State Road 46 Bridge over the Eel River
Bowling Green Community Building

Thursday, January 29, 2015
Welcome

- **Meeting Purpose**
  - Overview of project and alternatives
  - Gather public input

- **Project Team**
  - FHWA
  - INDOT
  - Consultant Team
Presentation Outline

- Project Overview and History
- Section 106 and Historic Bridge Process
- Project Alternatives
- Schedule
Project Overview and History
Project Overview and History
Project Overview and History
Original Design
Truss Bridge Terminology

- Sway bracing
- Lateral (wind) bracing
- Portal strut and bracing
- Struts
- Deck
- Floor beams
- Stringers
Gusset Plate
Design Loads

1934 Design Truck

2015 Design Truck
Bridge Inspection

**Inspection Frequency (minimum)**
- All bridges – every 2 years (FHWA requirement)
- Fracture Critical Bridges – every year (INDOT requirement)

**Fracture-Critical**
- A bridge that has non-redundant features
- If those key supports fail, the bridge would be in danger of collapse.
- This does not mean the bridge is inherently unsafe, only that there is a lack of redundancy in its design.
Recent Inspection History

- **2011 Closure, Detour and Repair**
  - Failed gusset plates
  - Closed for 1 month for repair

- **2012 Closure, Detour and Repair**
  - Superstructure at risk
  - Closed for 3 months for repair
  - Repair Service Life: minimum 5 years
Current Condition

Damaged Sway Bracing
Current Condition

Connection Plate
Current Condition

Interior Gusset Plate
Current Condition

Interior Gusset Plate
Current Condition

Lateral Bracing
Current Condition

Truss Vertical
Current Condition

Rusting on Chord
West span of bridge, looking north
SR 46 bridge during 4/19/2013 flood event, looking northeast
Purpose and Need

- **Need for the Project:** Advanced deterioration, section loss, and fatigue affecting critical load-bearing components of this fracture critical bridge

- **Project Purpose:** To provide a safe and structurally sufficient bridge
Purpose and Need

Other desired outcomes:
- Hydraulic improvements/scour countermeasures
- Standard lane widths/shoulders
- Improved intersection at CR 475 East
- Standard guardrail
- Minimization of closures for construction, inspection, or repair
SR 46 Bridge is Historic

- Listed in the National Register of Historic Places
- Significant under Criterion A “for its association with events in the settlement and economic development of Clay County, Indiana”
Section 106 Process

- National Historic Preservation Act (1966)
  - Section 106: Federal agency must take into account the effects of the undertaking on historic properties (National Register of Historic Places eligible or listed)
  - Provide Advisory Council on Historic Preservation the opportunity to consult
Historic Bridges in Indiana

- Modified Section 106 consultation process
- All historic bridges in Indiana categorized as Select or Non-Select
- Select Bridges: “most suitable for preservation and are excellent examples of a given type of historic bridge”
- FHWA will not participate in the demolition of a Select Bridge
- Follow procedures for each type outlined in the Programmatic Agreement
SR 46 Bridge is “Select”

- Historic Bridge Inventory lists the bridge as “Select” and appropriate for “Non-Vehicular Use”
Alternatives Analysis

1. No Build
2. Rehab for continued vehicular use
3. Rehab for continued vehicular use/ one-way pair
4. Bypass/ non-vehicular use
5. Bridge Replacement/ Relocation of Historic Bridge
   - 5A – Replacement on existing alignment, full detour
   - 5B-N – Replacement on existing alignment, temp bridge to the North
   - 5B-S – Replacement on existing alignment, temp bridge to the South
   - 5C-N – Replacement on new alignment to the North
   - 5C-S – Replacement on new alignment to the South
Alternative 1 - No Build

- Would make no improvements
- 2012 repair expected to last 5+ years (INDOT monitoring)
- Likely closed in 2017 or later

INDOT and FHWA have determined that these alternatives would not meet the project’s purpose and need
Alternatives 2 and 3

**Alternative 2** – Rehab for continued vehicular use

**Alternative 3** – Rehab for continued vehicular use/one-way pair

- **Both would continue vehicular use**
  - *Possible* to rehabilitate the bridge
  - *Cost-prohibitive* to rehabilitate the bridge to carry current standard loads

- INDOT and FHWA have determined that these alternatives would not meet the project’s purpose and need
Alternative 4

Alternative 4 – Bypass / Non-Vehicular Use

SR 46 TYPICAL SECTION
Alternative 4
Alternative 4
Alternative 4

- **New Bridge**
  - Immediately south of existing bridge

- **Two lanes of traffic maintained during construction**

- **Existing Bridge**
  - Rehabilitation for pedestrian use
  - Less intensive repairs than rehab for vehicle use
  - Rehabilitation effective for 25+ years

- **Total Cost:** $10,342,000
Alternative 4

- **Purpose and Need**
  - ✔ Structural capacity

- **Other Desired Outcomes**
  - ✗ Hydraulic improvements
  - ✔ Standard lane widths/shoulders
  - ✔ Improved intersection at CR 475 East
  - ✔ Standard guardrail
  - ✔ Minimization of closures for construction, inspection, or repair
Alternative 4

- **Hydraulic Issues**
  - West Abutment Location
    - New bridge abutment ideally moved further west
    - If existing bridge remains, the new abutment would be required to be parallel to the existing one
    - Subject to future scour issues requiring maintenance
  - Not practical to address freeboard deficiency

- **Issues are not insurmountable, but would increase future maintenance requirements**
Alternative 5C-S

Alternative 5C-S – Bridge Replacement on New Alignment to the South

SR 46 TYPICAL SECTION

Existing Ground
Alternative 5C-S

- **New Bridge**
  - Immediately south of existing bridge
  - Properly aligned with and sized for the channel
- **Two lanes of traffic maintained during construction**
- **Existing Bridge Relocated**
- **Cost:** $9,745,000
Alternative 5C-S

- **Purpose and Need**
  - ✔ Structural capacity

- **Other Desired Outcomes**
  - ✔ Hydraulic improvements
  - ✔ Standard lane widths/shoulders
  - ✔ Improved intersection at CR 475 East
  - ✔ Standard guardrail
  - ✔ Minimization of closures for construction, inspection, or repair
## Alternatives Summary

<table>
<thead>
<tr>
<th></th>
<th>Alternative 4</th>
<th>Alternative 5C-S</th>
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<tbody>
<tr>
<td>Meets Purpose and Need</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Other Desired Outcomes</td>
<td>Yes, except hydraulics</td>
<td>Yes</td>
</tr>
<tr>
<td>Cost</td>
<td>$10,342,000</td>
<td>$9,745,000</td>
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<tr>
<td>Existing Bridge</td>
<td>Pedestrian Use – Existing Location</td>
<td>Pedestrian Use – Alternate Location</td>
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Pedestrian Bridge Consultation

- INDOT Project Manager contacted Clay County in 2010
- Clay County was not interested in keeping the bridge or moving it to a park or trail
- INDOT contacted IDNR Recreational Trails Program to identify alternate location
- Three organizations expressed interest
- Salt Creek Trail (Brown County) determined best option
Consulting Parties

- December 2014 Consulting Party Meeting
- Interest in keeping bridge in existing location or elsewhere in Clay County
- Previous coordination with Clay County was more than 4 years ago
- Additional outreach appropriate
INDOT-FHWA Goals

- Agree with preference for location in Clay County (existing or other)
- Bridge must be put to public use (park, trail, etc.)
- Project must move forward promptly
Requirements

In order for Alternative 4 or 5C-S to be considered prudent, FHWA has determined the following requirements must be met:

1. Public use of bridge
2. Public or Private Organization willing to take responsibility of the bridge for a minimum of 25 years, with expectation of longer-term commitment
3. Firm commitment within 60 days of intent to sign an agreement and demonstrate financial capacity
Financial Requirements

- INDOT will rehabilitate the Existing Bridge to pedestrian standards
  - Replacement of deficient members
  - New deck
  - New paint
  - Anticipated life: 25+ years

- Anticipated Costs
  - Inspection – every year
  - Periodic Steel Repairs – every 10 years
  - Cleaning and Painting – every 25-30 years
<table>
<thead>
<tr>
<th>Date Range</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>March 30, 2015</td>
<td>Deadline for commitment to take ownership</td>
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<tr>
<td>Spring/ Summer 2015</td>
<td>Preliminary engineering/environmental review</td>
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<tr>
<td>Summer 2015</td>
<td>Public Hearing</td>
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<tr>
<td>Fall 2015-Summer 2016</td>
<td>Land acquisition/final design</td>
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<td>October 2016</td>
<td>Construction letting</td>
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<tr>
<td>December 2017</td>
<td>New bridge open to traffic</td>
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<tr>
<td>July 2018</td>
<td>Existing bridge rehabilitated (and relocated, if relevant)</td>
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</tbody>
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Thank You

- Ways to contact the project team
  - Comment forms
  - Email/Phone
- Thank you for attending

Dan Prevost
Public Outreach Lead
Parsons
317-616-1017
daniel.prevost@parsons.com
Public Comment Session