

PUBLIC HEARING INFORMATION PACKET

**Des. 1700438
Bridge Rehabilitation Project
13th Street over Lost Creek
Vigo County, Indiana**

Thursday, March 4, 2021

**Vigo County Annex Building
County Council Chambers
650 South 1st Street
Terre Haute, IN**

5:30 PM

Welcome to the Vigo County public hearing regarding the bridge rehabilitation project on 13th Street. HWC Engineering is serving as the agent for the proposed project and will be conducting the public hearing and responding to questions. The purpose of this public hearing is to explain the project and receive public comment. There are several ways your comments may be presented.

1. In-Person attendees may present comments verbally during the public statement session, which follows the presentation. All comments will be recorded. If you wish to make a verbal comment, please mark the box next to your name on the sign-up sheet. We will call you up individually in the order on the sheet to make your comment.
2. In person attendees who do not wish to make a verbal comment and those joining us virtually can submit a comment in writing. There is a comment form at the back of room and online at the county website.
3. The written comment sheets should be returned to the HWC Engineering representative in person, via mail, or email. The comment sheets are attached to this packet and extra copies are available. Mailing of comments should be addressed and sent to the following address:

HWC Engineering
Attn: Vigo County Bridge 322 Project
135 N. Pennsylvania Street, Suite 2800
Indianapolis, Indiana 46204

4. Comments are due to HWC within two weeks from the date of the meeting. All written comments received by March 18, 2021 will become part of the transcript and will be addressed in the Environmental Document (Categorical Exclusion) just as the verbal comments presented here tonight.
5. Comments can be submitted to my email address jisenburg@hwcengineering.com. A mailing address is below.

All comments received will be evaluated and answered in the Categorical Exclusion Document developed for this project. That document will address all the comments and concerns raised during the public involvement period, and a resolution to all comments will be developed. Every comment received as part of this process will be addressed, and design modifications may occur as a result of comments. The final environmental document will be available at the following locations:

Vigo County Engineering Offices
121 Oak St.
Terre Haute, IN 47807

Thank you for your participation in this public hearing.

Sincerely,

Jacob Isenburg, PE
Structural Department Manager
HWC Engineering



HWC
ENGINEERING

PRESENTATION AGENDA

Formal Hearing Session called to order at 5:30 pm
HWC Engineering

- The Public Hearing Agenda
- Submission of Comments
- Project History
 - Overview of the Section 106 and Environmental Process
- Project Description
 - Right of Way Requirements and the Land Acquisition Process
- Maintenance of Traffic and Project Schedule
- Formal Public Comment Session
- Adjourn Formal Hearing Session
- Informal Question and Answer Session

PROJECT DESCRIPTION

Project Purpose and Need:

The need for this project is due to the poor condition of the existing superstructure as outlined in the INDOT Bridge Inspection Report. The superstructure is showing signs of deterioration but, due to the beams being adjacent box beams, there may be unseen deterioration that will not be detected until future failure occurs. Adjacent box beam bridges have a history of sudden failure without showing signs of the deterioration prior to failure. The 2018 INDOT Bridge Inspection Report noted several deficiencies and overall deterioration of the structure. The most recent sufficiency rating of the bridge was determined to be 38.1 (out of a possible 100 points). The current capacity of 23 tons (HS-20 rating) does not meet the required capacity of 36 tons (HS-20 rating), and the existing bridge railing does not meet current safety standards.

The purpose of this project is to increase the condition rating of the superstructure and deck and the structural capacity of the bridge. The goals of the project are as follows: Superstructure - Condition Rating of at least a 7 out of 9 (good); Deck - Condition Rating of at least a 7 out of 9 (good); Load Rating of 36 Tons; Clear Roadway Width of 28 ft 2 inches minimum; and a Bridge Railing that has a Test Level 2 compliant system.

Existing Bridge and Roadway:

Vigo County Bridge No. 322 a two-span adjacent box beam structure originally constructed in 1965 and carries 13th Street over Lost Creek in Terre Haute. This structure is classified as a non-select historic bridge in the Indiana Historic Bridge Inventory. The bridge has been marketed for re-use since February 2019 as required by the Indiana Historic Bridges Programmatic Agreement (PA).

13th Street is a north/south roadway classified as an urban minor arterial. The existing clear roadway width is 28 feet 2 inches. There are sidewalks along the roadway. The traffic volume on 13th Street is projected to be 10,000 vehicles per day in 2041 with trucks representing 2 percent of that volume.

Section 106 and Proposed Improvements:

As part of the Historic Bridge Programmatic Agreement, there was a public notice marketing the bridge, Structure No. 84-00322; NBI No. 8400211, for reuse to any interested party. The bridge has been marketed since February 11, 2019, and no interested parties have stepped forward to date.

This project proposes rehabilitating Vigo County Bridge 322 (Structure No. 84-00322; NBI No. 8400211), on 13th Street in Harrison Township, Terre Haute, Vigo County, Indiana. The termini for this project were developed to ensure that the structure and the approach would be able to be constructed with minimal impact to the surrounding environment. The project area is located on 13th Street over Lost Creek, which is 0.33-mile south of Fort Harrison Road. The project area extends 105 ft north of the bridge center by 39 ft south of the bridge center and is approximately 40 ft wide.

The preferred alternative (B2) is Rehabilitation of Existing Structure for Continued Vehicular Use NOT Meeting Secretary of Interior's Standards for Rehabilitation (Two Lane Option). This alternative proposes to rehabilitate the existing structure for continued two-lane vehicular use. The abutments and pier will be repaired, and spalled portions will be patched. Any deteriorated portions of the abutment walls adjacent to the superstructure will also be rebuilt. Riprap will be placed around the pier and along the abutments for scour protection. The existing box beams will be removed and replaced with continuous, composite steel beams. The use of CB 27x48 prestressed precast concrete spread box beams and steel W33 beams were compared for the rehabilitation. The cost of the beams and necessary pier modifications were the major difference between the superstructure configurations. The steel beam configuration was found to be more economical and did not require replacement of the pier. The steel beam configuration is lighter in weight than the existing concrete and CB 27 x 48 concrete beams investigated. In addition, the current bridge consists of two simple spans. The proposed options will make the superstructure continuous and eliminate a needed expansion joint at the pier. This will increase the vehicle load distribution to the pier. The combined weights of the bridge and vehicle loads for the continuous steel option is lighter than the concrete options. Therefore, the prestressed precast concrete spread box beams were not considered further. An 8-inch concrete deck will be placed. The existing concrete curb will be eliminated, and the railings will be replaced with standard TS-1 bridge rail. New concrete approach slabs will be constructed as part of this alternative, but expansion joints will not be required. The key design elements of this preferred alternative will include 36 tons, two 11-ft travel lanes with 4-ft shoulders and a 30-ft clear roadway width. The alternative alleviates the known issues associated with adjacent box beam bridges. This alternative is feasible, prudent, and meets the purpose and need. The proposed work for this alternative may be considered as a replacement from a historic perspective; therefore, additional alternatives were analyzed.

The current Maintenance of Traffic (MOT) includes temporarily closing 13th Street and providing an official detour utilizing Lafayette Avenue and Fort Harrison Road. All adjacent property owners will retain access to their properties during construction.

The project will not require additional permanent right of way. The construction cost of the project is estimated to be \$1,230,000.

Alternatives:

The Historic Bridges PA Development Process and Section 4(f) of the Department of Transportation Act of 1966 require the development of various alternatives in an effort to minimize harm and reduce impacts to historic structures. To satisfy this requirement, six alternatives, including the “Do Nothing” alternative were evaluated.

Preferred Alternative -Alternative B2 (See above)

Alternative A - No Build/Do Nothing Alternative

The No Build/Do Nothing alternative means that no federal funds will be expended because no action would occur regarding Vigo County Bridge No. 322. This alternate would not directly affect the historic significance in the short run but would allow for the continued deterioration of the existing structure. A consideration of the “No Build/Do Nothing” alternative is that the County will eventually need to post a load restriction and may need to close the structure at some time in the future due to its continued deterioration and the failure of the beams. Another consideration of this alternative is the increased travel time and slower response time of emergency vehicles. The detour route is approximately 2.6 miles, which increases response time by as much as 5.5 minutes for emergency vehicles. The most important consideration with this alternative is the safety of the motorists that use this bridge. There have been cases where, adjacent box beam bridges with non-composite decks have failed without prior indication. The main concern with this type of structure is the limited ability to thoroughly inspect the beams for sign of deterioration and loss of capacity. The loss of capacity and or accelerated deterioration could be cause for quickly closing this bridge. Also, INDOT no longer allows the use of adjacent box beams to be used on state routes and is replacing them rather than repairing them if there are concerns. This alternative does not provide the County with a long term reliably safe roadway across Lost Creek and is therefore not a prudent alternative.

Alternative B.1 - Rehabilitation of Existing Bridge for Vehicular Use **(Meeting Secretary of Interior’s Standards for Rehabilitation)**

This alternative proposes to rehabilitate the existing structure for continued two lane vehicular use. The project length for this alternative would be approximately 300 feet. Patching of the existing beams will not increase the structural capacity of the beams. INDOT does not recognize any repair method that will increase the structural capacity of a prestressed box beam. Therefore, the existing box beams will be removed and replaced in-kind (adjacent box beams) to increase the structural capacity. This work will not improve the inspection issue of detecting deterioration between the beams. An asphalt wearing surface on a waterproofing membrane will be placed on top of the box beams. Replacing only the exterior beams and keeping the interior beams was considered but not investigated in depth. The beams were built in 1965 and have not been protected at any time during the bridge’s lifespan. Therefore, it is reasonable to consider the interior beams are in similar condition as the exterior beams. Coring the interior beams for samples was not explored in detail as repairs cannot be done to increase the life of the beams for 20-25 years for vehicular traffic.

The abutments and pier will be repaired by patching spalled portions. The deteriorated portions of the abutment walls adjacent to the superstructure will be rebuilt. Riprap will be placed around the pier and along the abutments for scour protection. The concrete curb will be replicated and, the railing will be replaced with a standard TS-1 bridge rail but modified to meet safety requirements due to the concrete curb (see detail in Appendix C). The modification will consist of extra spacers, between the railing post and rail such that the curb and rail faces are flush. New concrete approach slabs will be constructed. New expansion joints will be constructed at the abutments and pier. Patching of the existing beams is not feasible, the replacement of the beam in-kind is the most comparable rehabilitation work that will meet the *Secretary of Interiors Standards for Rehabilitation*. Structural materials would be replaced in-kind and the integrity of the bridge would be retained. Where concrete is replaced or patched, replacement concrete would be of a similar consistency and color. The bridge’s existing skew would not be altered. The bridge would not be widened.

The estimated cost of this alternative is \$1,015,000. This alternative is feasible. However, this alternative is not prudent because, as indicated in the *Indiana Design Manual* and historically, adjacent box beams configurations are known to have longitudinal joint leaking and undetectable deterioration that can lead to sudden failures.

Alternative C.1 Rehabilitation for Vehicular Use (one-way pair option)

(Meeting Secretary of Interior's Standards for Rehabilitation)

This alternative proposes to rehabilitate the existing structure for continued vehicular use, for one lane of traffic, in the same manner as outlined in Alternative B1. It also proposes the construction of a new bridge on a new alignment to carry the opposing lane of traffic, thus creating a one-way pair. The length of the new bridge will be longer than the existing bridge due to geometrics of the stream at the location upstream. The project length for this alternative would be approximately 800 feet minimum. The rehabilitation of the existing structure is the same as proposed in Alternative B1. The new bridge will carry one lane of traffic and be designed to meet all current structural and geometric design criteria (11 ft lane and 4 ft shoulders). The new structure will be placed to the west of the existing structure and require new right-of-way acquisition. The level 1 design exceptions noted for Alternative B1 would not be required for this alternative since only one lane of traffic would be carried.

The estimated cost of this alternative is \$2,426,000 and the additional right-of-way cost is \$60,000. This alternative is not prudent because of the use of adjacent box beams, as previously explained and the additional cost of constructing a new structure.

Alternative C.2 Rehabilitation for Vehicular Use (one-way pair option)

(NOT Meeting Secretary of Interior's Standards for Rehabilitation)

This alternative proposes to rehabilitate the existing structure for continued vehicular use, for one lane of traffic, in the same manner as outlined in Alternative B2. It also proposes the construction of a new bridge on a new alignment to carry the opposing lane of traffic, thus creating a one-way pair. The project length for this alternative would be approximately 800 feet minimum. The rehabilitation of the existing structure is the same as proposed in Alternative B2. The new one-lane bridge is the same as Alternative C1.

The estimated cost of this alternative is \$2,563,000 and the additional right-of-way cost is \$60,000. This alternative is not economically prudent because of the additional cost of a new bridge on a new alignment.

Alternative D Bypass (non-vehicular use) and Build a New Structure

This alternative proposes that a new bridge be constructed to meet all the required structural and geometric design criteria to carry 13th Street. The roadway will be realigned to bypass the existing bridge to the west. The existing bridge will be left in place with repairs to preserve the structure. Although the existing bridge will not be preserved for continued vehicular traffic, it will remain in place and be available for non-vehicular use. The project length for this alternative would be approximately 900 feet minimum. Repairs will be made to preserve the existing bridge including removal of the asphalt pavement, patching the tops of the existing box beams, repairing the shear keys, placing a waterproof membrane, paving a new HMA wearing surface, epoxy injecting the cracks in the existing box beams, patching concrete spalling of the abutments and concrete encased piles, and repairing abutment cracks using epoxy-injection. These repairs will preserve the life of the existing structure but will not increase the structural capacity or eliminate the concern associated with the adjacent box beams. These repairs may keep the bridge available for non-vehicular use for 25 years.

The estimated cost of rehabilitating the existing structure is \$197,000. The estimated cost for the new bridge and approaches is \$1,744,000 and the additional right-of-way cost is \$60,000. This alternative meets the purpose and need of this project, by providing a new structurally sufficient, and hydraulically adequate structure that will be safe and efficient bridge for 13th Street to cross over Lost Creek. There are no existing trail systems or plans for one that would utilize the existing structure. Alternative D is not prudent because of the additional funds needed to complete the alternative. Since this bridge is Non-select, this alternative would only become prudent if another entity comes forward to take ownership and responsibility for the bridge.

Maintenance of Traffic During Construction:

The current Maintenance of Traffic (MOT) includes temporarily closing 13th Street and providing an official detour utilizing Lafayette Avenue and Fort Harrison Road. All adjacent property owners will retain access to their properties during construction.

Right-of-Way:

No permanent or temporary right-of-way is required for this project.

Environmental and Socio-economic Impacts:

There are no significant environmental or socio-economic impacts associated with this project.

A copy of the draft environmental document is provided here tonight and will remain accessible at the Vigo County Engineering Office and Vigo County website. The environmental document will be updated to include information from the public hearing and will include all public comments that are submitted during the two week comment period.

PUBLIC COMMENT FORM

PROPOSED BRIDGE 322 REHABILITATION ON 13TH STREET VIGO COUNTY, INDIANA

Your comment will be included in the official project record, if forwarded within two weeks of the meeting (March 4, 2021) Deadline: **March 18, 2021.**

Name (please print):

Address:

COMMENTS:

MAIL THIS SHEET TO HWC AT FOLLOWING ADDRESS:

HWC Engineering
Attn: Vigo County Bridge 322 Project
135 N. Pennsylvania Street, Suite 2800
Indianapolis, Indiana 46204

OR EMAIL

jjisenburg@hwcengineering.com

THANK YOU FOR YOUR COOPERATION