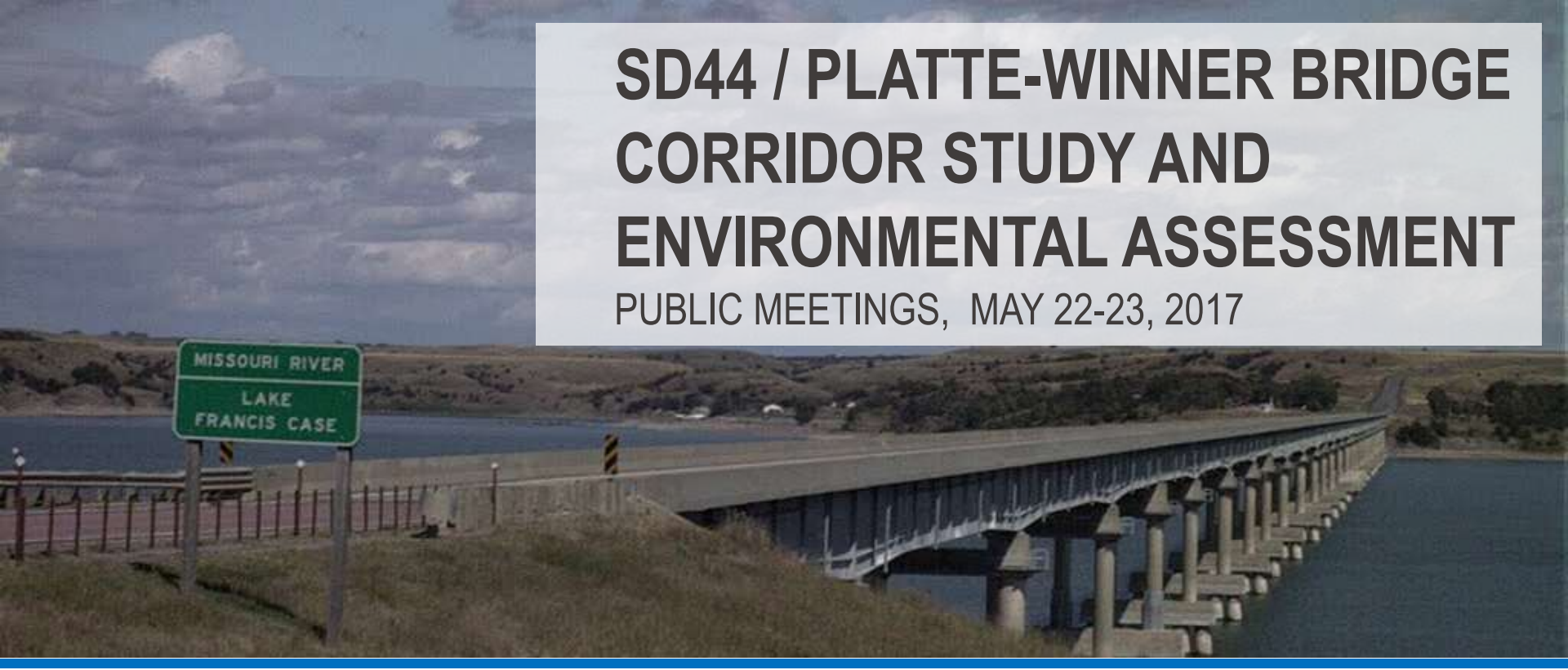
SD44 / PLATTE-WINNER BRIDGE CORRIDOR STUDY AND ENVIRONMENTAL ASSESSMENT

PUBLIC MEETINGS, MAY 22-23, 2017



South Dakota DOT

South Dakota Game, Fish & Parks

U.S. Department of Transportation Federal Highway Administration

HRGreen

Modjeski and Masters

Braun Intertec

Archeology Laboratory (Augustana)

PRESENTATION OVERVIEW

1) Study Team
2) Bridge/Corridor History
3) Project Objectives
4) Bridge and Roadway Process
5) Environmental Process
6) Public Input

INTRODUCTIONS – STUDY ADVISORY TEAM

STUDY ADVISORY TEAM	
Marion Barber – FHWA	Jay Larson – SDDOT
Paul Coughlin - SDGFP	Tom Lehmkuhl – SDDOT
Travor Diegel – SDDOT	Al Nedved - SDGFP
Steve Gramm – SDDOT	Jay Peppel – SDDOT
Kevin Griese – SDDOT	Claire Peschong – SDDOT
Marc Hoelscher – FHWA	Brian Raecke – SDDOT
Mark Hoines – FHWA	Jay Tople - SDDOT
Steve Johnson – SDDOT	

INTRODUCTIONS – CONSULTANT TEAM

- HR Green
  - Offices in Sioux Falls, Saint Paul, Saint Louis
- Tim Thoreen – Project Manager
- Jon Wiegand – Traffic and Roadway Task Lead
- Kevin Brehm – Bridge Task Lead

INTRODUCTIONS – SUBCONSULTANT PARTNERS

- Summit Engineering Group
  - Bridge Engineering
- Braun Intertec
  - Geotechnical Recommendations
- Archeology Laboratory at Augustana University
  - Cultural Resources Studies

PROJECT CORRIDOR/BRIDGE HISTORY

- Bridge opened to traffic in 1966
- 1997 – major repairs on two piers required closure of the bridge for approximately 4 months (including an extensive detour, approx. 85 miles)

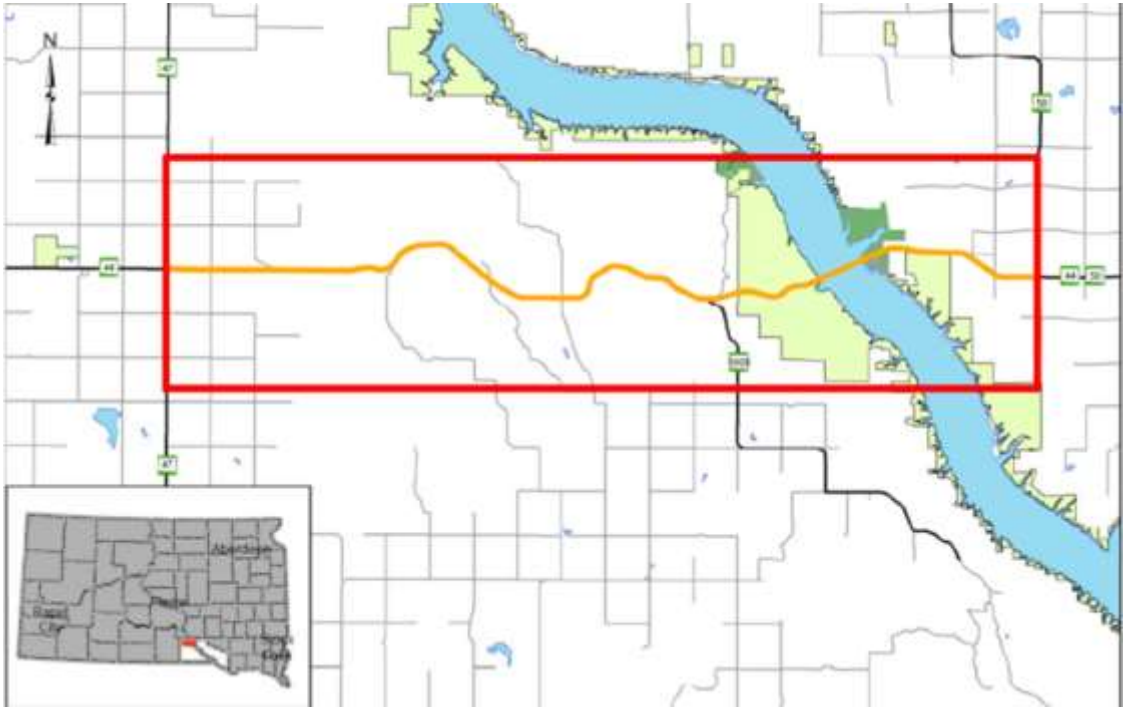
PROJECT CORRIDOR/BRIDGE HISTORY

- 2016 SDDOT study of major bridges identified the SD44 Bridge as a top priority for replacement in the next decade
- The SD44 corridor has experienced multiple landslides requiring significant costs for repair

STUDY EXPECTATIONS AND OBJECTIVES

- Complete a **bridge location and type study** for a new long-term (100+ years) bridge
- Complete the **environmental process** necessary to advance the project into final design
- Conduct **traffic studies** to evaluate safety and operations of the roadway today and in the future

STUDY AREA – OVERVIEW



BRIDGE STUDY OBJECTIVES

- Bridge replacement options that:
  - Provide long-term (100+ years) service life
  - Maintain crossing during construction
  - Maintain river navigation during construction
  - Avoid, if possible, impacts to buildings (notably at Snake Creek Recreation Area)
- Coordinate with USCG and USACE regarding bridge removal and project permitting

ENVIRONMENTAL STUDY OBJECTIVES

- Prepare an Environmental Assessment (EA) to determine a preferred alternative for project design phase
- Conduct a public involvement program as part of decision-making
    - Public Information Meetings (3)
    - Agency Coordination
    - Web Site (www.sd44bridge.com)

TRAFFIC / ROADWAY STUDY OBJECTIVES

- Complete a safety analysis of highway corridor
- Identify locations on the corridor that are not in compliance with current design standards
- Consider geotechnical conditions in SD44 corridor as part of roadway maintenance
- Evaluate roadway improvements associated with new bridge location

BRIDGE PROCESS AND FINDINGS

Scoping Initial Findings

- Deep foundations in the river (>200 feet to bedrock)
- Existing crossing location is about optimal for length
- Cannot repair existing bridge or replace in same location and meet project objectives

Alternatives Implications

- Several major bridge types offer long spans to limit the number of piers
- Some are more feasible for this location (see next slides)
- The replacement bridge will be in a new location yet to be determined

MAJOR BRIDGE TYPE – GIRDER/SLAB

Features

- Common bridge type (including existing SD44 bridge)
- Span length: 100’ to 450’
- Conventional construction
- Preliminary Recommendation: Feasible Bridge Type

MAJOR BRIDGE TYPE – SEGMENTAL

Features

- Concrete bridge
- Span length: 100’ to 650’
- Comparatively expensive construction – has been used in North Dakota
- Preliminary Recommendation: Feasible Bridge Type

MAJOR BRIDGE TYPE – ARCH

Features

- Above-deck arch is visually identifiable
- Span length: 200’ to 700’
- Expensive and complex construction
- Preliminary Recommendation: Not Feasible Bridge Type for this study area

MAJOR BRIDGE TYPE – TRUSS

Features

- Boxy aesthetic and roadway clearance
- Span length: 400’ to 800’
- Labor intensive construction = expensive total cost
- Preliminary Recommendation: Not Feasible Bridge Type for this study area

MAJOR BRIDGE TYPE – CABLE STAY

Features

- Tall towers may be out of place in project setting
- Span length: 500’ to 1,200’
- Specialized construction = expensive total cost
- Preliminary Recommendation: Not Feasible Bridge Type for this study area

MAJOR BRIDGE TYPE – SUSPENSION

Features

- Tall towers may be out of place in project setting
- Span length: 1,000’ to 4,000’
- Specialized construction = expensive total cost
- Preliminary Recommendation: Not Feasible Bridge Type for this study area

ROADWAY PROCESS AND FINDINGS

Scoping Initial Findings

- Average traffic volumes suggest no long-term issues
- Geotechnical environment makes roadway realignment a challenge with long-term maintenance issues
- Recent crash history in corridor is mostly wild animal collisions or single-vehicle crashes

Alternatives Implications

- Alternative location would have limited traffic benefits versus current
- Existing alignment has been stabilized to the greatest extent possible
- New roadway alignments will have geotechnical challenges
- Alternative roadway location impacts bridge length (i.e. cost)

ROADWAY ISSUES

Geotechnical Conditions

- Challenging soils and steep slopes represent severe constraints on construction of a stable new roadway alignment
- Repairs on existing roadway have substantially reduced landslides on SD44 in recent years

ROADWAY ISSUES

Traffic Volumes

- Less than 900 vehicles/day cross the bridge in 2017
- Forecast for 1,400 vehicles/day in 2050
- No concerns about long-term capacity of SD44 corridor

Crash History (2012-2016)

- More than half of reported crashes were animal collisions
- Majority of other crashes were single-car type
- One (single-car) crash at an intersection

ENVIRONMENTAL ISSUES

Recreational Resources

- Snake Creek Recreation Area notable among other parks and resources (State Parks and Wildlife Resource Areas)
- Section 4(f) protections require close coordination with resource owner (SDGFP) and FHWA regarding impact avoidance

ENVIRONMENTAL ASSESSMENT PROCESS

Scoping - Initial Efforts

- Agency/Tribal outreach
- Public involvement marks key transition point
- Develop Purpose and Need Statement
- Develop Alternatives

Environmental Considerations

- Recreational Resources
- Section 4(f)/6(f) Properties
- Cultural Resources
- Wetlands/Water Resources
- Social and Economic Resources
- Geotechnical

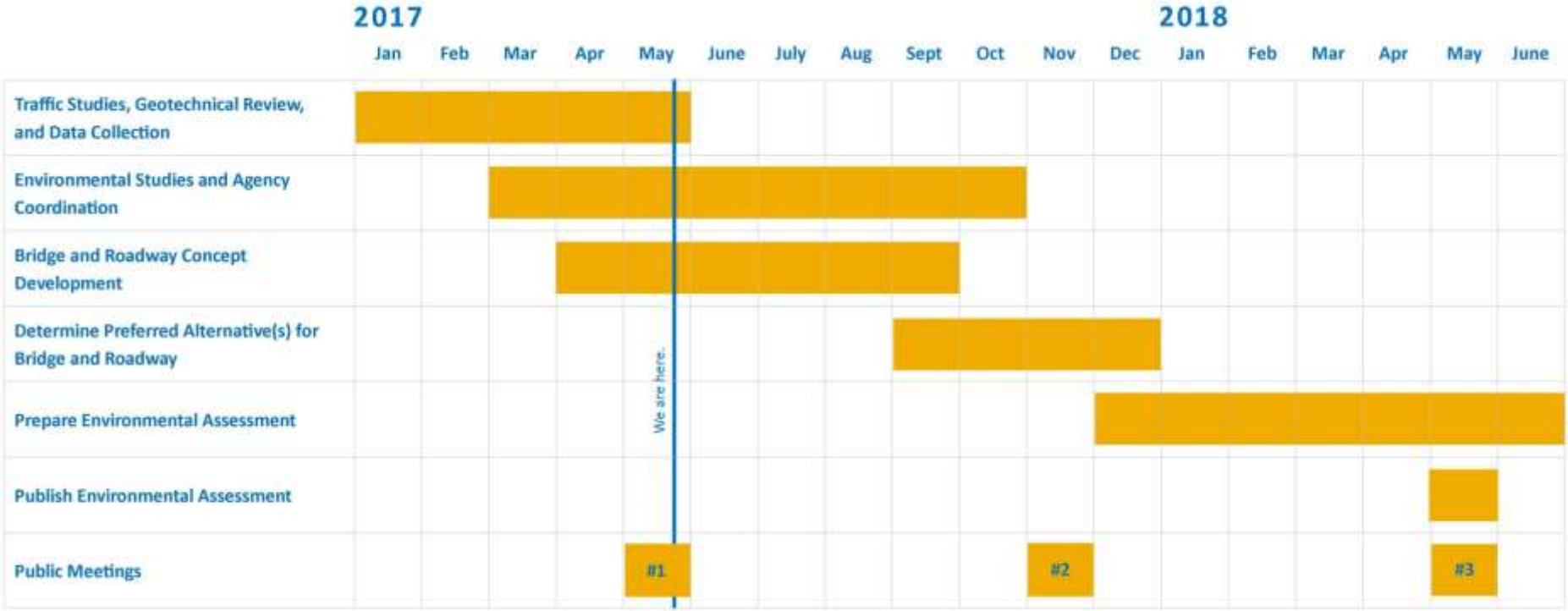
ENVIRONMENTAL PROCESS – PURPOSE AND NEED

- Primary Purpose and Need is replacement of the bridge
- Other, secondary needs may emerge, such as:
  - Protecting against future landslides
  - Roadway safety improvements

PUBLIC INVOLVEMENT OVERVIEW

- Public Information Meetings (3) – two sites, consecutive nights each time
- Stakeholder Meetings (2 sets)
- Agency/Tribal Outreach
- Website (www.sd44bridge.com)

PROJECT SCHEDULE (ALSO SEE HANDOUT)



PROJECT SCHEDULE

- In General, Four Phases
  - 1) Scoping & Data Collection (January – May 2017)
    - Public Information Meeting #1 - tonight
  - 2) Alternatives Development (May – Nov. 2017)
    - Public Information Meeting #2 – November 2017
  - 3) Select Preferred Alternative (Nov. ‘17 – Jan. ‘18)
  - 4) Complete NEPA/Recommendations (Jan. – July 2018)
    - Public Information Meeting #3 – Spring 2018

PLEASE LEAVE YOUR COMMENTS WITH US!

- Comment Forms are available
- Complete tonight, or send to us by June 6th
- Visit web site for updates: www.sd44bridge.com

Project Contacts

Tim Thoreen, PMP
HR Green
tthoreen@hrgreen.com
651-659-7777

Steve Gramm, PE
South Dakota Department of Transportation
steve.gramm@state.sd.us
605-773-6641