
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Truss Erection Concept
Full Main Span Float-in

CONCEPT FROM PRELIMINARY STUDY BY OTHER

~5000 KIP LIFT FOR TRUSS
IA9 Bridge over Mississippi River
Construction Advisory Meeting

Preliminary Component Weights

MEMBER IDENTIFICATION AND PANEL NUMBERING

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>LOWER CHORD</th>
<th>MEMBER</th>
<th>UPPER CHORD</th>
<th>MEMBER</th>
<th>VERTICALS</th>
<th>MEMBER</th>
<th>DIAGONALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 - L2</td>
<td>52.49 lb</td>
<td>U2 - U3</td>
<td>55.51 lb</td>
<td>U3 - U4</td>
<td>58.17 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U6 - L7</td>
<td>55.17 lb</td>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>L9 - L10</td>
<td>59.08 lb</td>
<td>L10 - L9</td>
<td>56.08 lb</td>
<td>L9 - L8</td>
<td>51.06 lb</td>
<td>L8 - L7</td>
<td>52.87 lb</td>
</tr>
<tr>
<td>L8 - L7</td>
<td>60.01 lb</td>
<td>L7 - L6</td>
<td>55.50 lb</td>
<td>L6 - L5</td>
<td>53.33 lb</td>
<td>L5 - L4</td>
<td>55.29 lb</td>
</tr>
<tr>
<td>L4 - L3</td>
<td>60.01 lb</td>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U4 - U5</td>
<td>57.50 lb</td>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
</tr>
<tr>
<td>U8 - U9</td>
<td>55.50 lb</td>
<td>U9 - U10</td>
<td>60.01 lb</td>
<td>U10 - U9</td>
<td>57.50 lb</td>
<td>U9 - U8</td>
<td>55.50 lb</td>
</tr>
<tr>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
<td>U5 - U4</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U4 - U3</td>
<td>57.50 lb</td>
<td>U3 - U2</td>
<td>56.00 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
<td>U1 - U1</td>
<td>58.17 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
<tr>
<td>U9 - U8</td>
<td>55.50 lb</td>
<td>U8 - U7</td>
<td>59.46 lb</td>
<td>U7 - U6</td>
<td>55.17 lb</td>
<td>U6 - U5</td>
<td>53.33 lb</td>
</tr>
<tr>
<td>U5 - U4</td>
<td>57.50 lb</td>
<td>U4 - U3</td>
<td>56.00 lb</td>
<td>U3 - U2</td>
<td>57.50 lb</td>
<td>U2 - U1</td>
<td>57.50 lb</td>
</tr>
<tr>
<td>U1 - U2</td>
<td>57.50 lb</td>
<td>U2 - U3</td>
<td>56.00 lb</td>
<td>U3 - U4</td>
<td>57.50 lb</td>
<td>U4 - U5</td>
<td>60.46 lb</td>
</tr>
<tr>
<td>U5 - U6</td>
<td>59.46 lb</td>
<td>U6 - U7</td>
<td>61.23 lb</td>
<td>U7 - U8</td>
<td>62.09 lb</td>
<td>U8 - L9</td>
<td>57.62 lb</td>
</tr>
</tbody>
</table>
Wisconsin Approach

• Erect precast girders from improved earthen haul roads on island
Some Questions Under Consideration

• Permits – environmental concerns
  – Are there any environmental restrictions to working hours? Times of year?
  – Any fish spawning windows that prohibit in-water work?
  – Any bird/bat nesting work windows?
  – What construction activities are permitted / prohibited in “Restricted areas”?

• Water Depth
  – Are water depths adequate to maneuver marine equipment?
  – East Trestle limits extend to existing river pier (pending approval from USCG)

• Railroad concerns
  – Railroad limits access to water
  – Working near active track (Will flaggers be required? When?)
  – Support of excavation to construction Pier 1 foundations (pile caps raised and narrowed to optimize clearance to railroad and restricted area)
Some Questions Under Consideration

• Dredge Spoils on island
  – Is the dredge spoil active?
  – Can a portion of the dredge spoil area be used for construction staging?
  – Do we need USACE permission to utilize this area for construction access or staging?
  – Is the fill available/suitable for embankment borrow?

• Load restrictions on the old bridge
  – Bridge is posted at 40-ton weight limit
  – Is the existing bridge adequate to handle permit loads (such as heavy equipment and girders)?

• Demolition
  – Is blasting of superstructure or substructure permitted?
  – What are the limits of removal? (2 ft below mudline? 10’-12’ water depth?)
  – Can the existing dolphins be removed early to provide construction access?
Some Questions Under Consideration

• Other comments or questions?
• Email to Ejon.Ranney@iowadot.us during or after the meeting
• Questions and comments will be made available after the meeting
We are asking for your input.
THANK YOU FOR YOUR TIME AND ATTENTION

Jon Ranney
District Engineer

641-423-7584
Ejon.Ranney@iowadot.us

District 2
428 43rd Street SW
Mason City, IA 50401