

East Delhi Road over the Huron River

**Scio Township
Washtenaw County, Michigan**

Final Project Evaluation Report

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Prepared by:

Mead & Hunt, Inc.

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1.0 Introduction

1.1 Project Summary

The purpose of this report is to document the social, environmental, and economic findings associated with the East Delhi Road Bridge project in support of a Categorical Exclusion (CE) to rehabilitate the existing bridge. A CE complies with the requirements set forth by the Council on Environmental Quality (CEQ) in its regulations implementing the National Environmental Policy Act of 1969 (NEPA). NEPA requires that the social, economic, and natural environmental impacts of all projects (that receive federal funding or will require a federal permit) undergo a complete and comprehensive analysis for decision-making and public informational purposes.

Previously an Environmental Assessment (EA) was being prepared to document the impacts proposed alternatives would have on the surrounding environment associated with the East Delhi Bridge project. During the course of this EA process and prior to the completion of the EA document, a Preferred Alternative was identified that did not require a full EA, but rather a CE process to satisfy NEPA requirements. As a result, the EA process has been stopped and a CE is being prepared.

However, in order to select a Preferred Alternative, four Practical Alternatives including the No-Build/Do Nothing Alternative were proposed and evaluated during the original EA process. These alternatives included:

- No-Build/Do Nothing
- Rehabilitate the existing one-lane bridge
- Replace the existing structure with a two-lane concrete bridge with a pedestrian walkway
- Replace the existing structure with a two-lane steel truss bridge with a pedestrian walkway

During the EA evaluation process, alternatives were analyzed and assessed according to specific criteria, agency coordination, and public participation. The relative merits of each alternative were judged in order to determine which

alternative best met the project's purpose and need. After a thorough screening process, alternatives were eliminated from further consideration and a Preferred Alternative was identified and selected that best met the project's purpose and need and avoided and minimized potential impacts.

From the inception of the study, various techniques and activities were used to inform, distribute, and receive information from members of the public, stakeholders, federal, state, and local agencies and officials. Techniques and activities included site visits, agency meetings, formal public information meetings, one-on-one meetings with individuals, and the development of a project website.

1.2 Project Location and Description

The East Delhi Road Bridge is located approximately five miles northwest of Ann Arbor, near the community of Delhi Mills in Section 2 of Scio Township, Washtenaw County, Michigan. The bridge spans the picturesque Huron River and is surrounded by heavily wooded, public parkland on all sides. The Huron River is a State of Michigan designated Natural River. This designation creates a 400 foot wide corridor on either side of the river that limits development, requires building setbacks and restrictions, and provides for native vegetation protection.

East Delhi Road provides access to the Delhi Metropark system south of the bridge as well as access to many private residences. **Figure 1.0** illustrates the general vicinity of the project site while **Figure 1.1** provides a more specific location map and visual details of the bridge. Additional project photos can be found in **Appendix A**.

The bridge is situated in a north-south orientation. The southern approach to the bridge is gravel, while the northern approach is paved. East Delhi Road is classified as a County Local road and is currently designated as an Urban Local road under the National Functional Classification System.

To the north of the project, East Delhi Road provides access to Huron River Drive, a paved County Primary road functioning as an Urban Collector. To the south of the project, East Delhi Road connects to Miller Road, a paved County Primary road functioning as an Urban Minor Arterial.

The existing structure is a one lane Pratt through truss structure with a wood deck constructed circa 1918 that was closed to vehicular in June 2005. The total structure length is 111.9 feet with a maximum span of 108.9 feet. The structure travel lane width is 16.0 feet with roadway widths approaching from the north and south of approximately 23 feet.

The existing bridge is currently on the Michigan Department of Transportation (MDOT) Local Bridge Program. Under this program, federal and state money can be used to replace or rehabilitate existing structures if the proposed improvements meet current Michigan design standards.

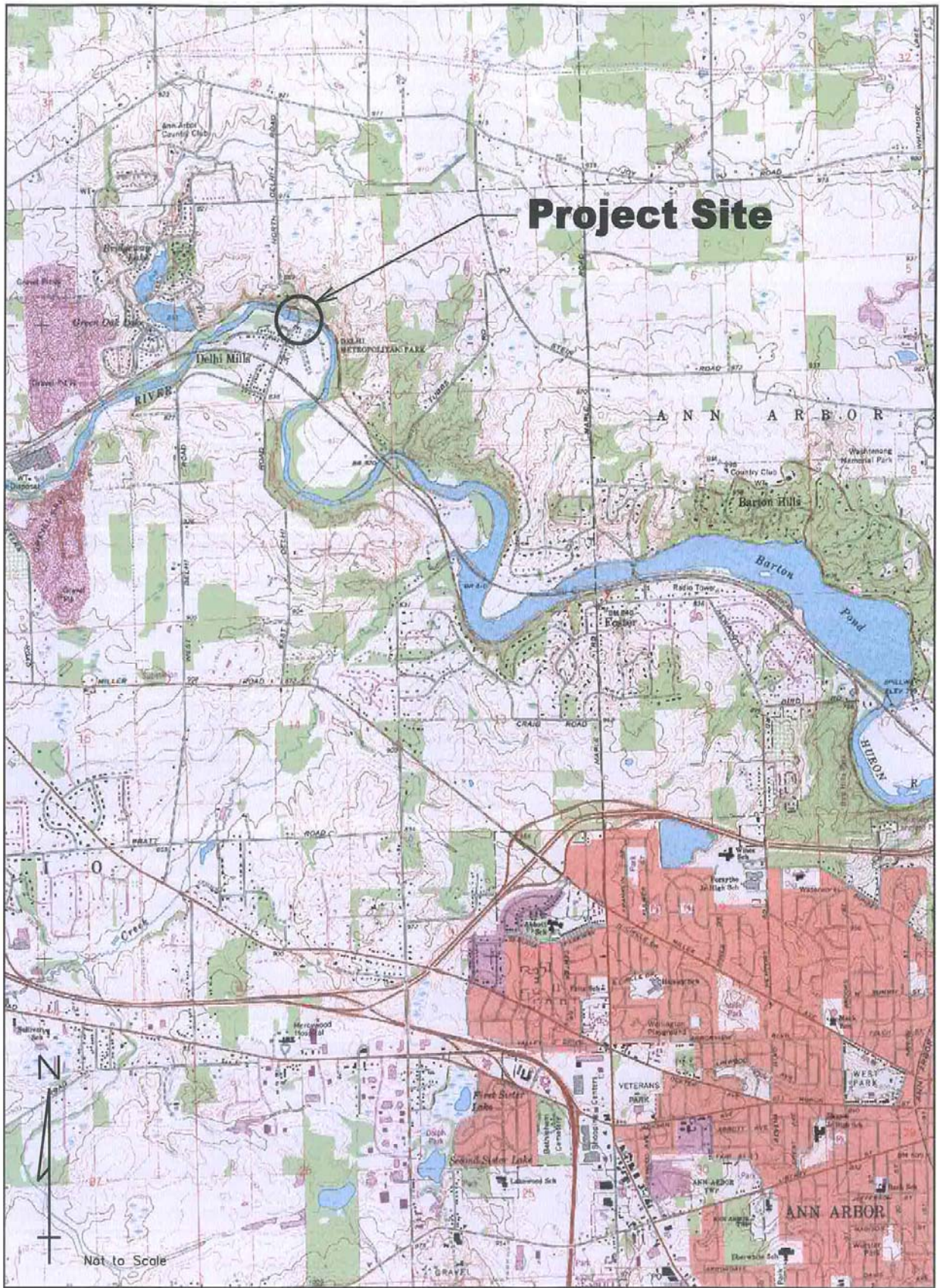


Figure 1.0 Project Vicinity

Placeholder for Figure 1.1

1.3 Project History

The East Delhi Road Bridge was determined to be ineligible for the National Register of Historic Places (National Register) in 1995 as part of a statewide Michigan Bridge Inventory. However, at the public's request, the bridge was resubmitted to the State Historic Preservation Office (SHPO) for reevaluation and was subsequently determined eligible for the National Register. See **Appendix B** for SHPO documentation.

According to uncertain and unofficial historical records, the existing structure was erected in 1918 as a replacement for a structure that had been destroyed by a tornado in 1917. The previous structure was dated to 1888 and it was widely believed that portions of the destroyed bridge were incorporated into the existing structure. However, a site visit by bridge historian Vern Mesler did not support this assumption. After close inspection of the bridge, Mr. Mesler concluded that the existing structure was a complete replacement and there was no evidence that any substantial parts of the original 1888 bridge were used. Mr. Mesler's inspection report can be found in **Appendix B**.

The existing structure does not meet current American Association of State Highway and Transportation Officials (AASHTO) standards for lane width and load rating. County records indicate the bridge has undergone numerous repairs over the years in attempts to extend its service life. Major repairs took place in 1941-1942, 1969, 1987, and 1994 which included replacement of the deck, tie rods, vertical members, floor plates, and roller bearing repairs. Due to the age and continued deterioration of the existing structure, the bridge was inspected on an annual basis versus the state required bi-annual inspection. The latest inspection report (**Appendix C**) dated June 2005, indicated that the bridge was in an advanced state of deterioration and recommended closure. Consequently, the Washtenaw County Road Commission closed the bridge to vehicular traffic on June 23, 2005.

2.0 Purpose of and Need for the Proposed Action

2.1 Purpose of the Proposed Action

The purpose of the proposed action is to reopen the currently closed East Delhi Road Bridge and provide a safe crossing of the Huron River with an alternative that maintains the historic integrity of the existing bridge and is also acceptable to local area residents.

By reopening the closed structure, road system continuity will be maintained, and access to the local park system, community, and area residences will be reestablished. Although meeting current American Association of State Highway and Transportation Officials (AASHTO) standards for clear width, approach sight distance, and loading capacity ensured that emergency vehicles and other large vehicles would not have to detour around the bridge, the local community indicated that preserving the historic nature of the existing bridge was the most important consideration when evaluating alternatives.

2.2 Need for the Proposed Action

The need for the proposed action is evident from the recent bridge closure and the documented deteriorated condition of the existing structure. The latest bridge inspection report (**Appendix C**) dated June 2005, indicated that the bridge was in an advanced state of deterioration and recommended closure. The inspection report indicated that the bridge surface and deck were in fair condition and the railings were in poor condition. The stringers were heavily rusted with serious section loss and were rated from poor to critical condition. The floor beams, truss ends, and bearings were rusted and rated as poor. Abutments were in poor condition and the north abutment had serious section loss. The report summary indicated that the overall condition of the bridge was poor. The report advised that the bridge be closed to vehicular traffic.

After close scrutiny of the inspection report, the Washtenaw County Road Commission, in the interest of public safety, made the decision to close the bridge to vehicular traffic on June 23, 2005.

3.0 Alternatives Considered

3.1 No-Build Alternative

This alternative would have provided for only annual maintenance and minor spot repairs to the existing bridge. Under this alternative, the bridge would have continued to deteriorate and remained closed to vehicular traffic indefinitely. Based on the latest inspection report, significant deterioration is evident at the bridge bearings, floor beams, and stringers. Scour is evident at the north abutment, and the bridge is considered narrow with substandard bridge railings. Furthermore, a truss bridge such as the East Delhi Road Bridge is considered to be “fracture critical,” indicating that failure is sudden and without warning.

While the No-Build alternative does meet the project’s purpose of maintaining the historic integrity of the bridge, it does not satisfy the need of reopening the bridge to vehicular traffic. However, the No-Build alternative does serve as a baseline for impacts related to other alternatives considered.

3.2 Preferred Alternative PA-1 - Rehabilitate the Existing Bridge

This alternative consists of rehabilitating the existing truss bridge with its current bridge width. Rehabilitation measures would require replacing the existing floor beams, stringers, and truss bearings. The entire bridge superstructure would be sand blasted and repainted and new bridge rails would be installed. Laminated timber decking with a 2-inch asphalt overlay would be attached to the new stringers. The existing truss superstructure would be retrofitted with post tensioned cables to add redundancy and eliminate the fracture critical nature of the bridge. The load carrying capacity of the rehabilitated bridge would be increased by replacing deteriorated bridge members; however, it would still be well below current load carrying capacity design standards (HS20 design vehicle). Scour and abutment deficiencies would also have to be addressed. The rehabilitated bridge would be expected to last approximately 30 to 40 years and would require routine maintenance.

This alternative meets the project's purpose and need by maintaining the historic nature of the existing bridge as well as reestablishing the system continuity of the local road network. Because Alternative PA-1 is the only alternative that fully satisfies the project's purpose and need, it was selected as the Preferred Alternative.

3.3 Alternative PA-2 – Replace Existing Structure with a New Two-Lane Concrete Box Beam Bridge with a Pedestrian Walkway

This alternative consists of removing the existing bridge and replacing it with a new two-lane concrete box beam bridge with a pedestrian walkway. The new bridge would provide crash tested bridge rails and would be designed for current load carrying capacity design standards. A deep pile foundation, consisting of steel piles driven into the ground, would be used to support the new structure. Heavy riprap protection along the new abutments and stream banks would be provided to prevent stream scour. The new bridge would be expected to last 70 to 80 years and would be virtually maintenance free.

While this alternative does meet the project's need of reestablishing the system continuity of the local road network, it does not meet the project's purpose of maintaining the historic integrity of the existing bridge.

3.4 Alternative PA-3 – Replace Existing Structure with a New Two-Lane Steel Truss Bridge with Pedestrian Walkway

The existing truss bridge is a unique structure that provides an aesthetic quality to the area. A new single-span, steel truss bridge with a pedestrian walkway would have provided a similar look as the existing bridge, while at the same time providing the strength, functionality, and maintenance free benefits of a new bridge. A new 125.5 foot single-span, steel truss bridge would have accommodated two lanes of traffic with a 26-foot clear roadway width. Five-foot pedestrian sidewalks would be provided along the outer edges of the bridge. Concrete surface treatment and color staining would be used along the new abutments and wingwalls to provide a stone-like surface.

As with Alternative PA-2, this alternative would have meet the project's need of reestablishing the system continuity of the local road network, however it does not meet the project's purpose of maintaining the historic integrity of the existing bridge.

4.0 Historical Issues

4.1 Introduction

The East Delhi Road Bridge was determined ineligible for the National Register of Historic Places (National Register) in 1995 as part of the statewide Michigan Bridge Inventory. Subsequent research and field investigations of the structure were completed in March 2005 by regional bridge expert, Vern Mesler, and architectural historians of Mead & Hunt. Based on these efforts, it is believed that the bridge is a late, nineteenth century structure that was moved to its present location to replace the bridge damaged in the tornado of 1917; however, uncertainty remains as to the early origins of the present day bridge.

Although previously determined to be ineligible, at the request of the Washtenaw County Road Commission and interested members of the public, Mead & Hunt's historians prepared appropriate historical data to support the determination that the East Delhi Road Bridge was indeed a historic resource and eligible for the National Register. This information was submitted to the State Historic Preservation Office (SHPO) in late 2005 for official determination. On September 21, 2005, SHPO reevaluated the East Delhi Road Bridge and determined that it was a historic structure and eligible for the National Register. See **Appendix B** for additional information on the historic nature of the existing bridge.

As a result of the historic determination by SHPO, all federally funded activities are required to comply with Section 106 of the National Historic Preservation Act and Section 4(f) of the U.S. Department of Transportation Act. The potential considerations under Section 106 and Section 4(f) on each of the four alternatives are addressed below assuming the project will be a federally funded activity.

4.2 Alternatives

No-Build

This alternative would not have any impact on historic or archaeological properties and no work would be required under Section 106 or Section 4(f).

Alternative PA-1 - Rehabilitation of Existing One-Lane Bridge (Preferred Alternative)

If rehabilitation activities require a federal permit, this alternative would require compliance with Section 106 including an assessment of the project's effect on historic resources and resolution of any adverse effects. It is expected that rehabilitation activities would need to be coordinated with the responsible federal agency, SHPO, and consulting parties under Section 106. Archaeological investigations would be required for any areas of ground disturbance resulting from the rehabilitation activities. There are no expected Section 4(f) implications under this alternative.

Alternative PA-2 – Replace Existing Structure with a New Two-Lane Concrete Box Beam Bridge with a Pedestrian Walkway

This alternative would require compliance with Section 106 including coordination with the SHPO, responsible federal agency, and consulting parties concerning the project's effect on historic resources and the resolution of any adverse effects. This would likely result in the execution of a Memorandum of Agreement outlining measures to minimize or mitigate adverse effects to historic properties. Archaeological investigations would be required for the area of ground disturbance resulting from the replacement activities.

This alternative would require compliance with Section 4(f) demonstrating that there is “no prudent and feasible alternative” to the replacement of the existing structure.

Alternative PA-3 – Replace Existing Structure with a New Two-Lane Steel Truss Bridge with Pedestrian Walkway

This alternative would require compliance with Section 106 including coordination with the SHPO, responsible federal agency, and consulting parties concerning the project’s effect on historic resources and the resolution of any adverse effects. This would likely result in the execution of a Memorandum of Agreement outlining measures to minimize or mitigate adverse effects to historic properties. Archaeological investigations would be required for the area of ground disturbance created by the replacement activities.

This alternative would require compliance with Section 4(f) demonstrating that there is “no prudent and feasible alternative” to the replacement of the existing structure.

5.0 Social, Economic, and Environmental Considerations

5.1 Introduction

Throughout the course of this project, extensive coordination with state, federal, and local agencies took place to identify concerns, issues, and constraints. Each agency was asked to identify how this project might affect their particular area of jurisdiction and identify any mitigation that would be required. **Appendix D** provides a record of correspondence with these agencies.

In addition to the various resource agencies, coordination was also conducted with various utilities companies to identify any conflicts that may pose challenges to the construction of any alternative. Correspondence and utility maps can be found under separate cover in the project files.

Listed below are comments from agencies and companies that had potential conflicts or concerns. Comments of “no effect” or “no impacts” were not listed

5.2 Agency Comments

Michigan Department of Natural Resources (MDNR)

Because the bridge spans a state designated Natural River, certain restrictions apply that may not otherwise be required. Personnel from the MDNR Natural Rivers Program and the Fisheries Department requested that if the bridge was replaced with a new structure, the new structure should be a single span bridge, include a pedestrian walkway, and be in the same location as the existing bridge. If possible, the existing abutments should be removed to provide a wider river opening. In addition, no in-stream work is permitted between April 1 through June 15.

Early coordination with the MDNR Wildlife Division discovered that the project location contains habitat for one state threatened species (Leiberg's panic grass) and one special concern species (Purple wartyback), a statement of "No Effect" from the DNR Wildlife Division will be required before construction begins. See **Section 5.4 Threatened and Endangered Species** for survey results.

U.S. Fish and Wildlife Service (FWS)

Coordination with the FWS indicated that the potential exists for the federally endangered Indiana bat to be found within the project area and that a survey of the area be conducted to determine if the potential habitat exists. See **Section 5.4 Threatened and Endangered Species** for survey results.

5.3 Wetlands

On June 30, 2005, Mead & Hunt's wetland scientists conducted a wetland delineation to determine the types of wetlands within the project area and the amount of impacts that could be expected with any given alternative. It was discovered that under the worst case scenario, less than a quarter acre (0.16 acres) of impacts could be expected with a complete bridge replacement. However, minimal wetland impacts are expected with the Preferred Alternative. For additional details and maps of the wetland boundaries, see the Wetland Delineation Report that is provided as a separate technical document.

Prior to any work in wetland areas, a Part 303 wetland permit may be required from the Department of Environmental Quality (MDEQ).

5.4 Threatened and Endangered Species

In response to agency comments concerning the federally endangered Indiana bat, Dr. Allen Kurta, an Indiana bat expert, was hired to determine if suitable habitat existed within our project area for the endangered Indiana bat. His findings indicated that the general area between Dexter and Ann Arbor appeared to have high quality bat habitat. However, the area immediately adjacent to the East Delhi Road Bridge was very low quality habitat and that tree removals would have no effect on Indiana bats in the area. His only recommendation included tree removal restrictions during the winter months (November 1 to March 31). The complete Indiana bat survey report can be found in **Appendix D**.

In response to the MDNR notification that the potential exists for two species of interest, in June 2005, Mead & Hunt environmental scientists conducted a site survey to determine if the Leiberg's panic grass or the Purple wartyback were present in the project area. A survey of the site did not indicate the presence of Leiberg's panic grass, however, visual observations revealed the presence of a shell similar to the wartyback in the Huron River. Positive identification was not possible because of the river's current and depth. Additional survey work by a qualified biologist may be required if it is determined by the MDNR that construction activities will impact either species. However, it is unlikely that rehabilitating the existing structure will impact any threatened, endangered, or species of special concern.

5.5 Utilities

Consultation with various utility companies indicates that early coordination should be initiated in order to locate and/or move existing utilities prior to construction. The project area contains utilities owned by SBC Communications, DTE Electric, and Comcast. A contact record and maps of potential utility conflicts are provided separately in the project files.

5.6 Public Involvement

Public Involvement has been an integral part of this project. Local citizens have been involved in every decision and provided input and direction in determining the Preferred Alternative. At the onset of the project, neighborhood groups formed to express their opinion as to which way the project should go and what alternative they deemed appropriate. Public meetings were well attended and many written comments were received. Overwhelmingly, the opinion of the local community was to refurbish the existing bridge and maintain its historical integrity. Their participation ultimately lead to the decision to rehabilitate the existing bridge.