



Red Wing Bridge Project



PAC #8/TAC #11 Meeting
July 17, 2014

Your Destination...Our Priority





Agenda

- Alternatives Analysis Process
 - Overview of Past Progress
 - Latest Developments and Decisions
- Preliminary Design and Environmental Assessment
- Visual Quality Process
- Public Outreach Update
- Next Meetings





Overview of Past Progress

- Determined the river crossing will be kept at current location;
- Identified and refined a recommended set of concepts for the Minnesota and Wisconsin approach roadways;
- Decided to proceed with a new two-lane river crossing;



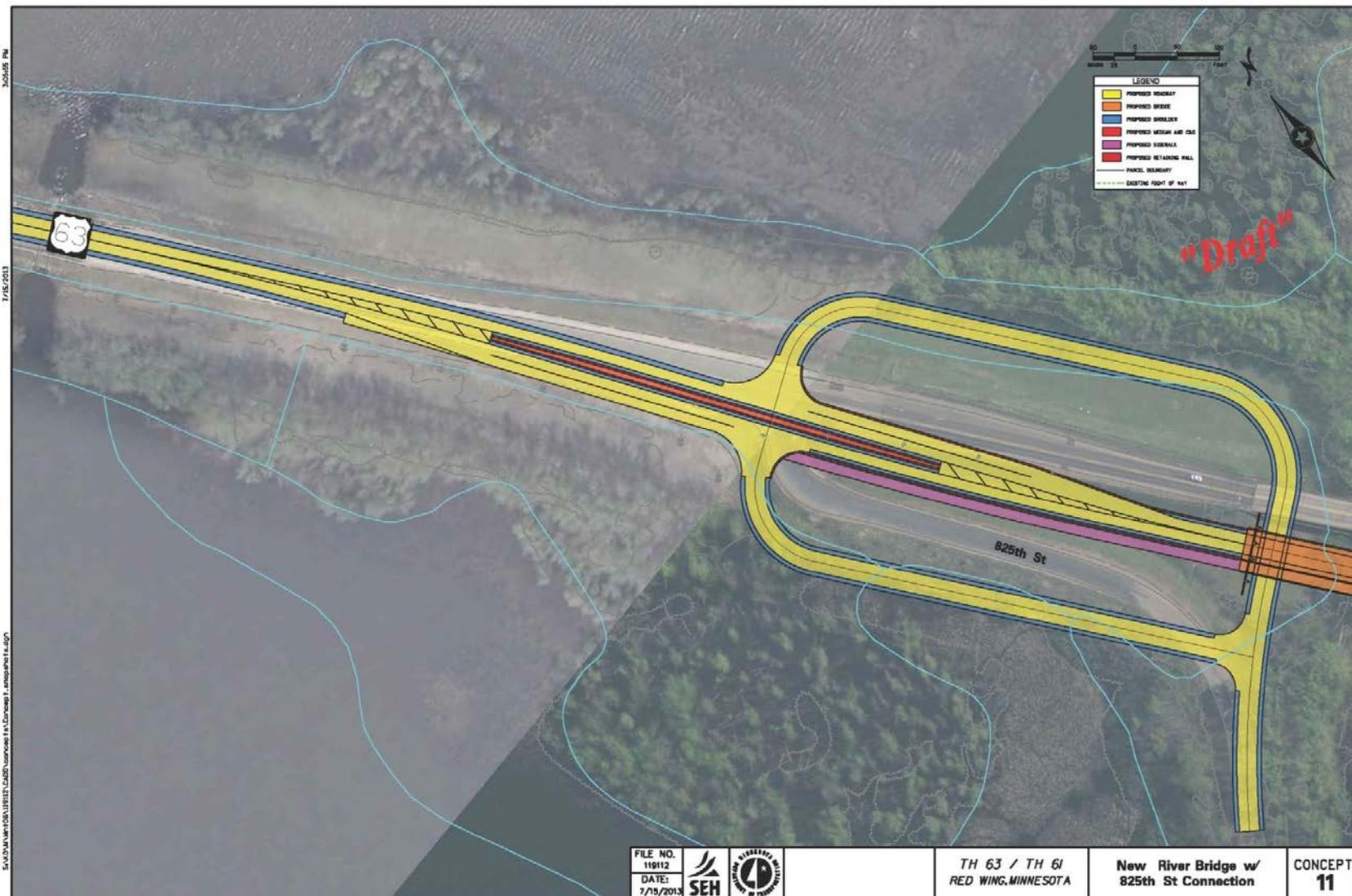


Overview of Past Progress (cont...)

- Completed Bridge 9103 Rehabilitation Study;
- Identified a recommended river crossing bridge type;
- Identified a recommended alternative for the Wisconsin approach.



Wisconsin Approach – Preferred Option



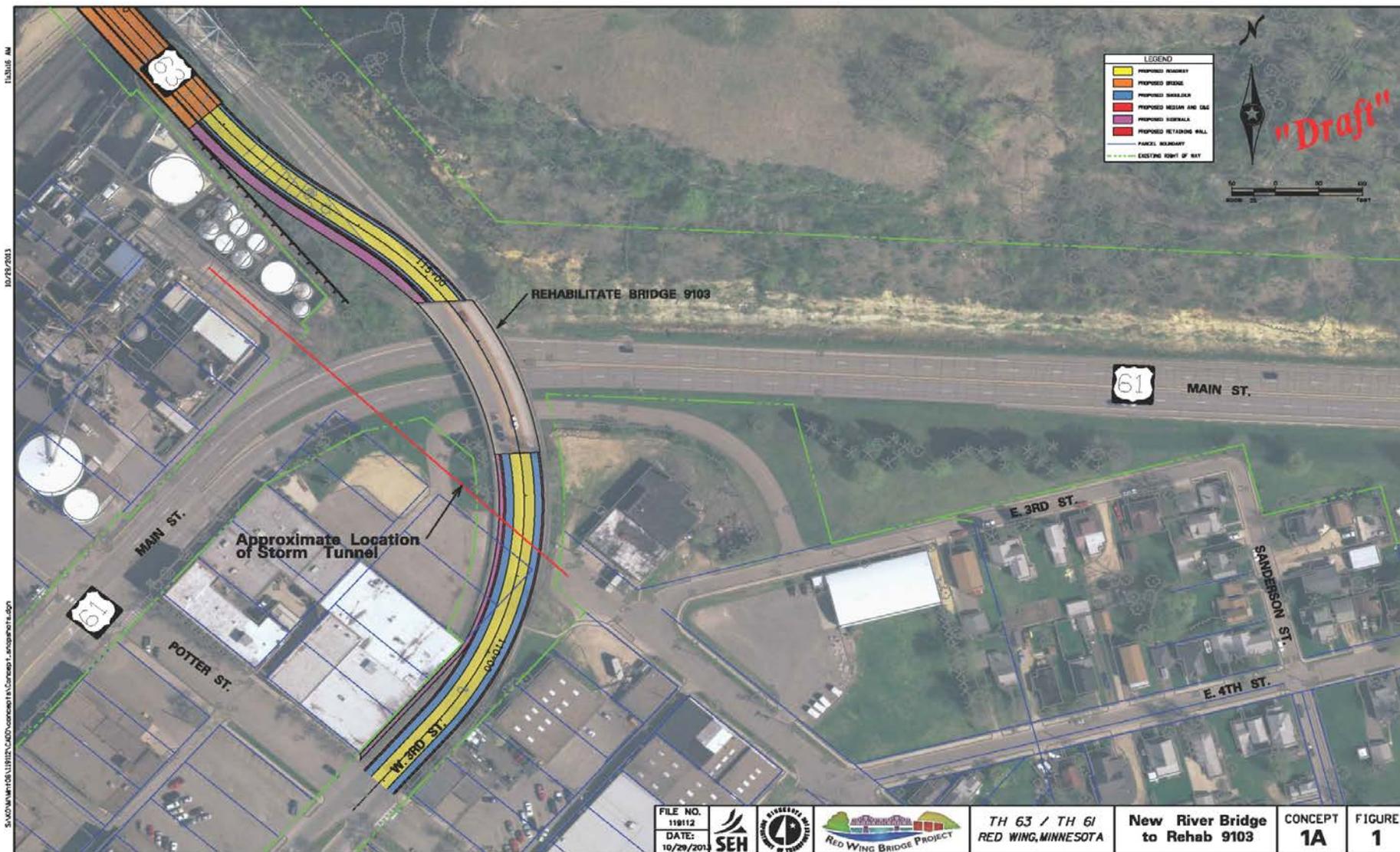


Recent Developments and Decisions: Minnesota Approach Alternatives

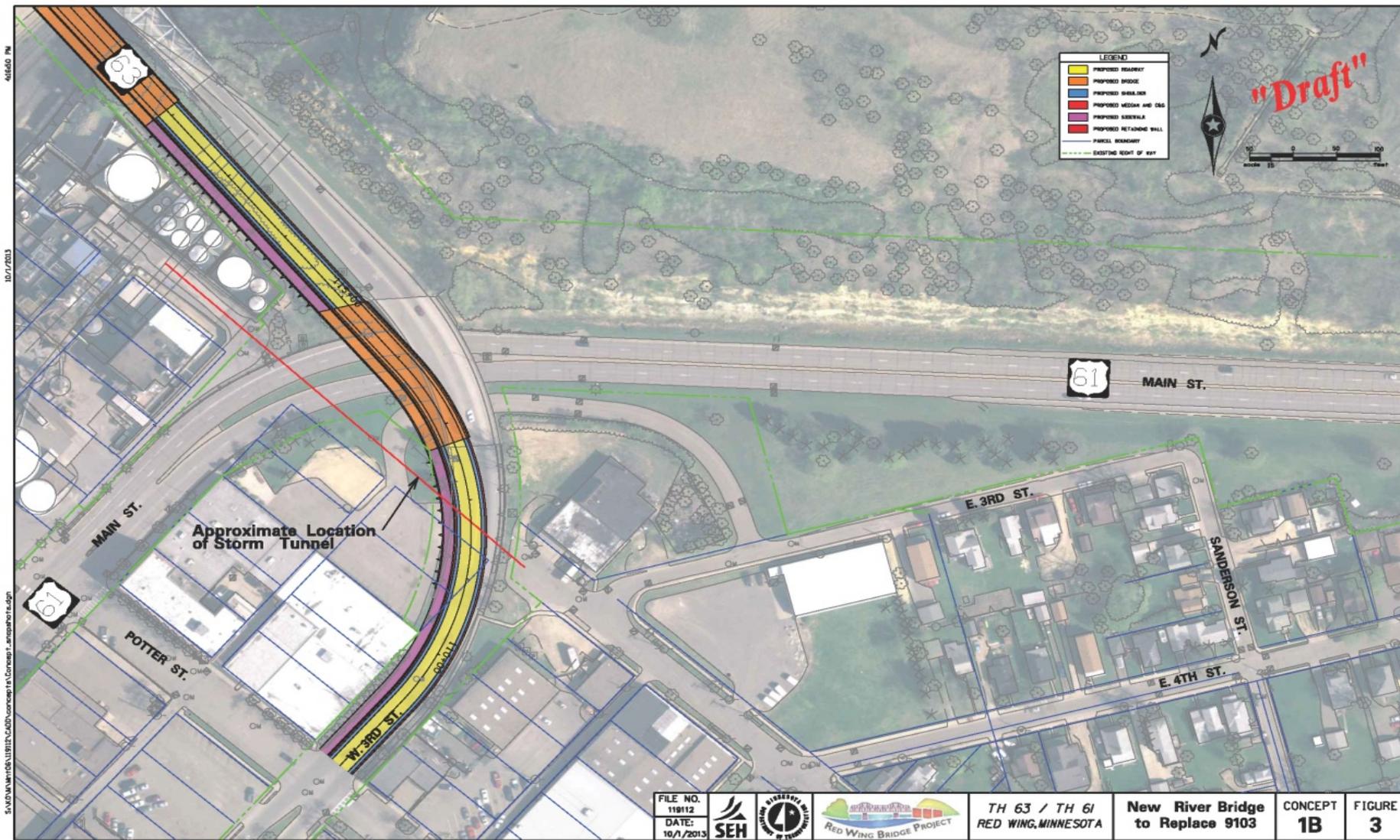
- Updated Purpose and Need to reflect mobility as a primary need;
- Three primary options were carried forward (along with a sub-option involving downtown street modifications);
- Conducted a comprehensive evaluation of the remaining options in coordination with FHWA



MN-1: Rehabilitate Bridge 9103

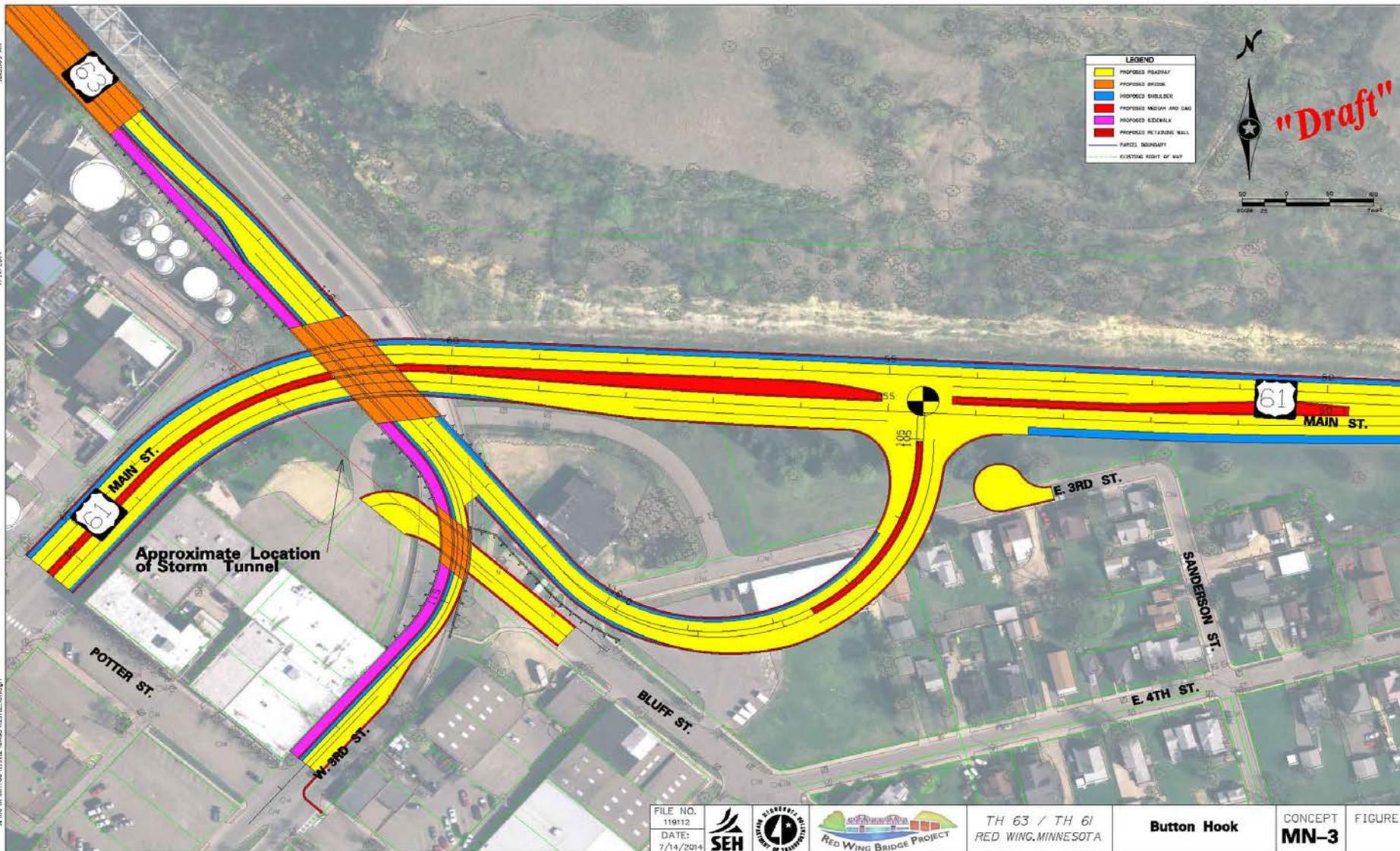


MN-2: Replace In-place





MN-3: Buttonhook



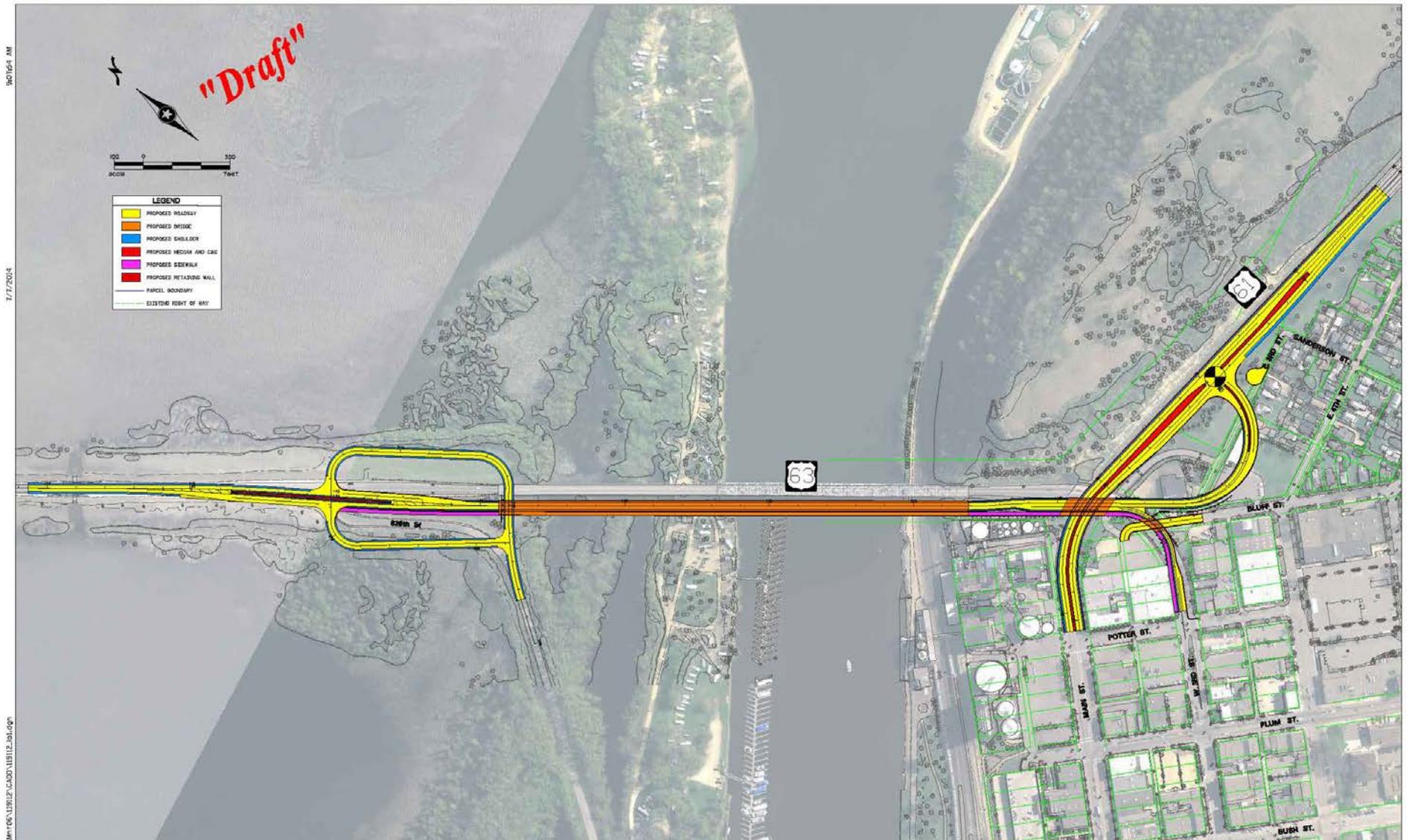


Recent Developments and Decisions: Minnesota Approach Alternatives

- MN-3 (Buttonhook) is the recommended alternative;
- Carry MN-3 into the EA process along with the No-Build Alternative



Recommended Improvements





Preliminary Design and Environmental Assessment



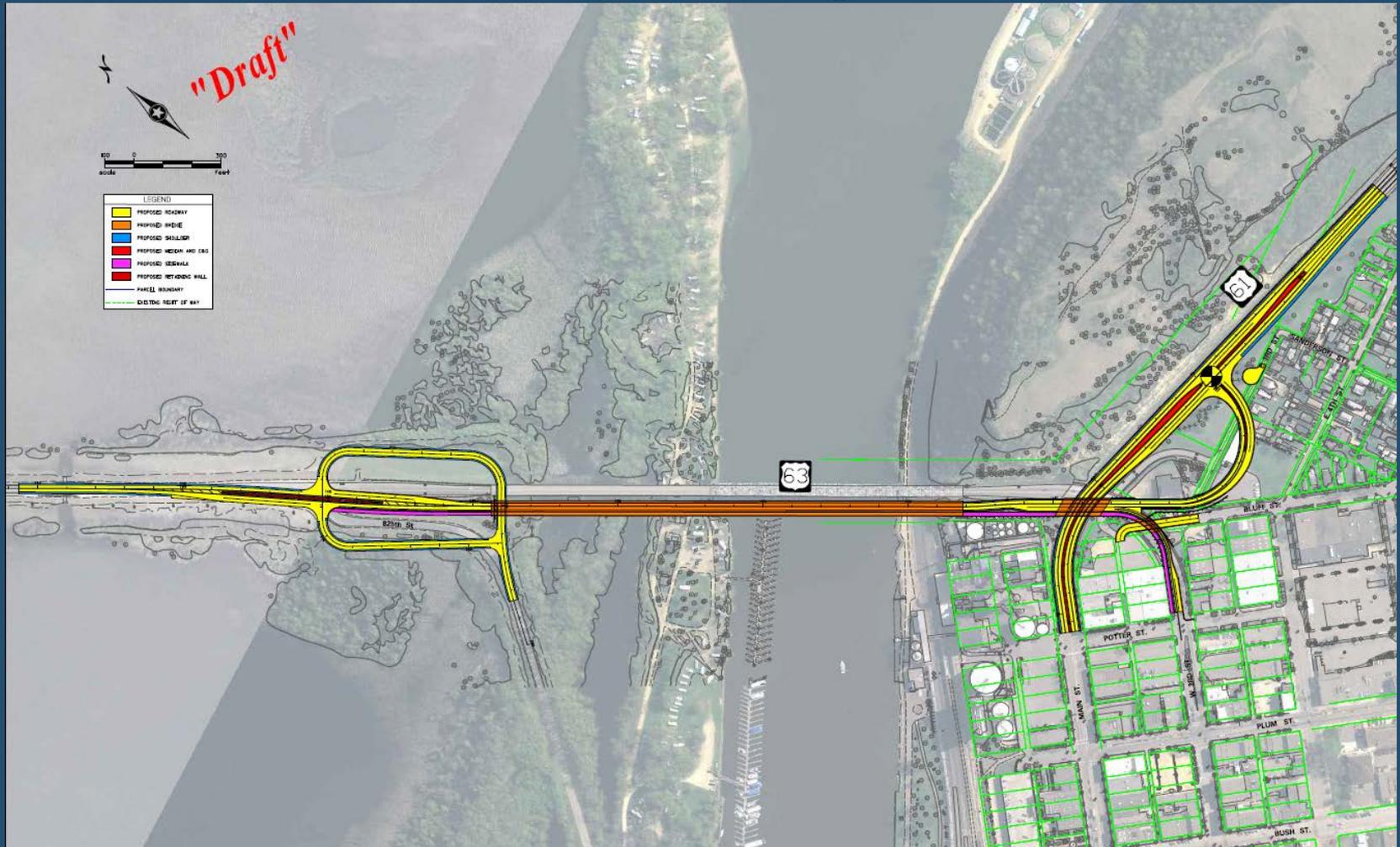


Environmental Assessment Update

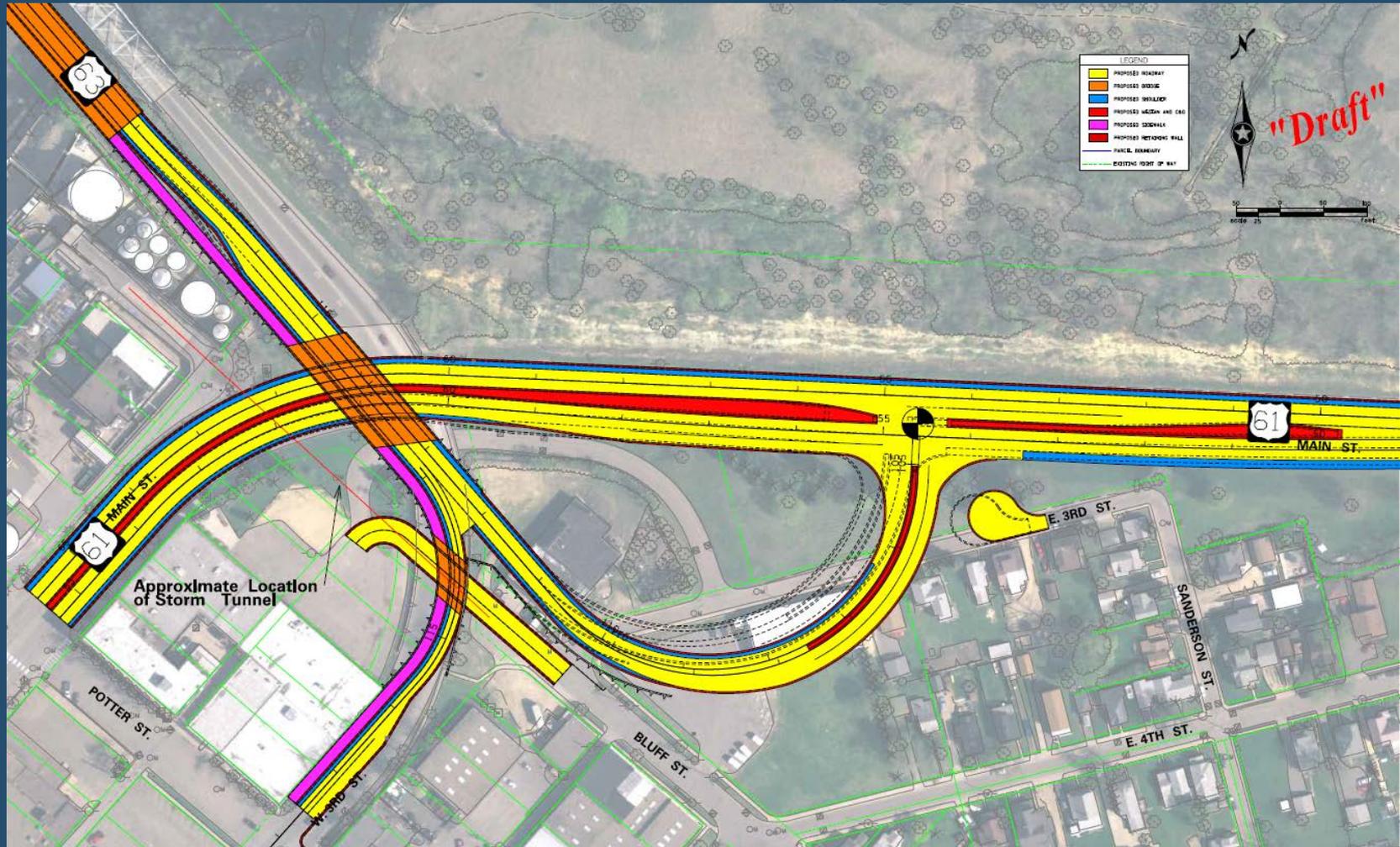
- Detailed impact assessment process addressing federal and state requirements;
- Will address the recommended and no-build alternatives;
- Considers full range of social, economic and natural environmental issues;
- Concludes with identification of preferred alternative to advance to detailed design and construction;
- Have initiated the technical studies.



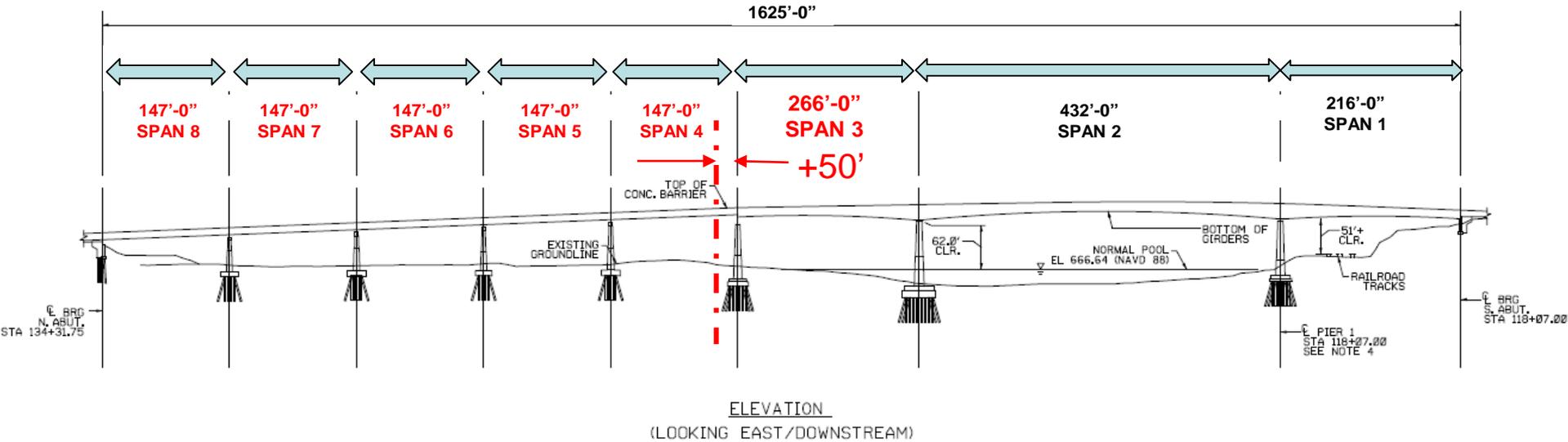
Preliminary Design Update



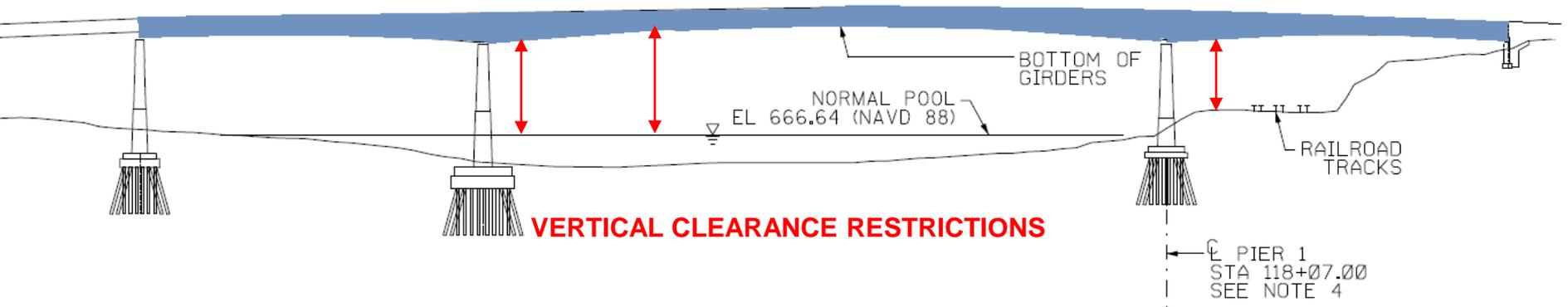
Preliminary Design Update



Preliminary Design Update



Preliminary Design Update





Ongoing Field Work

- Architectural History Report is complete;
- Archaeological Study Report is nearly complete;
- Site Contamination Investigations are underway;
- Foundations Drilling is upcoming.





Visual Quality Process

and the Visual Quality Advisory Committee





Visual Quality Advisory Committee

Goals, Roles & Responsibilities, Preliminary Schedule

Visual Quality Advisory Committee (VQAC)

A combination of staff and invited members that represent the Minnesota/Wisconsin River Crossing Community and make recommendations about the visual qualities of the Red Wing Bridge Project.

Visual Quality Process Goals

The goals of the Red Wing Bridge project visual quality planning process are to:

- Evaluate the surroundings (context) in which the project is located based upon historical, cultural, and economic attributes with particular attention to visual elements compatible with the surrounding area.
- Identify opportunities for development of a visually acceptable project.
- Implement a facilitated public process to incorporate the identified opportunities into the project.
- Document the process and results, including production of a Visual Quality Manual (VQM). The VQM will establish the visual quality design intent for the project as guidance to designers and contractors.





2014

APR MAY JUN JUL AUG SEP OCT NOV DEC

Red Wing Bridge Project

- Project Management Team (PMT) Meetings
- Policy/Technical Advisory Committee (PAC/TAC) Meetings
- Public Open Houses



Visual Quality Process & Schedule

Visual Quality Advisory Committee (VQAC) Meetings

8 approximately monthly meetings, including one design workshop scheduled in September.



Visual Impact Assessment

Photograph Existing Conditions, Define Context & Setting Designations, Identify Key Vantage Points, Discuss Mitigation and Enhancement Issues & Opportunities



Visual Quality Manual (VQM)

Develop Detailed Design of Project Components, Refine Visualizations, MnDOT/WisDOT VQM Coordination



VQM Approval & Wrap Up



DRAFT 7/15/2014



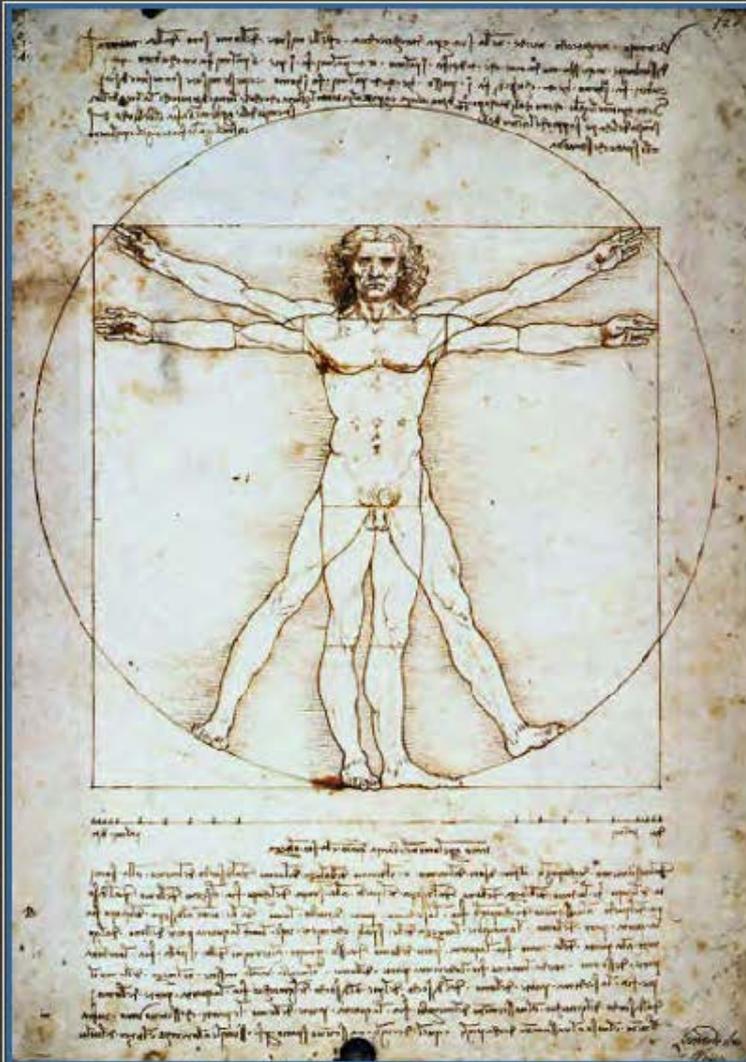


Bradley Touchstone

Bridge Architecture Presentation



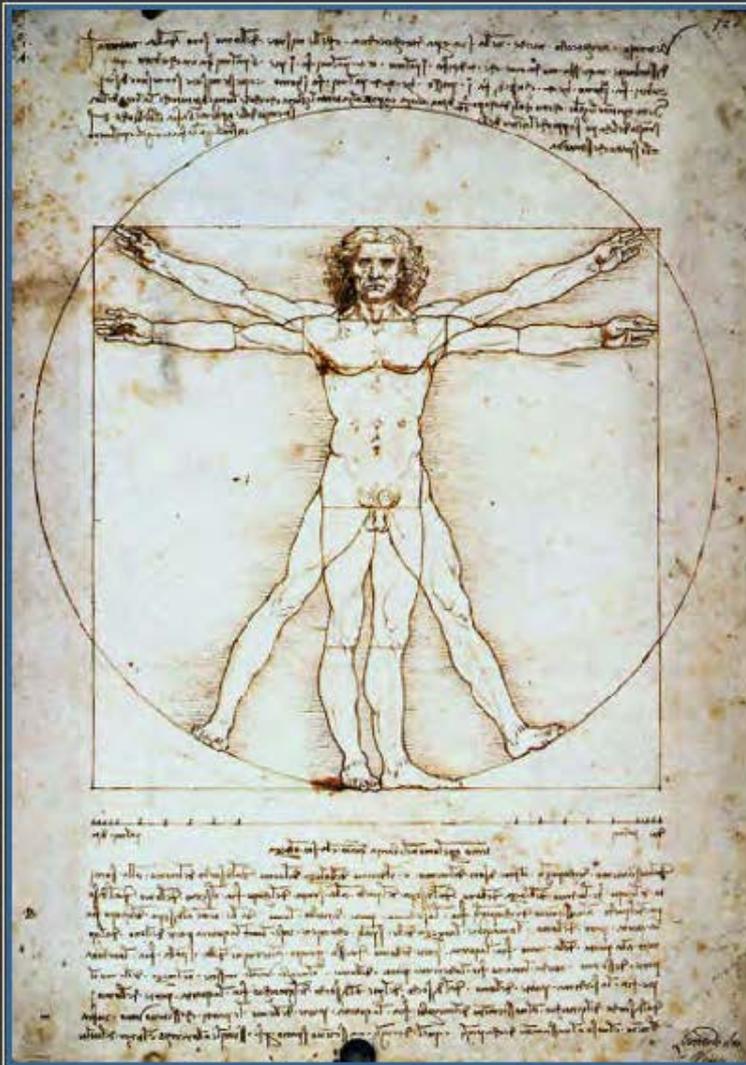




Discussion Topics.

- Design Philosophy
- Design Opportunities
- Introduction to Bridge Type
- Design Opportunities
- Next Steps

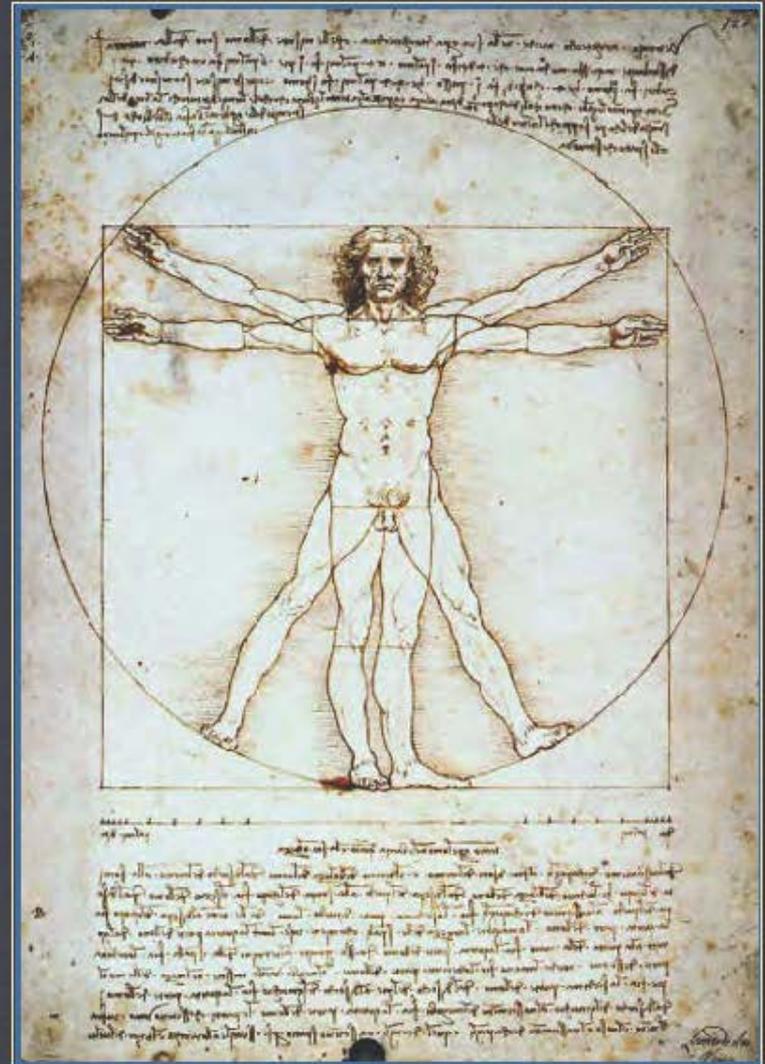
Design Philosophy

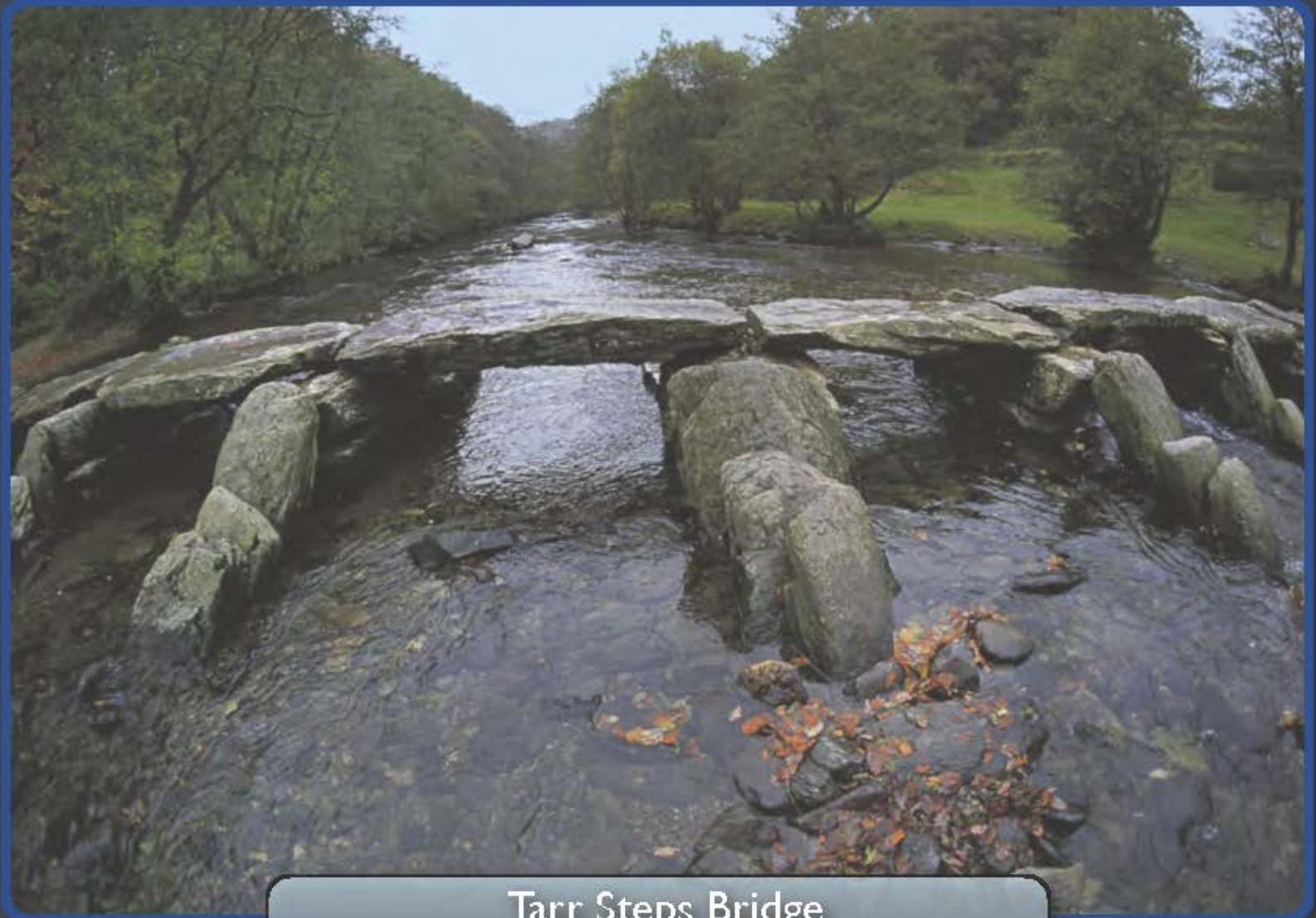


Marcus Vitruvius

ca. 40 b.c.

- Wrote *De Architectura* ("The Ten Books of Architecture") for the Emperor Augustus
- A Structure Must Exhibit
 - *Strength*
 - *Utility*
 - *Beauty*





Tarr Steps Bridge
Somerset County, England
Date: unknown (estimated 1000 B.C.)



Roman Aqueduct

Segovia, Italy

30 B.C.



Golden Gate Bridge

San Francisco, California

Date: 1937



Millau Viaduct

Tarn River Valley, France

Date: 2004

Prevailing Design Philosophy:



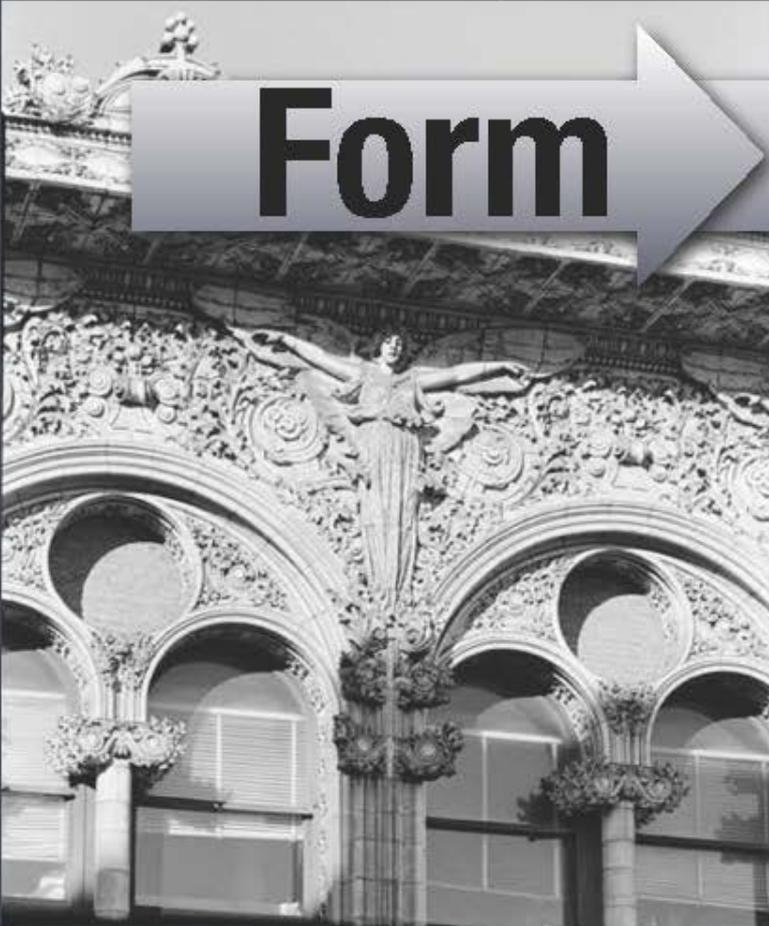
Form: Physical manifestation derived from available materials adapted to meet a specific need

Function: an assigned activity or duty (utility)

Prevailing Design Philosophy:

Form

Function



Louis Henri Sullivan



Prevailing Design Philosophy:

Form → **Function**



Form  **Function** 



Design Goals and Objectives:

Function



- Increase traffic efficiency
 - Cars
 - Bike/ Pedestrians
 - Trucks
- Enhance Safety

Design Goals and Objectives:



Form: Physical manifestation derived from available materials adapted to meet a specific need

Purpose: The object toward which one strives or for which something exists; goal; aim

Design Goals and Objectives:



Function

- Increase traffic efficiency
 - Cars
 - Bike/ Pedestrians
 - Trucks
- Enhance Safety

Design Goals and Objectives:

Purpose

Function

- Increase traffic efficiency
 - Cars
 - Bike/ Pedestrians
 - Trucks
- Enhance Safety
- Sustainability
- Iconic Form for the Community
- Context Sensitivity
- Enhanced User Experience

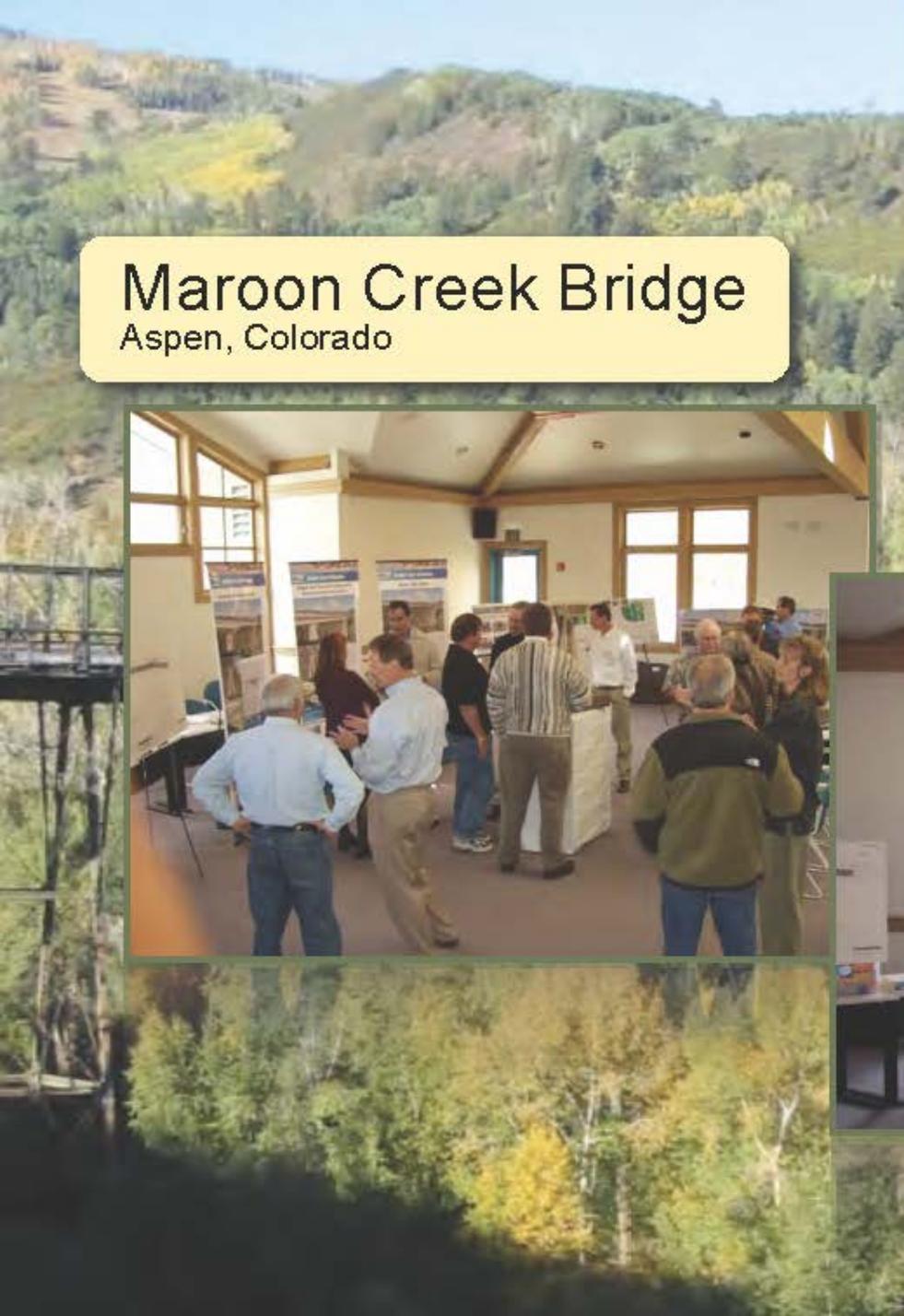




Maroon Creek Bridge
Aspen, Colorado

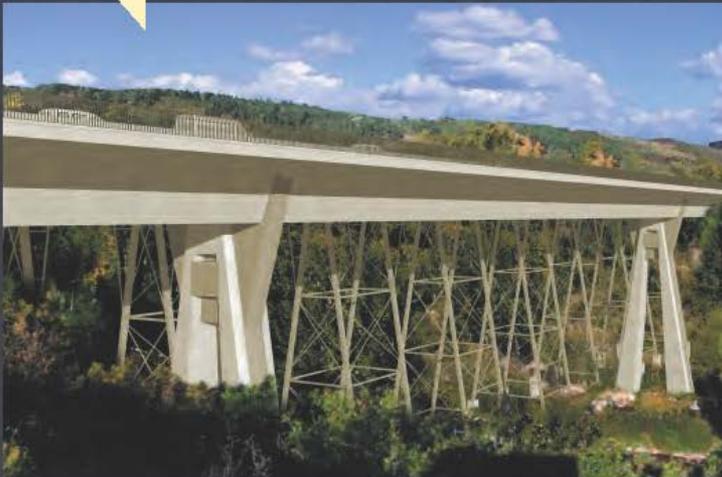
Maroon Creek Bridge

Aspen, Colorado

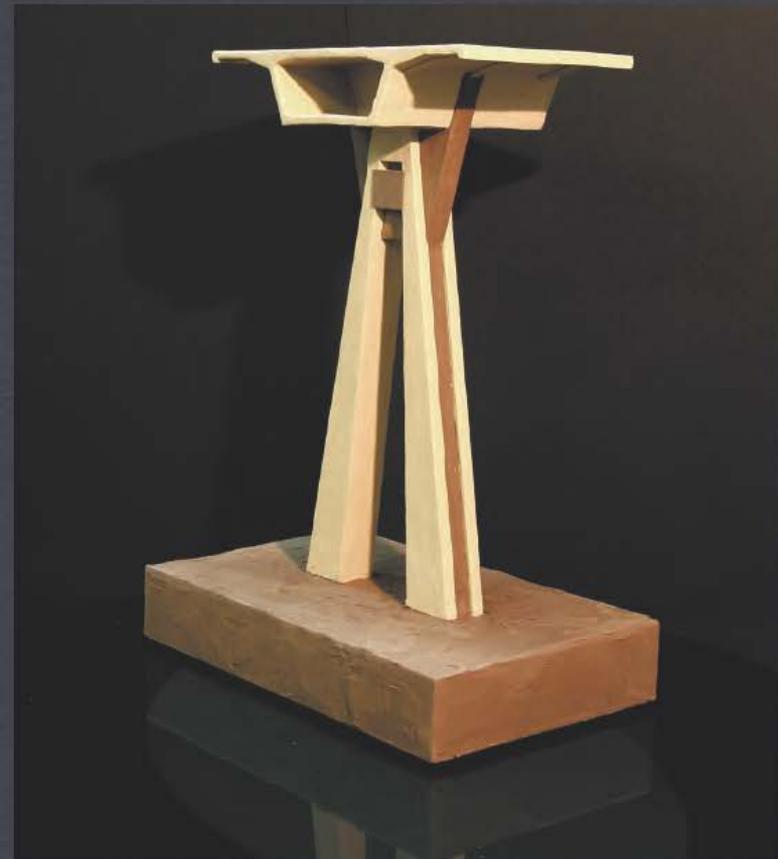


Maroon Creek Bridge

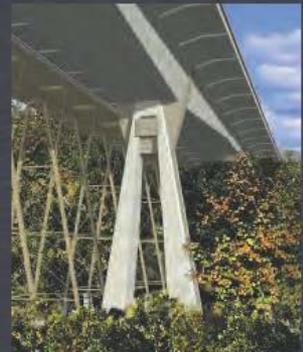
Aspen, Colorado



Constant Depth Concrete Box with "A" Frame Piers

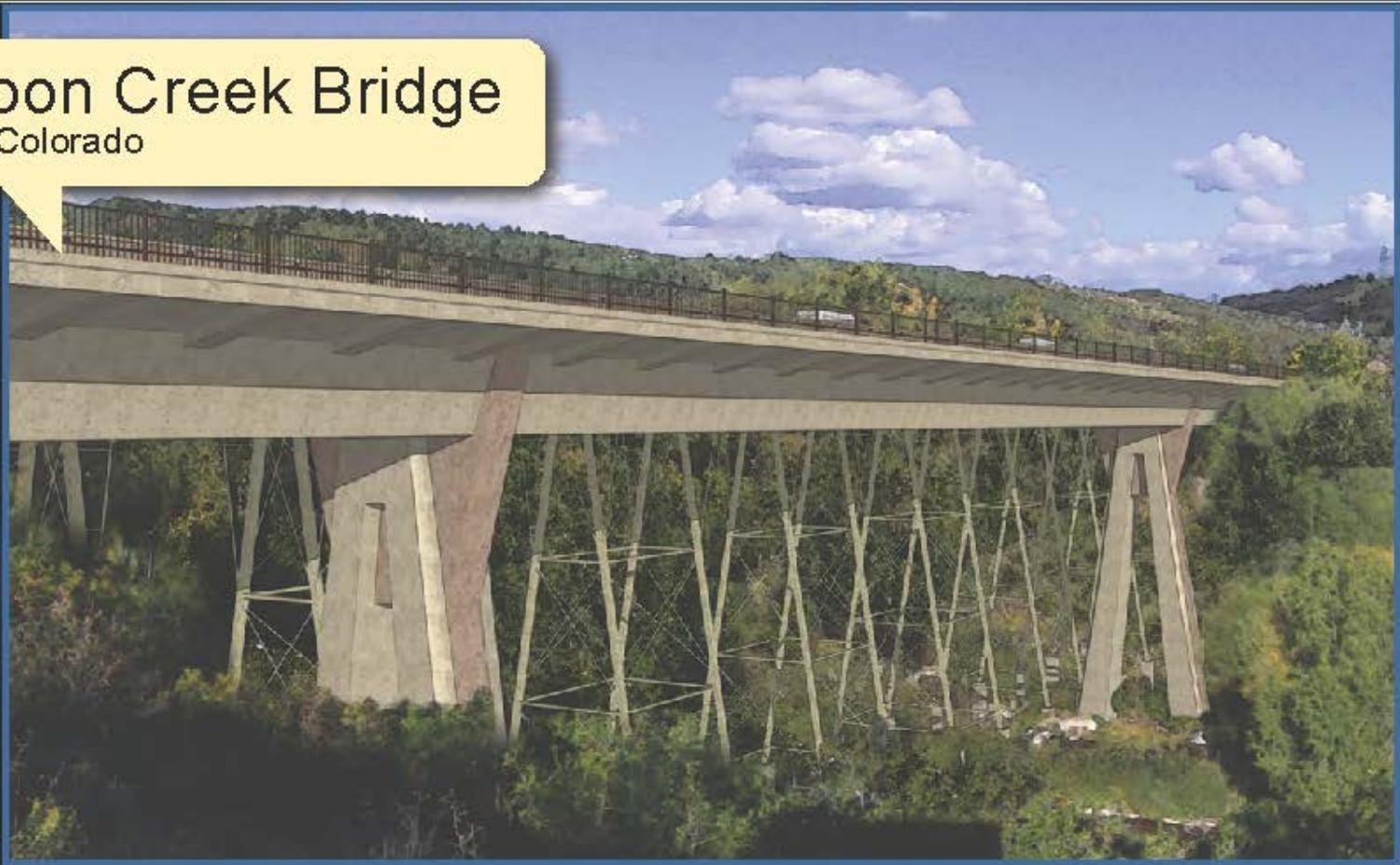


Physical Model of the Preferred Alternative



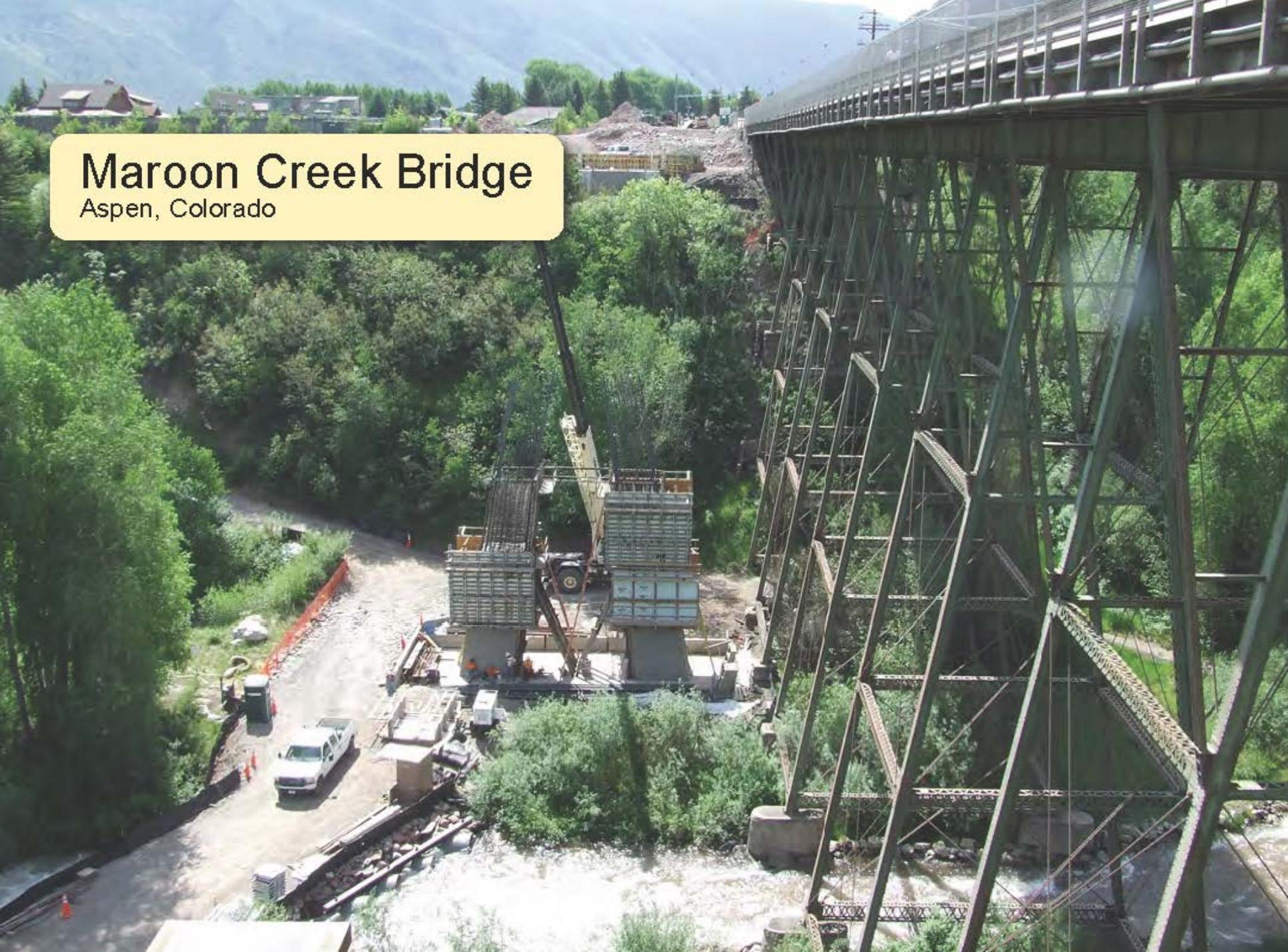
Maroon Creek Bridge

Aspen, Colorado



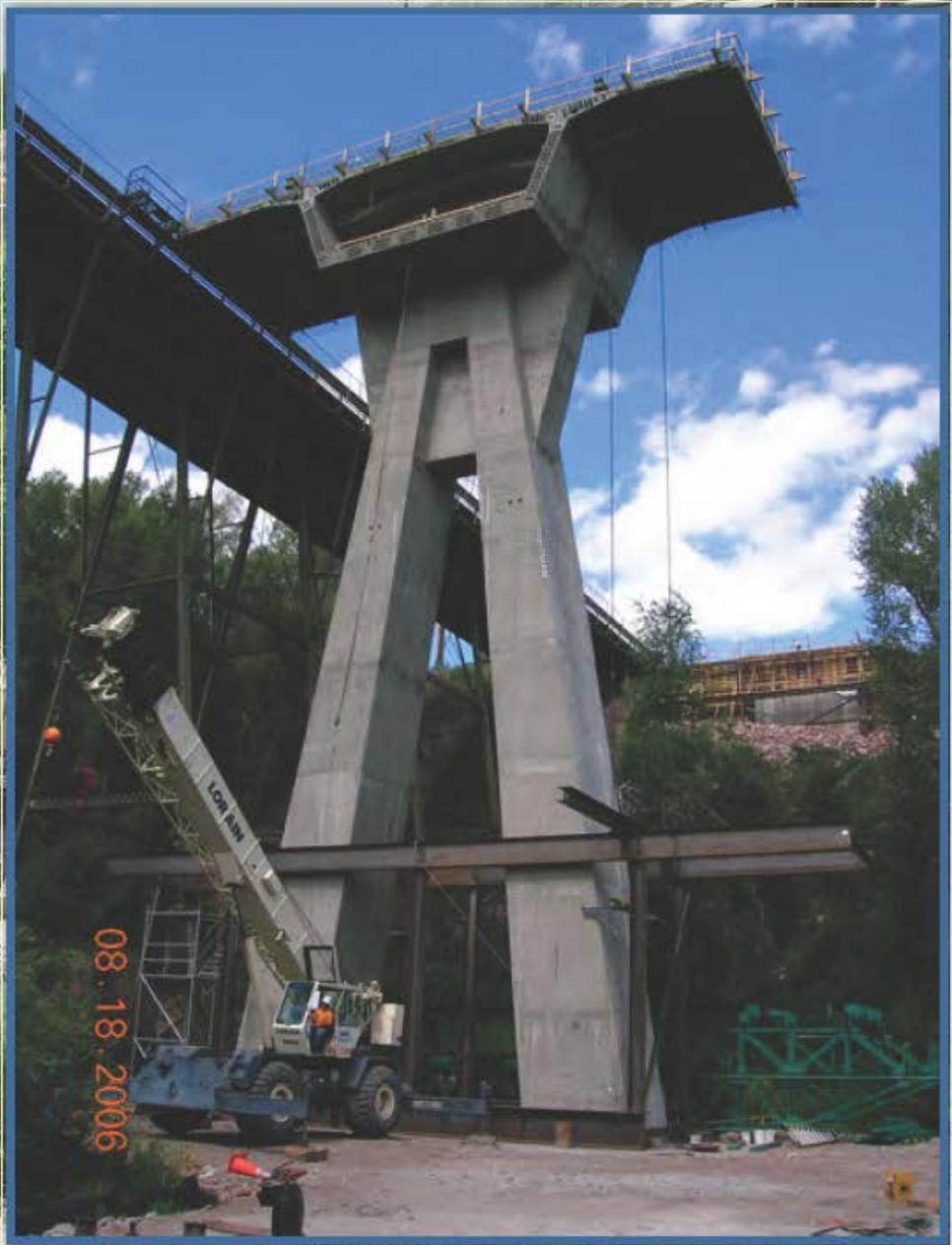
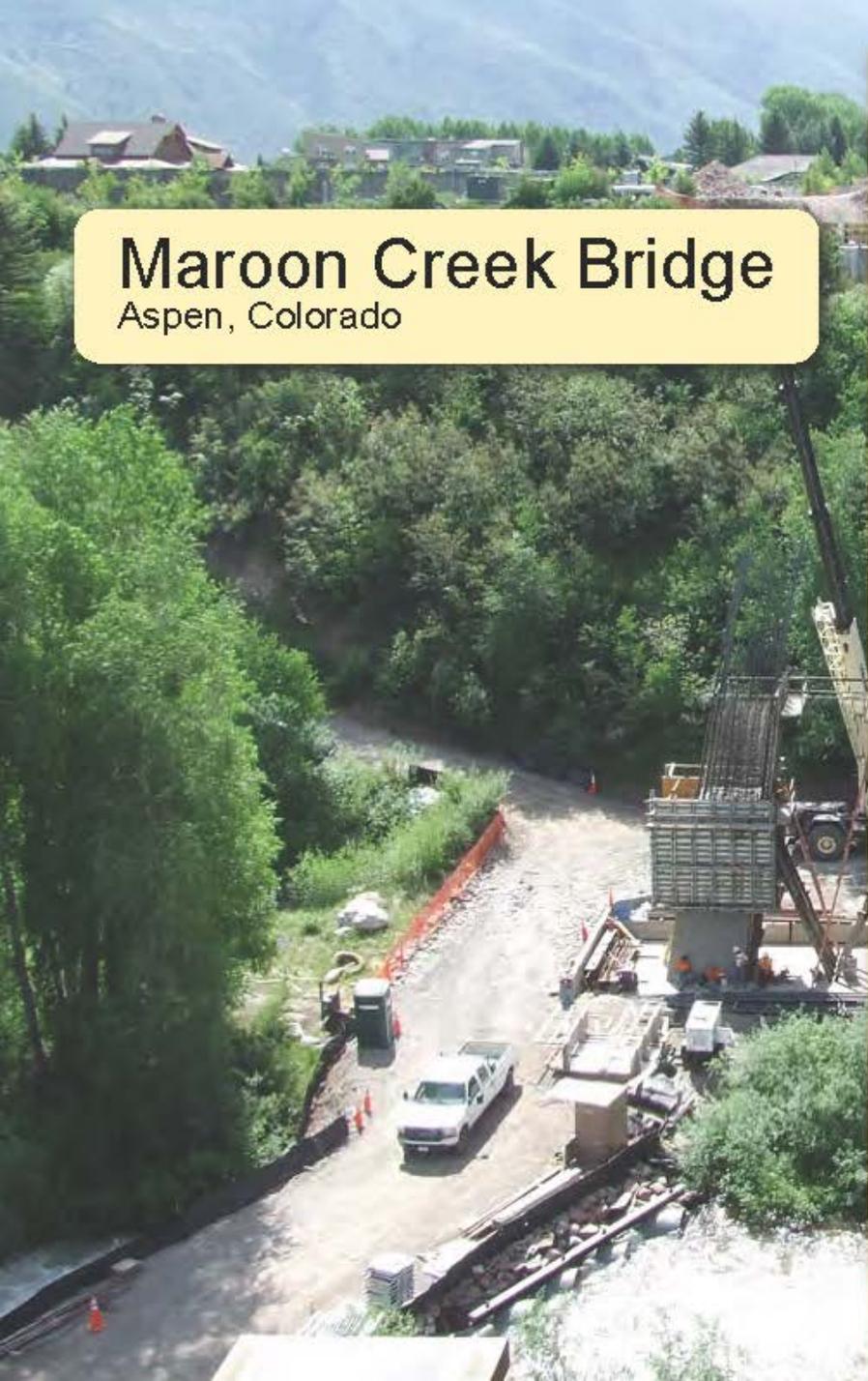
Maroon Creek Bridge

Aspen, Colorado



Maroon Creek Bridge

Aspen, Colorado



2nd Street Bridge

Austin, Texas



Hastings Bridge

Hastings, Minnesota



photo by: DRYoung

Hastings Bridge

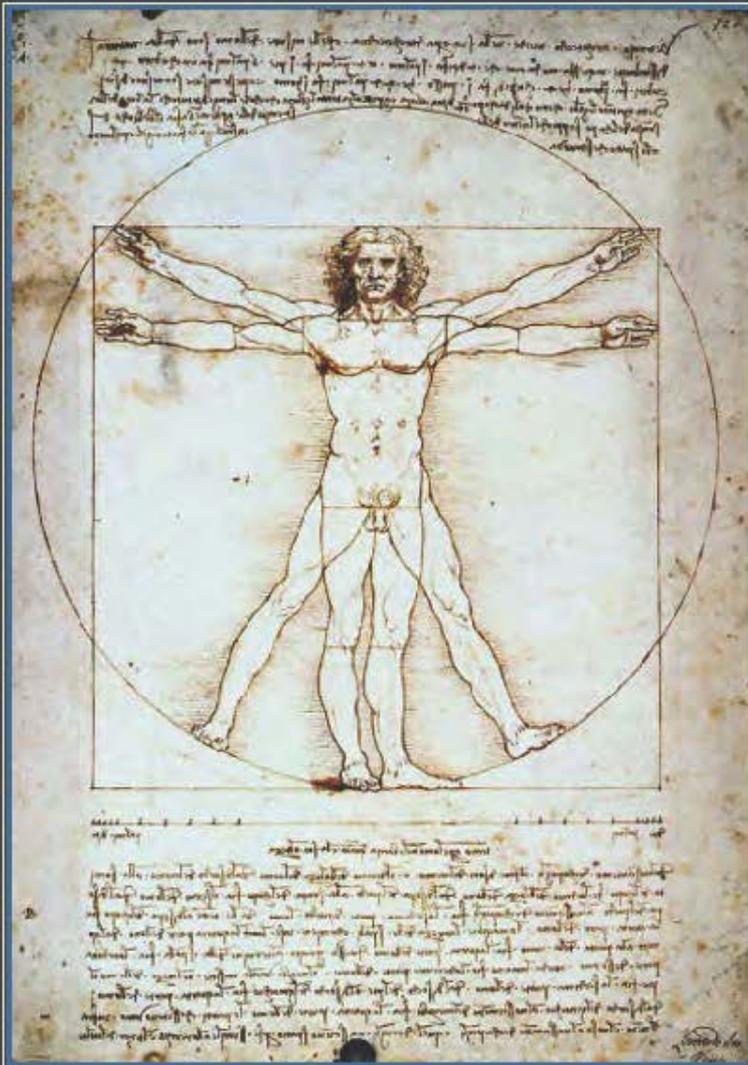
Hastings, Minnesota



Introduction to Bridge Type Steel Box Girder

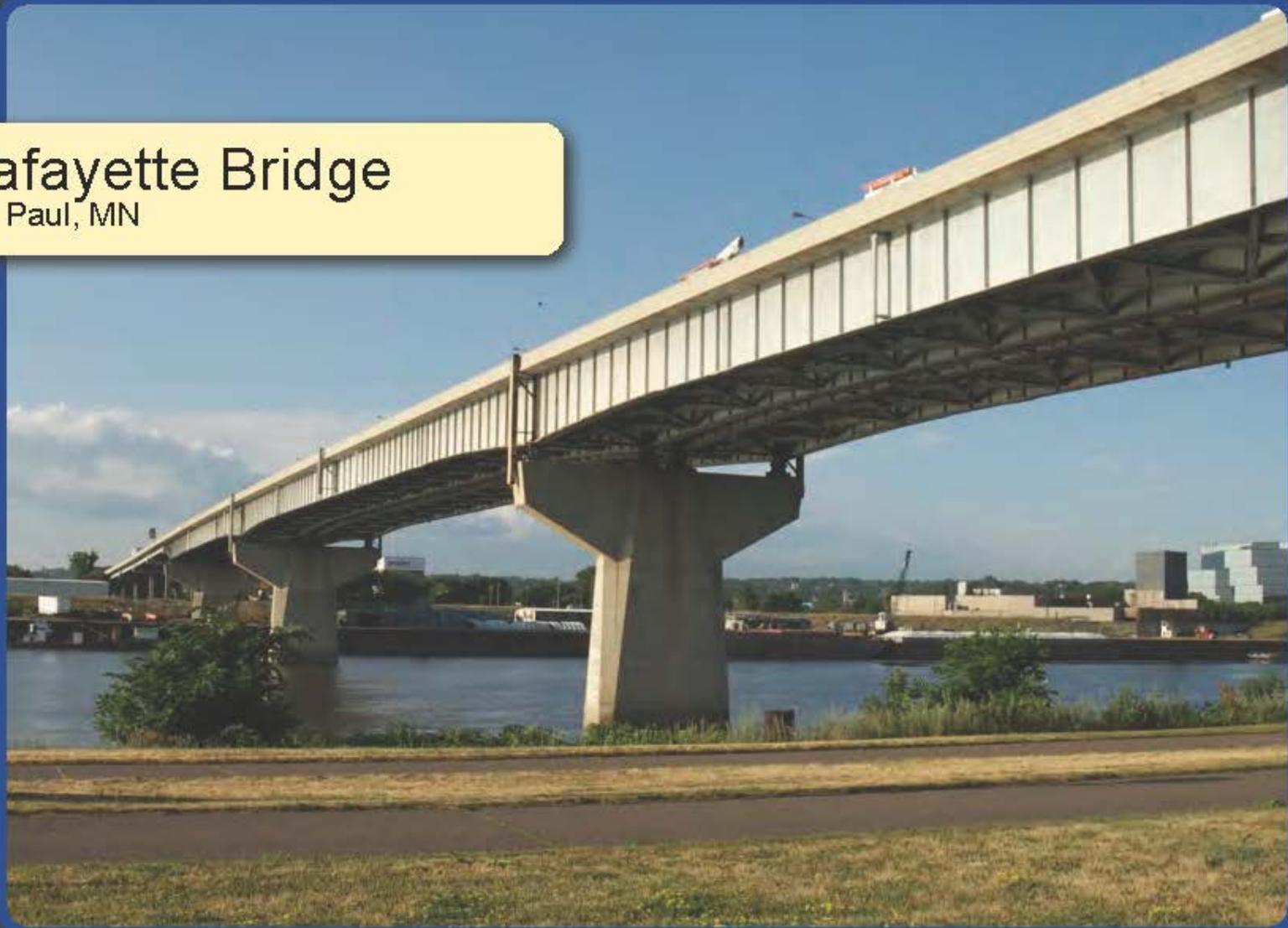


Introduction to Bridge Type Steel Box Girder



Lafayette Bridge

St. Paul, MN



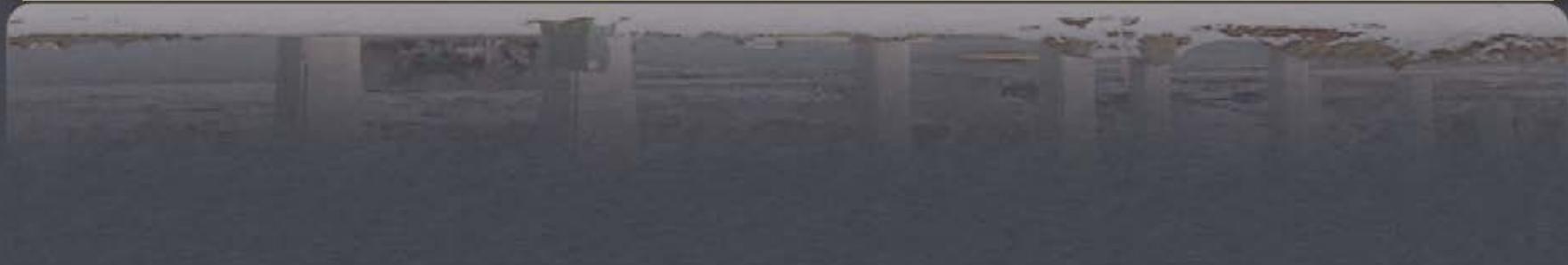
Lafayette Bridge

St. Paul, MN



Veterans Bridge

Bismark, North Dakota



I-49/ I-220 Interchange

Shreveport, LA



Steel Twin-Box Superstructure

Steel Twin-Box Superstructure

Design Opportunities Bridge Piers



Design Opportunities
Pedestrian Amenities



Design Opportunities
Pedestrian Amenities



Design Opportunities
Pedestrian Amenities



Design Opportunities Pedestrian Amenities



Design Opportunities
Pedestrian Amenities



Design Opportunities
Pedestrian Amenities



Design Opportunities Color

Blending with Hastings Urban Fabric



It is possible for a bridge of this magnitude to sit in quiet harmony with the historic downtown district. Inspired by the colors seen in buildings of downtown Hastings, the light tan and grey colors allow the structures to recede into the natural surroundings.

When viewed from the river, the bridge form is subtle and transparent, allowing the viewer to see the bridge without distracting from this historic river town.

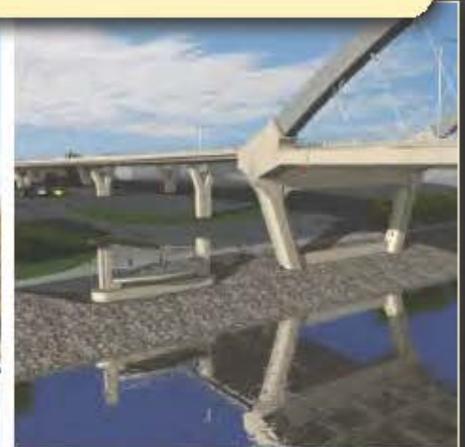
Motorists on the bridge will see the arch bridge in the context of the buildings along 2nd Ave. An immediate connection is created between the urban environment and the modern form of the new Hastings Bridge.



FED. I.D. 26480



FED. I.D. 37776



FED. I.D. 29881

FED. I.D. 31114

Design Opportunities Color

A BOLD FUTURE FOR HASTINGS



Hastings has always been a community centered on its bridges. This new bridge over the Mississippi River is the next step in a long history of significant bridge structures. The new bridge will be the longest free-standing arch rib in North America and will once again set Hastings apart.

This color scheme draws attention to the iconic form of the new bridge and makes a bold statement about the future of Hastings. The light tan superstructure and piers sits in harmony with the surrounding natural and built environment. The silver cables, light poles and pedestrian railing reinforce the modern theme for the bridge. This silver color assists the aesthetic lighting scheme by reflecting light from the linear LED system used to outline of the arch.

When approaching the downtown area, the bold blue color of the arch rib and the traffic rail presents the driver with an unmistakably modern form. The dark blue will stand out against the sky on sunny and overcast days. When traveling south, motorists on the bridge will see the courthouse building on the left side of the bridge, creating an interesting juxtaposition between the form of the new bridge and the historic architecture in downtown Hastings.



FED. I.D. 15090



FED. I.D. 37778



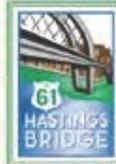
FED. I.D. 15090

FED. I.D. 37778

Design Opportunities Color

HASTINGS BRIDGE

BUILDING ON HASTINGS HISTORIC HERITAGE



The historic heritage color scheme for the bridge utilizes a tan color for the piers and superstructure of the bridge which blends well with the surrounding landscape and historic downtown district.

The cables, light poles and pedestrian railing are silver, blending with the sky. This color will also work very well with the aesthetic lighting scheme for the bridge by reflecting light from linear LED system illuminating the arch.

The arch, traffic rail and pier accents are finished in a terra cotta color that pays homage to the colors prevalent in the Courthouse building and the downtown district. This color occurs naturally in the indigenous building materials which were used to create many of the historic buildings in Hastings.

Traveling south on Highway 61 into downtown Hastings, the traveling public is presented with a unique free-standing arch

structure whose color stands in contrast with the sky above. Once on the bridge, motorists are presented with a direct view of the courthouse building and the connection between the bridge and the downtown community becomes apparent.

The result is a subtle blending with the historic district while also making a bold statement about the modern form of the bridge.

This is the preferred option of the design team Bridge Architect and Project Visual Quality Manager for the following reasons:

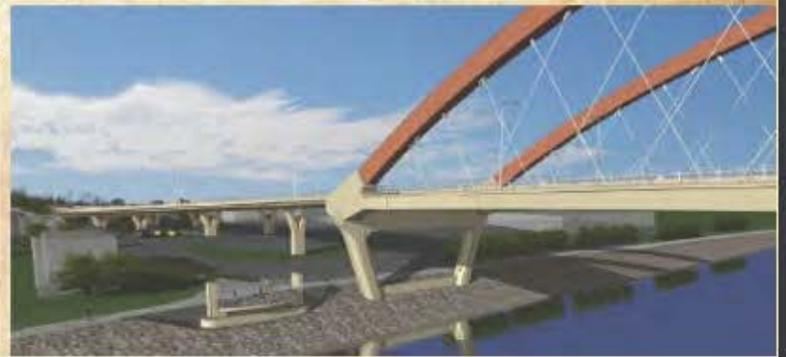
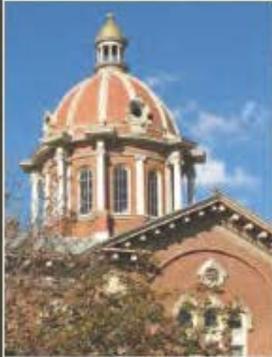
"This combination of colors achieves the goal Visual Quality Manual and will exceed the expectations of the community creating a truly unique landmark structure for Hastings."



PIED. L.D. 922%



PIED. L.D. 937%



Next Steps

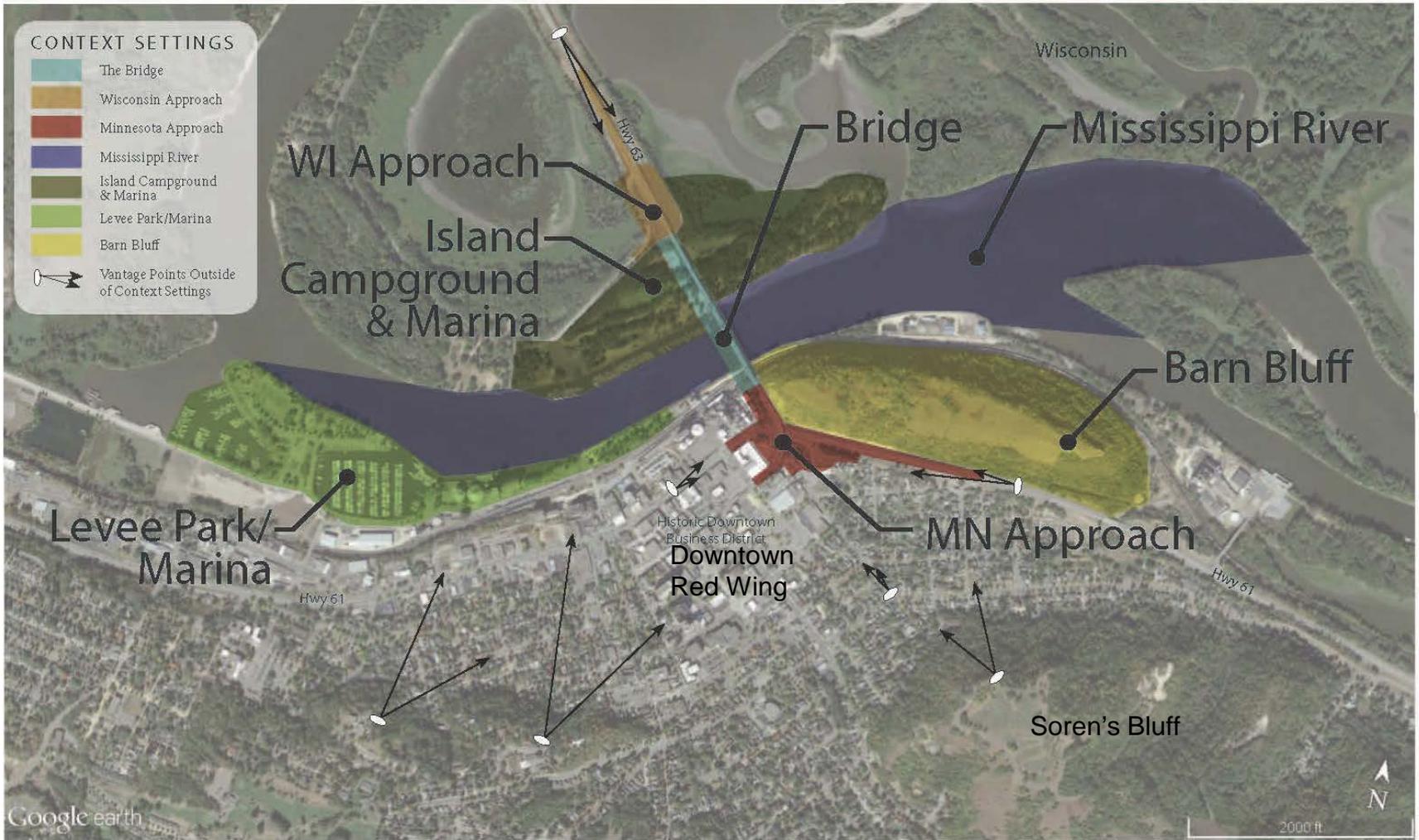


Red Wing Bridge Project

CONTEXT SETTINGS

EXISTING CONDITIONS PHOTOS

Context Settings



CONTEXT SETTINGS

THE BRIDGE





CONTEXT SETTINGS

THE MISSISSIPPI RIVER





CONTEXT SETTINGS

THE WISCONSIN APPROACH







CONTEXT SETTINGS

ISLAND CAMPGROUND
& MARINA







CONTEXT SETTINGS

THE MINNESOTA APPROACH





CONTEXT SETTINGS

LEVEE PARK
& MARINA





GNWR
410076

571 WHEEL
23 00 05
2 10 05 A
SWEET

CONTEXT SETTINGS

BARN BLUFF





CONTEXT

DOWNTOWN RED WING



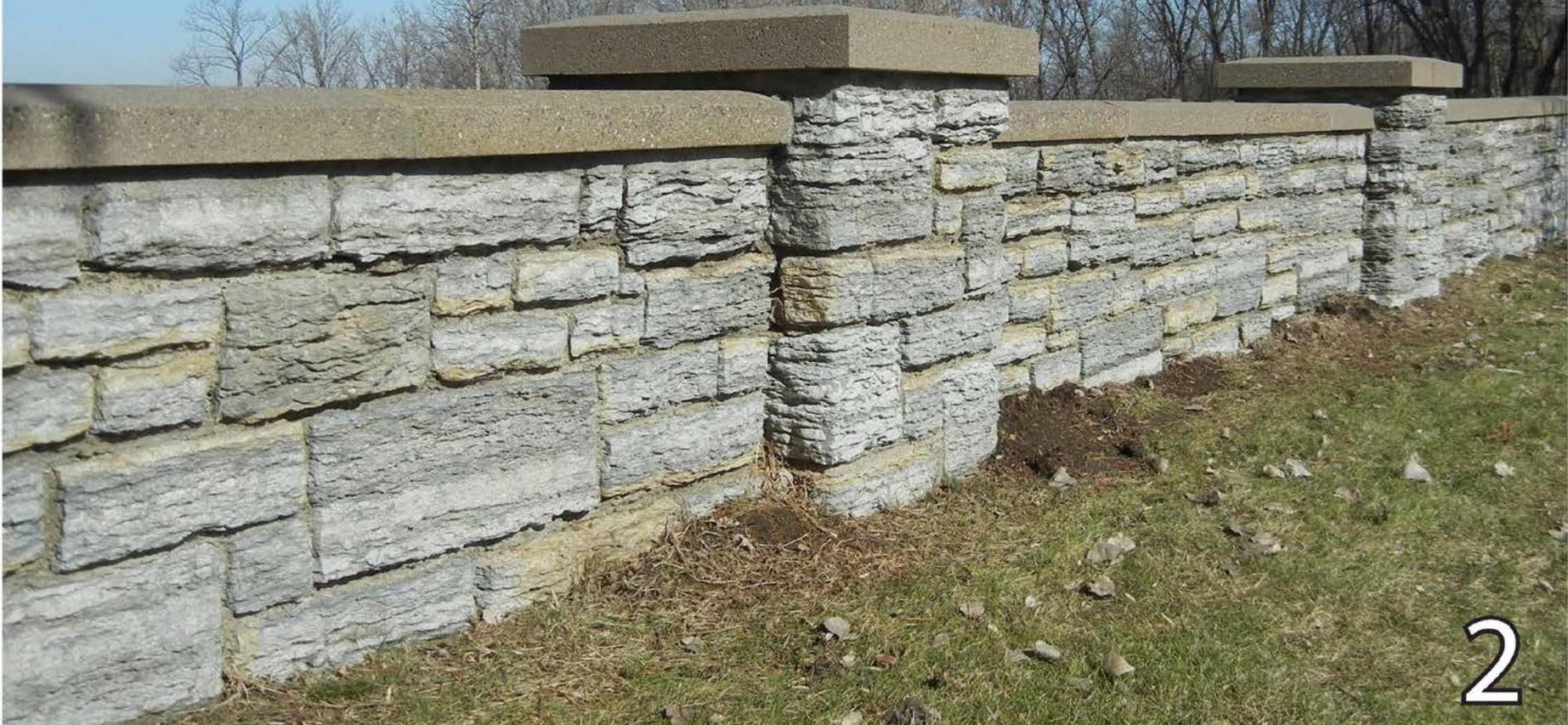


Red Wing Bridge Project

VISUAL PREFERENCE SURVEY

RESULTS!

10



2



9

3



3

30
35
40
45
50
55

32



2

58

7



8



69

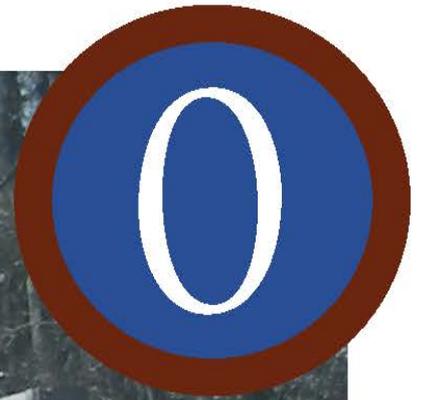
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24



10



31



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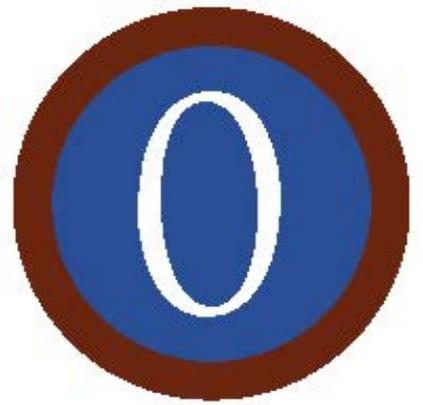


57

10



44



60



78



4

25









10

11

4



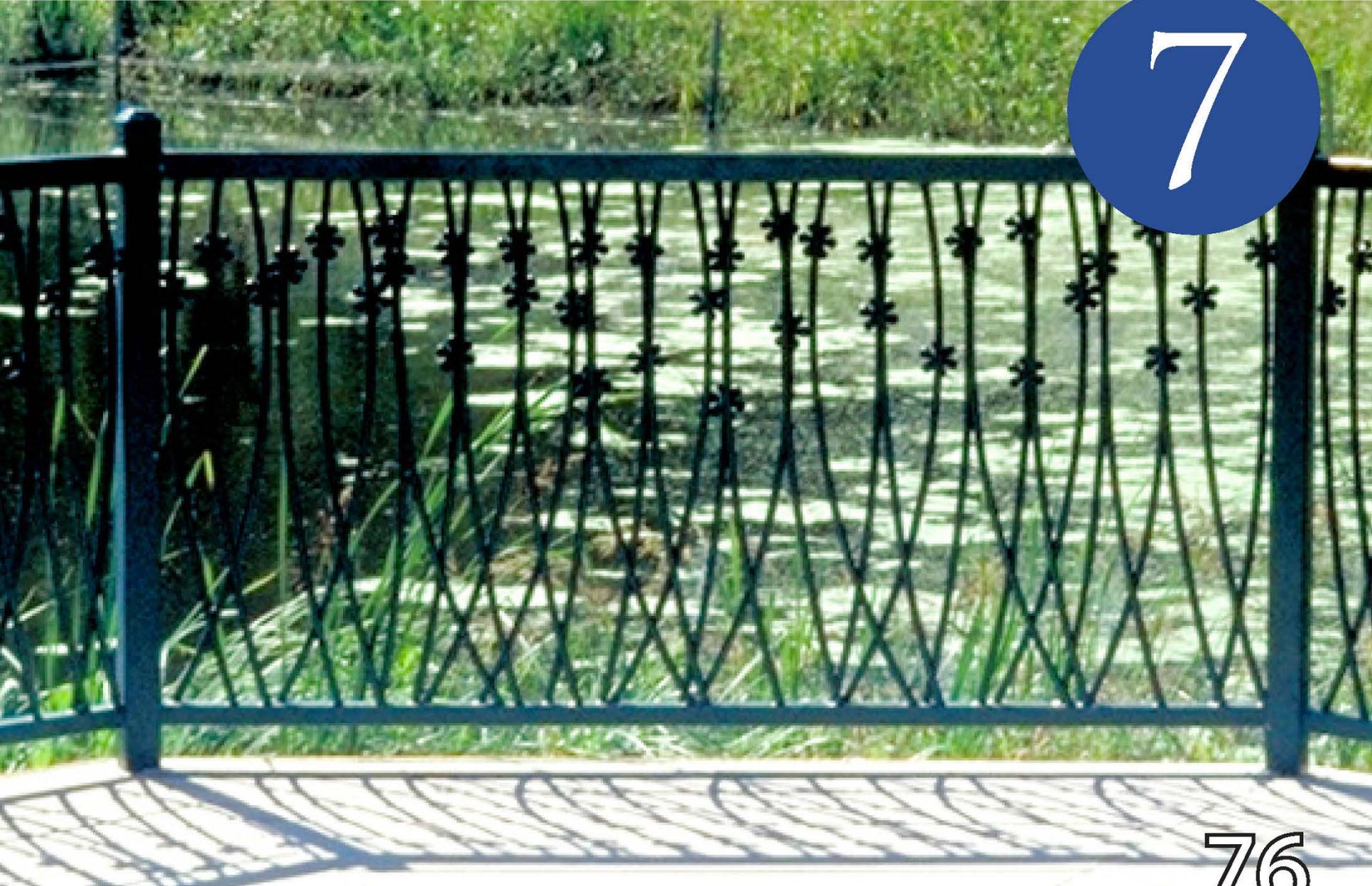
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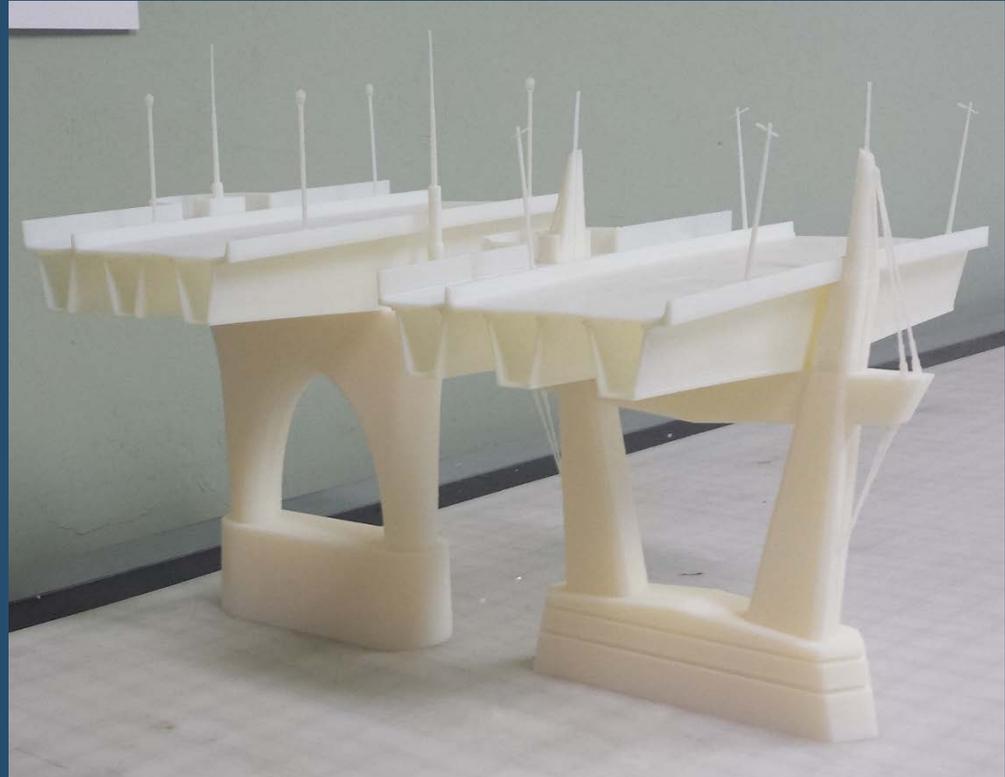


Preliminary Visualizations



Pier Design Concepts

- Two alternatives with elements discussed during previous meetings
 - Arch forms
 - Stone textures
 - Overlooks
 - Portal monuments
 - Enhanced roadway lighting



Option "A"



Option "A"



Option "A"



Option "A"



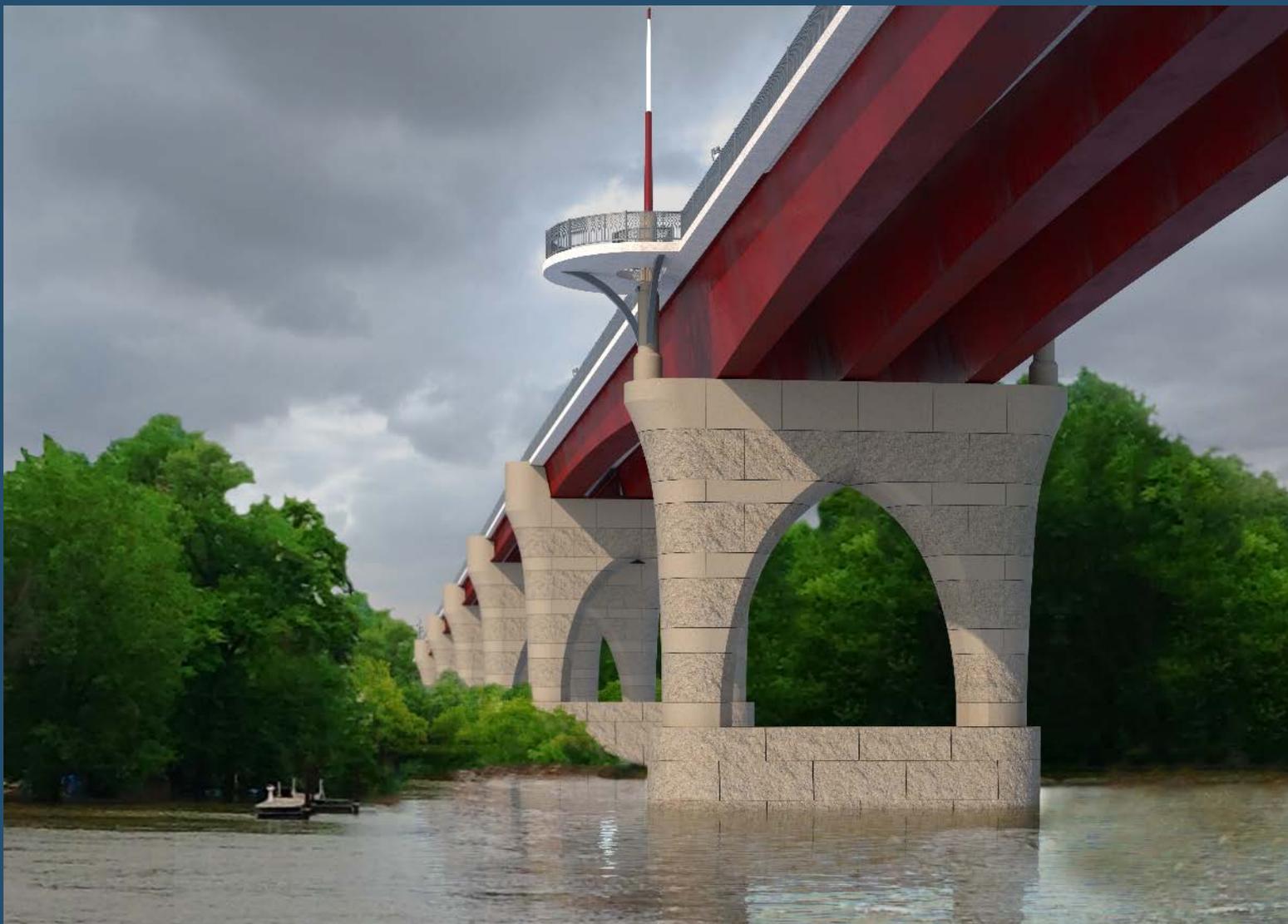
Option "A"



Option "B"



Option "B"



Option "B"



Option "B"

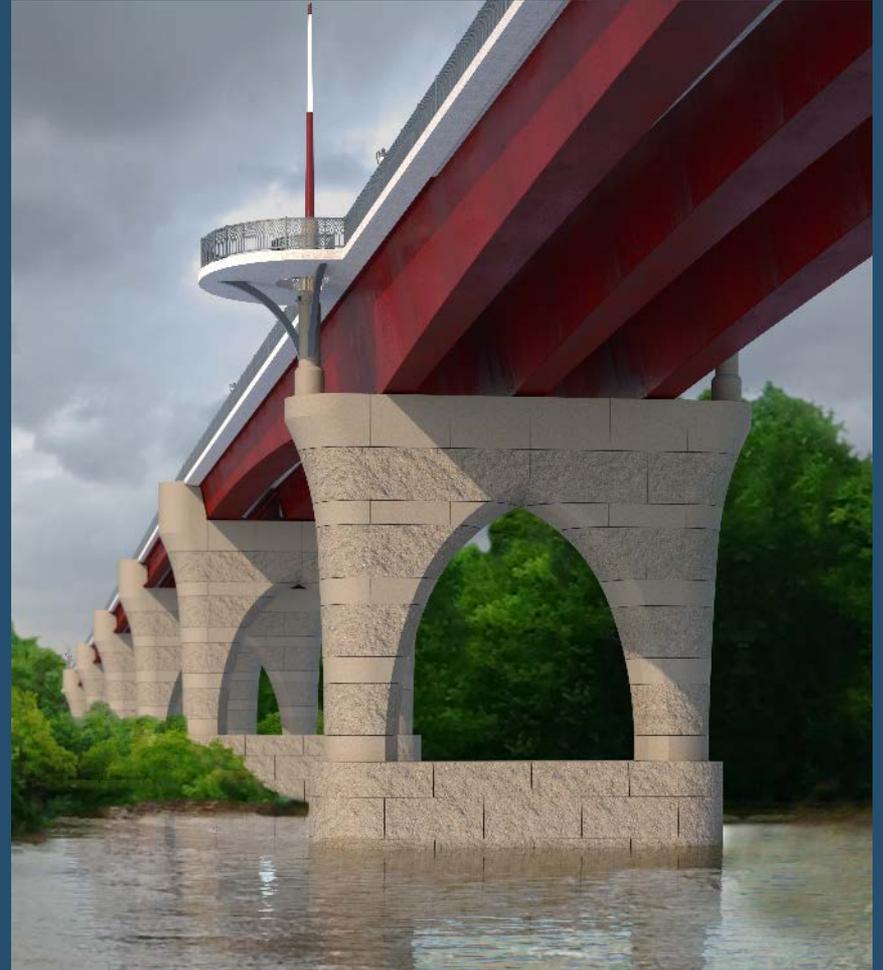


Option "B"





Option "A"



Option "B"





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VQM Approval & Wrap Up



DRAFT 7/15/2014





Public Outreach Update

- Listening Session #5 – May 2014
- Open House #3
 - September 3, 2014
 - 4:30 p.m. to 6:30 p.m.
 - Red Wing Library
 - SPREAD THE WORD!
- Newsletter #3 – to be issued in August
- Project Presentation Opportunities
- Website: <http://www.dot.state.mn.us/d6/projects/redwing-bridge/index.html>





Next Meeting

- PAC 9/TAC #12:
 - September 18th
 - 1:00 p.m. to 3:00 p.m.
 - Red Wing Library





Questions / Comments



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