OFFICE OF ENVIRONMENTAL SERVICES

Mr. Mark Epstein, Department Head
Ohio Historic Preservation Office
800 East 17th Avenue
Columbus, Ohio 43211-2474

Attn: Nancy Campbell, ODOT History Reviews Manager

Project: Historic Bridge Management Plans    PID: 922449

Mr. Epstein:

In accordance with Appendix C, Stipulations 5 and 6 of the Section 106 Programmatic Agreement approved on November 30, 2011 (Agreement No. 16734); attached for your records, is the Summary Report for Historic Bridge Management Plans Multiple Locations, Multiple Counties, Ohio Task Order CR (HDC) 11-13-01, PID No. 922449, completed by Hardlines Design Company on May 21, 2012. The recommendations made by this study were accepted by ODOT, the Federal Highway Administration, and the State Historic Preservation Office on September 19, 2012.

Hardlines Design Company (HDC) was contracted in December 2011 to provide cultural resources services in association with plans to complete bridge management plans for 39 historic bridges in Ohio. ODOT provided a list of the bridges to HDC, and the HDC field team travelled to the bridge sites. HDC also coordinated with county engineer offices in the case of county-owned bridges, to notify the county engineers of the site visits and to allow the appropriate county engineer staff to be present at the inspections if interested. In many cases, the project engineer also obtained additional information on the bridges from ODOT or from the county engineer offices; this information was used in the assessment of the structures.

The field team consisted of an engineer from Burgess & Niple Ltd. (B&N), and HDC’s senior historian. The engineer investigated the condition of the bridge, took photographs documenting the condition of the bridge and any important structural issues, and took any necessary measurements, as needed. The senior historian took overall photographs of the bridges, took notes on the historic integrity of the bridge, and assisted the engineer in completing measurements, if necessary.

Fieldwork was completed in a series of trips that took place from January 1-March 29, 2012. The field team did not have any problems gaining access to any of the bridges except structure no. 45XXX14 in Licking County, which is on private property, with the bridge truss currently removed from its abutments for rehabilitation and eventual reinstallation on new abutments. A plan will be completed for this bridge once it has been reinstalled. In all other cases, the field team was able to gain access to examine and photograph the bridges and complete any necessary field measurements.
The bulk of writing and data entry for the plans was completed by the project engineer. The work was reviewed by B&N's senior engineer, and HDC's senior historian wrote this summary report and also the historical significance sections of the management plans. The complete set of management plans is provided as an appendix to the enclosed report.

Of the 39 structures on the list, fieldwork and management plans were completed for 36 bridges. HDC was able to locate and gain access to all of the 36 bridges for which a management plan was completed.

Two bridges on the management plan list had been demolished before the start of fieldwork: the Township Road 77 bridge over the Shade River in Athens County (structure no. 549622), and the Township Road 125 bridge over Piney Fork in Jefferson County (structure no. 4133773). Structure 549622 has been demolished and a new structure has not been built at the site. Remnants of the stone abutments for structure 549622 were still in place at the site at the time of fieldwork. Structure 4133773 was replaced by a new bridge at the same site in 2010, according to the Jefferson County Engineer.

A third bridge, a Post Truss structure dating to ca. 1872 (structure no. 45XXX15), over Rocky Fork Creek in Licking County, had been removed from its abutments and the abutments had been demolished. The truss, owned by the Boy Scouts of America, is to be rehabilitated and painted, and reinstalled on new poured concrete abutments later this summer. A management plan for this bridge is not included in this draft of the document, but a plan may be completed for the bridge once it has been reinstalled on the new abutments. A table of the bridges assigned to the project is included below. Demolished properties are shaded in gray; extant National Register-listed bridges are in bold. All other bridges are standing and National Register status is determined eligible.

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<thead>
<tr>
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</table>

The management plan for each bridge includes notes on the condition of the bridge, recommendations for preservation options, and a summary on the bridge’s historical significance. Information for the plans was gathered through site visits and previous ODOT historic bridge inventory survey documents, especially the historic bridge database. Other information such as construction drawings, crash data, photographs of
past repairs, and previous load rating and structural analysis studies on the bridges were provided by the ODOT or the various county engineer offices. The historical statements of significance were for the most part adapted from the most recent state historic bridge survey database (TranSystems Corporation 2009). If you have any questions regarding the Historic Bridge Management Plans, please contact Thomas P. Barrett, Environmental Specialist, at 614.466.3932 or tom.barrett@dot.state.oh.us.

Respectfully,

[Signature]

Timothy M. Hill
Administrator
Office of Environmental Services

TMH/tpb

c: Noel Mehlo, FHWA; ODOT District Environmental Coordinators; File
September 19, 2012

Ohio Department of Transportation Historic Bridge Management Plans
For Bridges Eligible and Listed in the National Register of Historic Places

ODOT's Office of Environmental Services completed thirty-nine Historic Bridge Management Plans for bridges with a high level of historical significance; e.g., endangered; one of a kind; associated with a regional or national historic context, engineering trend, or prolific designer. The completed management plans were developed in consultation with the Office of Structural Engineering, Federal Highway Administration, and Ohio Historic Preservation Office.

A copy of each management plan will be forwarded to their respective bridge owners, to be used as a local and regional transportation planning tool. The reports include maintenance recommendations, proper treatments of materials, and site-specific rehabilitation and reuse options, based on guidance established by AASHTO, the National Park Service (NPS), and ODOT's Ohio Historic Bridge Maintenance and Preservation Guidance.

The Historic Bridge Management Plans and the Summary Report for Historic Bridge Management Plans were sent to the Ohio Historic Preservation Office; ODOT Office of Structural Engineering; and the Federal Highway Administration (FHWA) for review and comment on May 25, 2012. By signature of this letter, FHWA, ODOT, and the Ohio State Historic Preservation Office affirm their approval of the recommendations contained in the Historic Bridge Management Plans, as of this date.

Laura S. Leffler
Division Administrator
FHWA Ohio Division Office: HPD-OH

Tim Keller
Administrator
Office of Structural Engineering
Ohio Department of Transportation

Mark Epstein
Department Head
Resource Protection and Review
Ohio State Historic Preservation Office

Timothy M. Hill
Administrator
Office of Environmental Services
Ohio Department of Transportation
ACKNOWLEDGMENTS

Senior Architectural Historian
Roy Hampton

Figure Preparation
Michael J. Krakovsky

Senior Engineer
John Shanks, PE

Bridge Engineer
Mike Killian, PE

REPORT PREPARATION AND AUTHORSHIP: Roy Hampton is the primary author of this summary report. Mike Killian and John Shanks are the primary authors of the management plans, with contributions by Roy Hampton. Michael Krakovsky provided GIS mapping support to identify bridge locations.

ADDITIONAL ACKNOWLEDGMENTS: Tom Barrett of ODOT OES served as project manager for this task order and was the technical point of contact. Tara Tarlton of ODOT OES served as the contracting and invoicing point of contact and is project manager for HDC’s task order contract.

HDC would also like to thank the various county engineer staff members who answered questions, agreed to be present for some of the site visits, and who provided research information and in some cases facilitated access to the bridges. Special thanks go to the following county engineer staff members: Ron Smith (Preble County), Troy Recker, (Putnam County), Rex Yarger (Richland County), Don Glosser (Morrow County), and Lee Tanzy (Lorain County).
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PROJECT OVERVIEW

Hardlines Design Company (HDC) was contracted in December 2011 to provide cultural resources services in association with plans to complete bridge management plans for 39 historic bridges in Ohio. ODOT provided a list of the bridges to HDC, and the HDC field team travelled to the bridge sites. HDC also coordinated with county engineer offices in the case of county-owned bridges, to notify the county engineers of the site visits and to allow the appropriate county engineer staff to be present at the inspections if interested. In many cases, the project engineer also obtained additional information on the bridges from ODOT or from the county engineer offices; this information was used in the assessment of the structures.

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Fieldwork was completed in a series of trips that took place from January 1-March 29, 2012. The field team did not have any problems gaining access to any of the bridges except structure no. 45XXX14 in Licking County, which is on private property, with the bridge truss currently removed from its abutments for rehabilitation and eventual reinstallation on new abutments. A plan will be completed for this bridge once it has been reinstalled. In all other cases, the field team was able to gain access to examine and photograph the bridges and complete any necessary field measurements.

In a few cases the bridge decks had deteriorated severely or had been removed. In these cases, the field team could not take photographs or measurements from the decks of these bridges since it was not safe to do so. However, in general, the field team was able to gather sufficient information to complete the level of documentation required for the management plans.

The bulk of writing and data entry for the plans was completed by the project engineer. The work was reviewed by B&N’s senior engineer, and HDC’s senior historian wrote this summary report and also the historical significance sections of the management plans. The complete set of management plans is provided as an appendix to this report.
SUMMARY OF INVESTIGATION

Of the 39 structures on the list, fieldwork and management plans were completed for 36 bridges. HDC was able to locate and gain access to all of the 36 bridges for which a management plan was completed.

Two bridges on the management plan list had been demolished before the start of fieldwork: the Township Road 77 bridge over the Shade River in Athens County (structure no. 549622), and the Township Road 125 bridge over Piney Fork in Jefferson County (structure no. 4133773). Structure 549622 has been demolished and a new structure has not been built at the site. Remnants of the stone abutments for structure 549622 were still in place at the site at the time of fieldwork. Structure 4133773 was replaced by a new bridge at the same site in 2010, according to the Jefferson County Engineer.

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A table of the bridges assigned to the project is included below.

Table 1. Historic Bridges Included in the Task Order for This Project
Demolished properties are shaded in gray; extant National Register-listed bridges are in bold and highlighted in blue. All other bridges are standing and National Register status is determined eligible.

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<tr>
<td>5930669</td>
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<tr>
<td>6040349</td>
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<tr>
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<td>Dry Run</td>
<td>Stark</td>
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<td>Howe truss</td>
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<tr>
<td>8741018</td>
<td>Milton Road</td>
<td>Ditch 2389</td>
<td>Wood</td>
<td>Standing, NR eligible</td>
<td>Stringer/concrete-encased Steel</td>
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</table>

The management plan for each bridge includes notes on the condition of the bridge, recommendations for preservation options, and a summary on the bridge’s historical significance. A copy of the plans is included as an appendix to this report. Information for the plans was gathered through site visits and previous ODOT historic bridge inventory survey documents, especially the historic bridge database. Other information such as construction drawings, crash data, photographs of past repairs, and previous load rating and structural analysis studies on the bridges were provided by the ODOT or the various county engineer offices. The historical statements of significance were for the most part adapted from the most recent state historic bridge survey database (TranSystems Corporation 2009).
REFERENCES CITED

TranSystems Corporation
2009  *Ohio DOT Historic Bridge Inventory, Summary and Tables, Survey Forms for Eligible/NR Listed Bridge*. WMS Access Database available at the Ohio Department of Transportation Office of Environmental Services, Columbus, Ohio.
**APPENDIX A. BRIDGE MANAGEMENT PLANS**

**NOTE** - Bridge Management Plans are in order by SFN as follows:

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<thead>
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<td>5930669</td>
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</tbody>
</table>
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 08XXXX2  
Owner: COUNTY

Municipality: NEW HOPE  
County: BROWN  
District: 09

Feature Carried: OLD US 68 (MAIN STREET/NEW HOPE IRON BRIDGE)(CLOSED)
Feature Under: WHITE OAK CREEK

B. STRUCTURAL INFORMATION

Main Span Type: THRU TRUSS  
Design: DOUBLE INTERSECTION PRATT (WHIPPLE)

Material: METAL

Year Built: 1884  
Altered/Rehabbed: N/A

Total Number of Spans: 1  
Overall Length: 160

C. CLASSIFICATION OF SERVICE

Direction of Traffic:

On National Highway System: NO

Number of Lanes On: 0

ADT /Date: 0 / 2012  
Waterway Adequacy: 0 Bridge Closed

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 15.5 ft  
Deck Width, Out to Out: 16 ft

Approach Travelway Width: 20 ft  
Vertical Clearance on Bridge: 19.4 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

NO

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:

N/A
E. STRUCTURAL EVALUATION

Physical Description:

160-foot, single span, double-intersection Pratt (Whipple) truss with gunite-coated stone abutments supporting longitudinal steel beam stringers and an asphalt covered timber deck.

Summary of Structural Deficiencies:

Surface corrosion covers virtually all steel components of this steel truss structure. Significant steel section loss was noted along the stringers (especially in areas where the timber decking had rotted away), at the lower truss to floorbeam connections, and at bearing locations. The timber deck is completely rotted through. The timber deck and asphalt are missing in several locations exposing the severely corroded steel superstructure below. The gunite-coated stone rear abutment has several large vertical cracks. Two large cracks extend the full height of the abutment from both left and right fascias of the superstructure. These cracks are likely due to excessive contraction or shifting of the superstructure in the forward direction. Excessive vegetation has overtaken this structure with vines entangling almost every truss member and weeds growing out of the asphalt / timber deck and debris encrusted joints. End-panel vertical connections have been strengthened with cables and turnbuckles.

II. CONFORMANCE WITH STANDARDS

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
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<th>Adequate (Y/N)</th>
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<tr>
<td>Geometric Adequacy</td>
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<td>-</td>
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</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is eligible for the National Register under Criterion C as an 1880s example of the technologically significant Pratt double intersection truss, also known as the Whipple truss. Whipple trusses are uncommon nationally, and although there were 14 surviving example of Whipple truss bridges in Ohio as of 2010, each of these examples is important due to the nationwide scarcity of this type. The bridge is also significant under Criterion C as the only structure in the ODOT bridge inventory that was constructed by the Lomas Forge and Bridge Works of Cincinnati. Lomas Forge and Bridge Works was founded in the 1870s and was an active bridge fabrication firm under the Lomas name until the company changed hands in 1898, at which time the name was changed to the Brackett Bridge Company.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? No

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge is in a location that no longer requires a waterway crossing. Due to the significant deterioration of this structure and the numerous maintenance issues, preservation of this structure would be best served in a different location that requires a pedestrian crossing and where routine maintenance could be justified and provided.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use: This bridge is currently closed to all traffic. Although this bridge could be rehabilitated without adversely affecting its historical significance, it would not be prudent to invest the required effort to maintain this remote structure as closed.

Ohio Legal Loading: Although this bridge could be rehabilitated without adversely affecting its historical significance, it would not be prudent to invest the required effort to upgrade this remote structure to support Ohio Legal Loading considering the low volume of traffic it serves and the fact that a nearby alternate route exists.

HS20 Loading: Although this bridge could be rehabilitated without adversely affecting its historical significance, it would not be prudent to invest the required effort to upgrade this remote structure to support HS20 Loading considering the low volume of traffic it serves and the fact that a nearby alternate route exists.

Bypass/historic bridge left in place: This bridge is currently closed and has a nearby alternate route. Therefore, there is no need to construct an additional bypass structure. Although this bridge could be rehabilitated in place without adversely affecting its historical significance, this bridge would require a complete superstructure and substructure rehabilitation. Therefore, it would not be prudent to invest the required effort to upgrade this remote structure in place considering the lack of need for a crossing at this location.

Other: A potentially prudent solution to preserve this historical structure could be to relocate and rehabilitate this bridge in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. The current superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. The new structure would require the replacement of currently deteriorated members including: a new timber deck, numerous steel stringers, and several lower chord truss connections. A load rating analysis would be required.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 1840053  Owner: RAILROAD

Municipality: BEREA  County: CUYAHOGA  District: 12

Feature Carried: CONRAIL
Feature Under: BARRETT RD/E BR ROCKY RIVER

B. STRUCTURAL INFORMATION

Main Span Type: OPEN SPANDREL ARCH  Design: REINFORCED CONCRETE ARCH

Material: REINFORCED CONCRETE

Year Built: 1909  Altered/Rehabbed: N/A

Total Number of Spans: 3  Overall Length: 362

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road - Rural (under bridge)  On National Highway System: NO

Direction of Traffic:

ADT /Date: 8947 / 1992  Waterway Adequacy: 9 - Bridge deck and approaches above floor

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 67 ft  Deck Width, Out to Out: 67 ft

Approach Travelway Width: 67 ft  Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

AS WIDE

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:

9 crashes (bridge is a railroad structure - these crashes occurred below and adjacent to bridge)

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E. STRUCTURAL EVALUATION

Physical Description:

362-foot, 3-span, open spandrel arch bridge with a 140-foot main span and 60-foot end spans. The bridge supports three railroad tracks on a ballasted deck. The spandrel walls have a corniced top edge and plain faced pilasters that are between the curved top openings and are supported by the arch barrel.

Summary of Structural Deficiencies:

There are significant cracks and spalls throughout this structure, most of which are along the top and fascia of the spandrel walls. Reinforcing steel is exposed in areas along the top fascia of the spandrel walls, where spalling is most severe. Vegetation growth, which extends from some of the more prominent cracks where moisture has collected, is exacerbating the original crack and spall issue. Areas along the underside of the arch barrel have delaminated concrete.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:

Alignment/Sight Distance: N - Not applicable
III. HISTORICAL SIGNIFICANCE

Historical Rank: Moderate

Summary of Significance:
Built in 1909, this railroad bridge is eligible for the National Register under Criterion C as an early example of the open spandrel concrete arch bridge type. The earliest open spandrel concrete arch bridge in Ohio dates to 1907, so this bridge is clearly one of the earlier examples. As of 2009, ODOT’s bridge inventory recorded 25 open-spandrel concrete arch bridges in the state, built between 1907 and 1957. The design of this structure is fairly robust and heavy, it has a slab arch rather than multiple arched ribs, and it also has fairly heavy spandrel columns. This bridge is therefore not as aesthetically refined as some of the state’s other open spandrel concrete arch bridges that featured lighter, more graceful designs. However, this bridge is still important as a major early example of its type.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Although this structure requires an extensive rehabilitation, preservation should be achievable without adverse effect on the historical significance of this bridge.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This structure can likely be preserved in place for its current support of three railroad tracks without adverse effects to its historical significance. However, an extensive rehabilitation is necessary. Rehabilitation would likely include the removal of vegetation growth within the structure, the cleaning of exposed reinforcing steel, the removal of delaminated concrete surfaces, the patching of spalled and delaminated concrete areas, and the epoxy injection repair of cracked concrete. Following a more detailed inspection with sounding, concrete chloride testing, and concrete coring and compression load testing, an analysis-based load rating to determine the overall load capacity could be performed. This load rating may determine that certain structural elements require strengthening to support the current loading. Depending on the final load rating results, strengthening might include the use of near-surface, fiber reinforced polymer (FRP) reinforcing to strengthen the top or bottom fibers of the main arch barrels. External FRP wrapping of the arches and spandrel walls are other potential solutions for strengthening. However, these solutions may obscure some of the formed architectural relief on this structure.

Ohio Legal Loading: Not applicable

HS20 Loading: Not applicable

Bypass/historic bridge left in place: If the results of an analysis-based load rating indicate that strengthening is required beyond that which can be accomplished without adversely effecting the historical significance, a possible solution could be the construction of an adjacent bypass railroad bridge. However, a bypass bridge for this site may not be prudent given the approach length needed to shift the alignment and associated embankment as well as the required potential right-of-way acquisition. If a bypass bridge is constructed with the historic bridge left in place, an existing structure rehabilitation that addresses the non-strengthening recommendations found under “Maintain Current Use” would still be required.

Other: No other alternatives were considered.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 1867733  
Owner: MUNICIPAL

Municipality: CLEVELAND  
County: CUYAHOGA  
District: 12

Feature Carried: OLD PEARL RD  
Feature Under: BIG CREEK

B. STRUCTURAL INFORMATION

Main Span Type: ARCH  
Design: STONE ARCH

Material: STONE

Year Built: 1865  
Altered/Rehabbed: N/A

Total Number of Spans: 1  
Overall Length: 46

C. CLASSIFICATION OF SERVICE

Functional Classification: 17 - Collector - Urban  
On National Highway System: NO

Direction of Traffic: 3  
Number of Lanes On: 1

ADT / Date: 100 / 1983  
Waterway Adequacy: 7 - Slight chance of overtopping bridge deck

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 15 ft  
Deck Width, Out to Out: 62.6 ft

Approach Travelway Width: 20 ft  
Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

NOT AS WIDE

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:

N/A
E. STRUCTURAL EVALUATION

Physical Description:

46-foot, single span, stone arch bridge with coursed ashlar stone arch barrel, spandrel walls, and wingwalls. The arch ring voussoirs terminate at a center span keystone. The bridge is finished with ashlar stone parapets and capstones.

Summary of Structural Deficiencies:

Several isolated stones are cracked or spalled from the arch barrel, spandrel wall, and wingwalls. Several wingwall stones are missing from within the wall height. Many of the upper course southwest wingwall stones have fallen into the waterway. Most of the cracked or spalled arch stones were observed near the fascia edges. A large crack that extends approximately 75% around the arch barrel was observed near the west fascia end. This crack is likely due to the effects of poor drainage and excessive pressure transferred from the spandrel wall. Steel guardrail driven behind the stone spandrel walls is corroded with rust stains extending down the fascia of the arch. Significant vegetation growth exists at the surface and within the arch backfill and is likely contributing to uneven pressure distribution behind the arch barrel.

II. CONFORMANCE WITH STANDARDS

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</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This structure is the oldest surviving roadway bridge in the City of Cleveland and dates to 1865; the bridge is therefore significant under National Register Criterion A for associations with Cleveland’s early transportation development. This stone arch bridge originally carried Pearl Road, a major artery in the area, and was within the municipality of Brooklyn from that city’s incorporation in 1889 until it was annexed by Cleveland in 1905. The Old Pearl Road Bridge was bypassed in 1894 by a larger, higher steel bridge. This steel bridge was replaced by an open spandrel concrete arch bridge in 1916, and the concrete arch structure was in turn replaced by the existing Pearl Road Bridge in 1986-1987. The Old Pearl Road Bridge retains a high level of integrity and is important for its associations with early transportation infrastructure in Cleveland.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This structure can be preserved without adverse effect on its historical significance through rehabilitation and routine maintenance. The rehabilitation work can likely be accomplished while maintaining traffic during construction as the single access point for the adjacent factory.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This structure is required as the only means of access for an adjacent factory (Turbonics, Inc.). It is currently non-load restricted. Rehabilitation and routine maintenance are required and feasible to preserve this bridge crossing without adversely effecting its historical significance. Rehabilitation should be designed to maintain traffic during construction and could include the replacement or resetting of missing and fallen stones, epoxy injection of cracked stones, in-kind mortared replacement of spalled areas, stabilization of spandrel walls through tie-backs or back-to-back connection of opposing walls, removal of vegetation, replacement of deteriorated guardrail, and regrading and repaving of roadway. Closure of the larger west fascia voussoir crack might be required and could include the temporary shoring and removal of backfill above that portion of the arch, resetting and remortaring of the shifted stones, reconstruction/replacement of the fractured stones, and replacement of the backfill. In order to accomplish this repair, careful disassembly (and then later reassembly) of the west spandrel wall may be required. The use of temporary driven sheet piling should be avoided to prevent damage to the existing stones and mortar joints. Routine vegetation control maintenance might be required.

Ohio Legal Loading: Refer to “Maintain Current Use”.

HS20 Loading: Refer to “Maintain Current Use”.

Bypass/historic bridge left in place: Although a bypass structure could be built at this site, considering the fairly good condition of the existing structure, the limited use of this site, and the fact that preservation of the current historic bridge would still require rehabilitation, the prudency of such an alternative could be debated.

Other: No other alternatives were considered.

V. PRESERVATION RECOMMENDATION
Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 2742322    Owner: COUNTY
Municipality: RACCOON TWP    County: GALLIA    District: 10

Feature Carried: CR 13071/OLD GALLIPOLIS-JACKSON HIGHWAY (CANTILEVERED BRIDGE)
Feature Under: RACCOON CREEK

B. STRUCTURAL INFORMATION

Main Span Type: THRU GIRDER    Design: CANTILEVER
Material: REINFORCED CONCRETE
Year Built: 1922    Altered/Rehabbed: N/A
Total Number of Spans: 3    Overall Length: 134

C. CLASSIFICATION OF SERVICE

Direction of Traffic: 3    Number of Lanes On: 2
On National Highway System: NO
ADT /Date: 50 / 1951    Waterway Adequacy: 6

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 21 ft    Deck Width, Out to Out: 23 ft
Approach Travelway Width: 15 ft    Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches? WIDER
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
E. STRUCTURAL EVALUATION

Physical Description:

134-foot, 3-span (35.5’-63’-35.5’), reinforced concrete deck supported by integral reinforced concrete floorbeams and haunched reinforced concrete through-girders with cantilevered end-spans.

Summary of Structural Deficiencies:

There are sporadic, but minor, surface spalls on through-girder fascias. Each floorbeam has deterioration at each fascia end. The end floorbeams are also deteriorated at their midpoint. Scuppers are blocked along through girders due to debris at gutter line. A significant deficiency, possibly due to vehicular impact, with exposed reinforcing steel exists on the top surface of the right through-girder at mid-span. The wingwalls are cracked and the stone forward abutment is rotating inward.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is significant under National Register Criterion C as a rare example of cantilevered thru girder construction. Completed in 1922, the structure may be the only remaining example of a concrete through girder bridge in Ohio. Original plans for the structure indicate that it was designed by the Ohio Highway Department’s Bureau of Bridges, and it appears that three bridges were built according to this design, with this bridge being the only surviving example.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge appears to be adequate for the low-volume traffic that it serves. However, there are several structural deficiencies that will need to be addressed in order to preserve this bridge. The spalled concrete surfaces of the through-girders, deck, and the floorbeams can be patched in place. Routine maintenance should be performed on this bridge several times throughout the year. This maintenance should primarily include cleaning leaves, dirt, and other debris from the gutter along the face of each through-girder as well as cleaning out the formed scupper holes. This will allow the proper flow and removal of drainage and help minimize the deterioration of the reinforced concrete.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: If the chloride content of the concrete tests high, further deterioration of the existing reinforcing steel could be minimized without adverse effect to the historical character of the bridge through the use of galvanic protection.

If the concrete strength testing and subsequent updated load rating analysis indicate that this bridge can support the required traffic loading in its current form, then rehabilitation of this structure without adverse effect is possible. In this situation, rehabilitation would consist of surface cleaning and patching of existing deteriorated concrete surfaces and stabilization of the abutments and the abutment bearing seats (particularly at the forward abutment where more significant rotation was observed).

If the load rating analysis indicates that the supporting through-girders on this structure cannot support the required traffic loading, then relatively few options are available for rehabilitating this bridge without adversely affecting the historical importance. A possible solution for accomplishing this would be the use of near-surface, fiber reinforced polymer (FRP) reinforcing to strengthen the top or bottom fibers of the main through-girders. External post-tensioning or FRP wrapping of the thru-girders and floorbeams are other potential solutions for strengthening. However, these solutions would adversely affect the aesthetics this structure.

Bypass/historic bridge left in place: SR 588 crosses Raccoon Creek just south of this bridge. This crossing can be used as an alternate route for accessing Adamsville Road. Since this nearby alternate route exists for this low traffic volume crossing, constructing a bypass bridge is not prudent. Leaving this bridge in place with a reduced load posting (or closed) and without any minimal rehabilitation, is not prudent for the long-term preservation of this structure based on its current condition and rate of deterioration.

Other: No other options were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 29XXXX2 Owner: PRIVATE
Municipality: NORTH XENIA County: GREENE District: 08

Feature Carried: PRIVATE DRIVE OFF OLD SPRINGFIELD PIKE
Feature Under: OLD TOWN CREEK

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS Design: BOWSTRING
Material: METAL
Year Built: 1878CA Altered/Rehabbed: 2005CA
Total Number of Spans: 1 Overall Length: 60

C. CLASSIFICATION OF SERVICE

Functional Classification: PRIVATE On National Highway System: NO
Direction of Traffic: Number of Lanes On: 1
ADT /Date: / Waterway Adequacy: 6 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 12 ft Deck Width, Out to Out: 12 ft
Approach Travelway Width: 12 ft Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?
AS WIDE

Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:

58-foot, single span, 2005 side-by-side prestressed box beam bridge with 3rd point connection at fascias to the 1878 bowstring pony trusses. The arch upper chord of the bowstring pony trusses is composed of three plates, spaced apart, held together, and stiffened by a zigzag arrangement of braces fabricated by bolts, pipe, and blocks. The verticals and diagonals are cross-shaped in profile and consist of rods with threaded ends. The verticals at the 3rd point locations have an additional threaded rod knee brace that connects to the floorbeam remnants. The lower chords are wrought-iron bars that have bolted splices and are looped around special cast iron shoes at the bearings. The bridge is supported on concrete abutments. The trusses also serve a dual purpose as railing. A shorter, multi-span bridge used to exist at this site as evidenced by the truncated remains of a drilled shaft pier in the middle of the waterway and remnants of an old concrete abutment forward of the current rear abutment. The current bridge carries a private drive (1356-58 Old Springfield Pike) over a stream in a suburban setting north of Xenia. The drive provides access to Old Springfield Pike for the houses on the east side of Old Town Creek. Between the creek and the Old Town Pike, to the west of the bridge, the drive passes through Old Town Park, which includes recreational fields, parking lot, picnic pavilion, and access to a bike trail. This is one of two parallel drives that serve this purpose. The other drive, located to the south of this one, is carried over the stream by another bowstring truss (29XXXX3). A historical marker beyond the bridge's northwest quadrant indicates this area is near the site where the Native American leader Tecumseh was born.

Summary of Structural Deficiencies:

There is some impact damage to the southern truss at its eastern end that has caused a slight deformation of the arch. A light surface corrosion exists across all existing truss surfaces.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:

Alignment / Sight Distance: 8 - Condition equal to present desirable criteria
III. HISTORICAL SIGNIFICANCE

Historical Rank: Moderate

Summary of Significance:
This bridge is eligible for the National Register under Criterion C as one of only 22 examples of bowstring truss bridges in Ohio dating to 1864-1880, based on 2009 survey data. This bridge is also an example of the Champion Bridge Company’s distinctive 1874-1875 patented bowstring truss design. The most remarkable feature of this design is that the curved top chord is composed of three thin steel plates that are stiffened and linked together by a series of rods, bolts, and iron connecting pieces. In 2009, the ODOT inventory contained only three examples of the 1874-1875 Champion Bridge Company bowstring design. The integrity of the bridge has been somewhat compromised by replacement of the deck with a concrete box beam structure, and the original bowstring trusses are now only serving as railings for the box beam bridge and have no structural function. However, the truss is still significant under Criterion C due to the great rarity of the 1874-1875 patented Champion Bridge Company truss design.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? Yes

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Although the trusses of the current bridge are the only remaining historic elements, in-place, preservation of these elements should not only be possible, but easily obtainable. Minor retrofits and routine maintenance are recommended as a part of this preservation.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
Although this bridge is privately owned, there are several activities that could be done to preserve this bridge for its current use. A significant amount of debris was observed on and around the truss bearings as well as at the 3rd point bracket connections. This debris is trapping moisture and is accelerating corrosion and concrete delamination. It is recommended that these locations be routinely cleaned. Deflector plates could be installed along the edge of deck at these locations to channel away drainage and debris. It appears that the current fascia prestressed box beams might have been reused from another location, because there are threaded inserts cast into the beams where guardrails may have previously existed. It may be prudent that the unused threaded inserts be utilized to attach a proposed railing or guardrail to this bridge to protect the trusses from vehicular impact damage. Currently, the historic truss elements are unprotected against potential vehicular impact. Surface corrosion should be removed and the truss should be considered for painting.

Ohio Legal Loading:
A current load rating is not on file for this bridge. However, based on its span length, year of construction, and observed condition, it is likely that this bridge is currently capable of supporting full Ohio Legal Loads. Therefore, the recommendations for maintaining current use also apply to Ohio Legal loading.

HS20 Loading:
A current load rating is not on file for this bridge. However, based on its span length, year of construction, and observed condition, it is likely that this bridge is currently capable of supporting an HS20 truck load. Therefore, the recommendations for maintaining current use also apply to HS20 loading.

Bypass/historic bridge left in place: A bypass for this bridge currently exists about 25-feet downstream. However, permission to utilize this neighboring bridge would need to be granted.

Other: No other options were considered.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 3031691 Owner: COUNTY
Municipality: CAMBRIDGE TWP County: GUERNSEY District: 05
Feature Carried: MANILA ROAD (C.R. 430/OLD NATIONAL ROAD)
Feature Under: CROOKED CREEK

B. STRUCTURAL INFORMATION

Main Span Type: ARCH Design: ARCH
Material: STONE
Year Built: 1828 Altered/Rehabbed: 2006
Total Number of Spans: 1 Overall Length: 40

C. CLASSIFICATION OF SERVICE

Direction of Traffic: 3 On National Highway System: NO
Functional Classification: 19 Number of Lanes On: 2
ADT /Date: 400 / 1951 Waterway Adequacy: 9

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 20 ft Deck Width, Out to Out: 20 ft
Approach Travelway Width: 20 ft Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?
AS WIDE

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:
E. STRUCTURAL EVALUATION

Physical Description:

This bridge consists of a 46-foot single span stone arch with stone headwalls, abutments, and wingwalls. The stone headwalls are 28'-3" between inside faces and are 1'-7" thick. The roadway live load is no longer being supported by the arch. Rather, live load is being supported by a single span prestressed concrete box beam bridge that spans over the top of the historic arch. The box beam bridge is 20'-3" face-to-face of guardrail. The bottom of the prestressed box beams clear the dirt fill over the arch by approximately 2-feet. Although the approach immediately north of this bridge has a very sharp curve, the bridge itself is along a straight and adequate alignment.

Summary of Structural Deficiencies:

The coursed ashlar stone parapets and spandrel walls for this structure are severely deteriorated and in some locations completely missing. Although the coursed ashlar stone wingwalls are severely weathered, they are in generally good condition aside from localized cracking and shifted stones. The exposed portions of the stone abutments along the waterline have been encased/patched with concrete. Isolated vertical cracks are evident along these exposed faces of the concrete encasement. The upper portions of the concrete abutment encasement outside the limits of the arch width have spalled.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: Moderate

Summary of Significance:
This bridge is significant under National Register Criterion C as an example of pre-Civil War stone masonry arch bridge construction, and has additional significance under Criterion A for its associations with the construction of the National Road (U.S. Route 40) through Ohio. This bridge was completed in 1828 and therefore is a fairly early example of stone arch bridge construction; Ohio examples of this type generally date from ca. 1825 through ca. 1940. The bridge’s stone masonry construction illustrates the high level of craftsmanship of nineteenth-century stonemasons, and the structure also represents the early expansion of Ohio’s transportation network.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
It is very likely that this bridge and its historical significance can be preserved in its current location. The bridge is currently being protected by the existing box beam structure built over top of it. However, additional measures can be taken to mitigate further deterioration. The box beam bridge utilizes over-the-side drainage. Since the width of the arch structure is greater than the width of the box beam structure, this drainage collects on top of the arch and behind the already deteriorated stone parapets/spandrel walls. This drainage, which is a major source of the current deterioration occurring to this historic structure, can be collected and diverted away from the arch structure. The arch element appears to be in fairly good condition.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 3101231  Owner: STATE

Municipality: CINCINNATI  County: HAMILTON  District: 08

Feature Carried: MCMILLAN STREET  Feature Under: US 42 (READING ROAD)

B. STRUCTURAL INFORMATION

Main Span Type: RIGID FRAME  Design: CANTILEVER

Material: STEEL

Year Built: 1937  Altered/Rehabbed: 1990

Total Number of Spans: 3  Overall Length: 217

C. CLASSIFICATION OF SERVICE

Functional Classification: 14 - Other Principal Arterial  On National Highway System: NO

Direction of Traffic: 1  Number of Lanes On: 4

ADT /Date: 18570 / 2005  Waterway Adequacy: N/A

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 44 ft  Deck Width, Out to Out: 60 ft

Approach Travelway Width: 44 ft  Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

As wide

Sidewalk Width Left/Right: 8 ft / 8 ft

Crash Data:

11 crashes

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E. STRUCTURAL EVALUATION

Physical Description:

217-foot, 3-span (50'-117'-50') bridge with cantilevered end-spans and a reinforced concrete deck supported by rigid steel frame piers and variable depth, built-up, riveted, steel plate girders.

Summary of Structural Deficiencies:

There are isolated locations of steel surface corrosion and peeling paint on the steel girders and pier frames. Visible vertical cracks with exposed efflorescence exist on the fascias of the concrete upper pier pylons. Curb concrete adjacent to approach catch basins is both cracked and deteriorated. Spalled and delaminated concrete is evident along the length of the concrete stair wells located at each corner. The top surface of the approach slab concrete at the forward-right corner adjacent to the expansion joint is spalled with exposed reinforcing steel. During the site visit, this spall was filled with water. Scuppers at the forward abutment, just rear of the expansion joint, are clogged.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:

Alignment/Sight Distance: 8 - Condition equal to present desirable criteria

Current BMS coordinates are incorrect. The correct coordinates for this bridge are: N39.12722, W84.50195

Minimum vertical clearance underneath bridge: 16'-5"
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This structure is an important example of pre-World War II rigid steel frame bridge construction, and also reflects the influence of 1930s-era streamlined Art Moderne design. The overpass was designed by the Cincinnati Department of Public Works, Division of Highways, and was rehabilitated in 1990, at which time the reinforced concrete deck was replaced. The rehabilitation left important features like the steel structure, concrete pylons, staircases, and railings intact, so the bridge retains a high level of integrity. This structure is significant under National Register Criterion C for aesthetic and structural aspects. Very few steel rigid frame bridges were constructed before 1950, so this 1930s example of this type represents a rare early example. The bridge is also an excellent illustration of the Art Moderne movement of the 1930s, which emphasized sweeping, curved, streamlined forms and simple designs with a minimum of ornament.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge has been well maintained and is adequately serving current traffic. With minor rehabilitation and continued maintenance efforts, this bridge could continue to be preserved for many more years.

- **No build:** The no-build option does not address the deterioration that is affecting the integrity of this historical bridge and is not prudent.

- **Rehab without adverse effect:** Maintain Current Use:
  This bridge is designed for H20 loading and is currently supporting Ohio Legal Load traffic without any observed distress. However, in order to maintain and preserve this bridge, there are several items that could be rehabilitated, without adversely affecting its historical significance. In the shorter term, the vertical cracks in the concrete pylons could be repaired with epoxy injection. This would not only serve to protect the reinforcing steel. But it would mitigate further deterioration due to seasonal freeze-thaw action. Within the next several years, the spalled concrete curbs, approach slabs, and stairs could be patched and the areas of superstructure steel that exhibit surface corrosion and peeling paint could be cleaned and repainted. The currently clogged scuppers that are located through the deck at the forward abutment should either be cleaned out or plugged with concrete and removed from service.

  - **Ohio Legal Loading:** Since this bridge is currently supporting Ohio Legal Loads, refer to “Maintain Current Use” for recommendations.
  - **HS20 Loading:** Refer to “Maintain Current Use” for recommendations.
  - **Bypass/historic bridge left in place:** This bridge can continue to be preserved in place without utilizing a bypass route for current traffic.
  - **Other:** This bridge can continue to be preserved. However, since this bridge already has sidewalks along both sides and serves a fairly large traffic count, it is not recommended that this bridge be reconfigured for an alternate use.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 36XXXX1 Owner: COUNTY
Municipality: JACKSON County: HIGHLAND District: 09
Feature Carried: ABANDONED ROAD
Feature Under: OHIO BRUSH CREEK

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS Design: BOWSTRING
Material: METAL
Year Built: 1874CA Altered/Rehabbed: N/A
Total Number of Spans: 1 Overall Length: 75

C. CLASSIFICATION OF SERVICE

Functional Classification: N/A On National Highway System: NO
Direction of Traffic: Number of Lanes On: 0
ADT /Date: 0 / 2012 Waterway Adequacy: 0 - Bridge closed

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 11.3 ft Deck Width, Out to Out: 11.3 ft
Approach Travelway Width: ft Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
N/A
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

75-foot, 1-span bowstring steel truss bridge with built-up, rectangular, tubular main arches, steel bar lower chords with bolted splices, vertical members that alternate between tapered triangular lattices and cross-shaped bar sections, wrought-iron diagonal bars, and rolled section floorbeams supported on top of the lower chord bar members. The entire bridge is supported on unreinforced concrete abutments. The deck of the truss has been removed and the bridge is currently closed to traffic.

Summary of Structural Deficiencies:

This bridge has no deck. The longitudinal, “kick-plate” channels that supported the edge of deck are either missing or severely deteriorated. The built-up lattice verticals at midspan are severely corroded at the bottom outside ends. The entire rear right corner abutment breastwall has sheared from the footing due to root growth from a large adjacent tree. The portion of the rear abutment breastwall, beneath the arch bearings, is rotated and spalled at the corners. Consequently, the rear abutment bearings are not seated properly and are at risk for failure.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank:  High

Summary of Significance:
This structure is eligible for the National Register under Criterion C as an example of the highly significant tubular bowstring truss bridge type. This truss design had been patented by the Wrought Iron Bridge Company. As of 2009 there were seven examples of the Wrought Iron Bridge Company’s tubular bowstring truss bridges in Ohio, and the state had a total of 22 bowstring truss bridges dating to the 1864-1880 years. Although there are 22 known post-Civil War bowstring truss bridges in Ohio, the design was a great engineering advancement for its time, and the type is rare nationally, so this bridge has a high level of significance as an example of this type.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage?  NO

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge is in a location that no longer requires a waterway crossing. Due to the significant deterioration of this structure and the numerous maintenance issues, preservation of this structure would be best served in a different location that requires a pedestrian crossing and where routine maintenance could be justified and provided.

No build:  The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect:  Maintain Current Use:  This bridge is currently closed to all traffic. Although this bridge could be rehabilitated without adversely affecting its historical significance, it would not be prudent to invest the required effort to maintain this remote structure as closed.

Ohio Legal Loading:  Although this bridge could be rehabilitated without adversely affecting its historical significance, it would not be prudent to invest the required effort to upgrade this remote structure to support Ohio Legal Loading considering the lack of traffic it serves and the fact that there is no development at the forward end.

HS20 Loading:  Although this bridge could be rehabilitated without adversely affecting its historical significance, it would not be prudent to invest the required effort to upgrade this remote structure to support HS20 Loading considering the lack of traffic it serves and the fact that there is no development at the forward end.

Bypass/historic bridge left in place:  This bridge is currently closed. Although there is no nearby alternate route and this bridge could be rehabilitated in place without adversely affecting its historical significance, this bridge would require extensive superstructure and substructure rehabilitation. Furthermore, there is no development or need for a crossing at this site. Therefore, it would not be prudent to invest the required effort to upgrade this remote structure in place considering the lack of need for a crossing at this location.

Other:  A potentially prudent solution to preserve this historical structure could be to relocate and rehabilitate this bridge in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. The current superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. The new structure would require the replacement of currently deteriorated members including: a new timber deck and several new latticed verticals. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 4237617  Owner: COUNTY
Municipality: WAYNE TWP  County: KNOX  District: 05
Feature Carried: MILE CREEK ROAD
Feature Under: MILE CREEK

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS  Design: PRATT (PINNED)
Material: METAL
Year Built: 1876CA  Altered/Rehabbed: 1975
Total Number of Spans: 3  Overall Length: 52

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road - Rural  On National Highway System: NO
Direction of Traffic: 3  Number of Lanes On: 1
ADT /Date: 60 / 1980  Waterway Adequacy: 3 - Frequent overtopping of bridge deck

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 13.3 ft  Deck Width, Out to Out: 14 ft
Approach Travelway Width: 20 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

52-foot, 3-span (17.333’-17.333’-17.333’), pin-connected Pratt pony truss on stone and concrete abutments and steel pile piers at every other floorbeam. The rear abutment has a concrete bearing seat and backwall supported behind a mortared stone wall. The forward, wall-type abutment is reinforced concrete. The upper chords and inclined end-posts consist of toe-out channels with top cover plates and bottom batten plates. The rolled I-section verticals are connected to rolled I-section floorbeams that bear on top of the lower chords that consist of two parallel plates. The upper panel points are pinned. The lower connections are composed of block castings for both the diagonal and counter members. These castings have upturned ends and additional fittings to hold and stabilize the verticals and floorbeams. Some interior panels have cruciform-shape outriggers that also provide stability. The truss supports a timber deck with asphalt wearing surface.

Summary of Structural Deficiencies:

A light surface corrosion exists on all truss members. Heavier pack rust is present within each upper chord connection and at upper chord cover plates. The middle left vertical is slightly bent due to apparent vehicular impact. The concrete abutments are severely spalled at the bearings of the forward abutment. There are cracked and bulged mortar joints at the rear left abutment corner. The lower left chord is damaged from debris during high water. The significant deterioration of the asphalt wearing surface is accelerating the rot and deterioration of the timber deck.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is significant under National Register Criterion C as an early example of a pin-connected Pratt pony truss with distinctive design features. Pre-1890 example of the pin-connected Pratt truss are more significant as they tend to include unique structural details that were often patented by bridge designers; features of the post-1890 examples were more heavily standardized. This bridge contains features similar to those used on bowstring truss bridges, and these features also suggest that the bridge may be the work of the Wrought Iron Bridge Company, an important late nineteenth century Ohio bridge fabrication firm. The bridge is an important early example of the pin-connected Pratt truss and it also illustrates the technological transition between bowstring and Pratt truss bridges during the 1870s.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? Unlikely

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This historic truss bridge could be preserved through significant rehabilitation. However, it is likely that this bridge will always require a vehicular posting without significant strengthening or alteration to its original design. Rehabilitation and relocation of this truss as a pedestrian structure might be a more prudent preservation solution.

- **No build:** The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

- **Rehab without adverse effect:** Maintain Current Use:
  A significant rehabilitation and routine maintenance would be required in order to preserve this bridge for its current load restricted use without adversely effecting its historical significance. Such rehabilitation could include cleaning and painting of the truss members and all connections, straightening and repair of the damaged vertical and lower chord members, repair of the cracked and significantly spalled bearing seats and abutments, replacement of the timber deck and asphalt wearing surface, and installation of approach guardrail at each corner as well as railing across the bridge and attached to the deck to better protect the trusses from vehicular impact. Future maintenance could include the routine removal of debris at the bearing seats that tends to collect and hold moisture against the substructure and truss bearings.

  **Ohio Legal Loading:**
  A significant rehabilitation and routine maintenance would be required in order to preserve this bridge to support full Ohio Legal loading with minimal effect on its historical significance. In addition to the repairs required to ‘maintain current use’, additional strengthening would be required. Such strengthening could include the installation of post-tensioned cables installed adjacent and parallel to the lower chord and either attached to the bearing or restrained using deadmen installed behind the abutment backwall. Additional members to be strengthened would need to be identified through an analysis based load rating.

  **HS20 Loading:**
  Although it is unlikely that this structure could be strengthened to support full HS20 loading without adversely effecting the historical truss design, this could be confirmed through an analysis based load rating. If strengthening is possible, a rehabilitation similar to that required to support Ohio Legal loading would likely be required.

- **Bypass/historic bridge left in place:** The Knox County Engineer’s office has indicated that this bridge is scheduled to be demolished. It is not clear if a replacement bridge is being built. However, based on the long and straight approaches, assuming the right-of-way could be obtained, a bypass bridge could be constructed and the existing structure could be preserved. An extensive rehabilitation and routine maintenance would still be required to prevent further deterioration of the current
bridge. At a minimum this would include abutment repairs, cleaning and painting of the truss, and routine cleaning of the abutment seats. Considering the remote location of this structure, the prudency of such an effort would need to be evaluated.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the current steel superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. A rehabilitated structure would require the replacement of currently deteriorated members including: a new timber. All superstructure steel could be cleaned and painted. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which members require rehabilitation. If the bridge were removed from the current site, a new structure could be built at the existing location as a replacement.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 4532139  
Owner: ODNR  
Municipality: CLAYLICK  
County: LICKING  
District: 05  

Feature Carried: BLACKHAND GORGE BIKE PATH  
Feature Under: CLAYLICK CREEK

B. STRUCTURAL INFORMATION

Main Span Type: THRU TRUSS  
Design: A FRAME  
Material: METAL  
Year Built: 1890  
Altered/Rehabbed: 1983  
Total Number of Spans: 1  
Overall Length: 48

C. CLASSIFICATION OF SERVICE

Direction of Traffic:  
On National Highway System: NO  
Number of Lanes On: 0

ADT /Date: 0 / /  
Waterway Adequacy: 9 - Bridge deck and roadway approaches

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 8 ft  
Approach Travelway Width: 8 ft  
Deck Width, Out to Out: 8 ft

Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?  
AS WIDE

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:
48'-6", single-span, metal A-frame thru truss with sub-diagonals. The upper chords are composed of paired channels with cover plate and battens. The diagonal struts are paired angles with long rivets/spacers. The diagonals and lower chords are eyebar members. There are no vertical members. The truss supports a wooden deck and chain link fence on steel I-beam stringers and a midspan floorbeam. Steel rods with turnbuckles serve as lower lateral cross bracing. A steel cable has been added to the lower ends of each upper chord and extends from end-to-end of the bridge as an apparent supplement to the original lower chords. The bridge is supported by cast-in-place concrete on ashlar stone abutments.

Summary of Structural Deficiencies:
There is typical surface corrosion along each stringer flange and at each lower truss connection. Several lower chord eyebars have visible sag/bow. It is unclear if the attached lower chord cable supplement was an attempt to remedy this sag or if it is contributing to the sag. There are several locations along the upper chord where the upper cover plates have been gouged and are missing rivets. There is extensive tree growth behind the rear abutment.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This structure is eligible for the National Register under Criterion C as an example of a nineteenth-century metal A-frame bridge, which is a rare structural type in Ohio and in the nation in general. The bridge was relocated to this site from Licking County Route 332 in 1983-1984. The bridge's floor beams and wood deck have been replaced and the bridge sits on a former railroad bridge abutment. However, the original A-frame structure of the bridge is sufficiently intact to convey the technological significance of this structural type.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge could continue to be successfully preserved at its current location. As a part of this preservation, it is recommended that this bridge be rehabilitated and routinely maintained to avoid gradual deterioration.

- No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

- Rehab without adverse effect: Maintain Current Use:
This bridge is currently being utilized as a pedestrian bridge. Preservation for this current use is recommended and can be accomplished though rehabilitation and routine maintenance. Rehabilitation of this structure could include the following: cleaning and painting of metal components, repositioning of abutment bearings to eliminate the sag that was observed in cooler weather, replacement of missing rivets, and the removal of tree growth at the rear abutment. Routine maintenance could include the cleaning of debris from the deck, connection locations, and abutment bearing seats.

Ohio Legal Loading:
This bridge was designed as a narrow pedestrian bridge. Its current width and vertical clearance restriction will not accommodate vehicular traffic. However, if this structure were desired to be re-purposed as a vehicular bridge capable of supporting Ohio Legal loading, it would require a new and wider deck to be installed on lengthened floorbeams. Furthermore, a load rating analysis would be required to confirm the load carrying capacity of this structure and to identify structural members in need of strengthening. This effort is not currently recommended.

- HS20 Loading:
Refer to “Ohio Legal Loading”.

- Bypass/historic bridge left in place: An alternate route currently exists for this bridge. However, a rehabilitation and routine maintenance are recommended in order to preserve this bridge at its current location.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
Section I A - D

I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 4538102  Owner: COUNTY

Municipality: HANOVER TWP  County: LICKING  District: 05

Feature Carried: SEVEN HILLS ROAD
Feature Under: COLUMBUS & OHIO RIVER RR/BIKE PATH

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS  Design: PRATT (PINNED)

Material: METAL

Year Built: 1875CA  Altered/Rehabbed: UNKNOWN

Total Number of Spans: 1  Overall Length: 85

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road - Rural  On National Highway System: NO

Direction of Traffic:

Number of Lanes On: 2

ADT /Date: 316  /  2008  Waterway Adequacy: N - Bridge not over a waterway

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 22 ft  Deck Width, Out to Out: 23 ft

Approach Travelway Width: 26 ft  Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

NOT AS WIDE

Sidewalk Width Left/Right: 0 ft  /  0 ft

Crash Data: N/A
Physical Description:

85'-0", single-span, 10-panel, pin-connected Pratt pony truss bridge supported on ashlar abutments atop the rock cut of the railway. The bridge is composed of built-up wrought-iron sections and eyebars. The upper chord is a complex, built up shape composed of channels, angles, plate, and two bulb-T sections. Although, this is difficult to ascertain from visual inspection, because the chord is very thick and the outer sections cover the interior ones. The verticals are built up of toe-out channels with lacing as well as a long rivet detail joining the channels. The diagonals are paired eyebars with a continuous ribbon of shaped bar lacing. The lacing is held to the eyebars by long rivets that pass through both eyebars and the lacing. The lacing also has a short rivet where the ribbons intersect. The lower chords are composed of six eyebars in each panel. The floorbeams are inverted, pin-connected, queen-post trusses with eyebars for the tension members and a rolled section for the compression member. The floorbeams are closely spaced and set directly atop the lower chords. Every fifth floorbeam extends several feet outside the truss lines to form a connection point for a built-up outrigger that is bolt connected to the lower flanges of the upper chord with a shaped, angle-clip detail. A concrete deck with a full-length longitudinal joint is supported by the floorbeams and truss. A gas line is supported across the left side of this bridge on top of the deck and just outside of the curbline.

Summary of Structural Deficiencies:

There is significant vehicular impact damage to several left side railing and vertical members. There is 100% deterioration to the gas line encasement pipe from the midspan of the bridge to the forward abutment. The underside of the concrete deck is severely spalled adjacent to the longitudinal joint. There are missing rivets in the end-post lap plates. All wrought iron members have a light surface corrosion. There is a higher concentration of section loss at the vertical connection spacers. Debris buildup along the curb line is retaining moisture and clogging the small scupper holes along edge of deck. Tree growth from below the bridge is interfering with the lower chord near the forward right end of the bridge. There is a severed turnbuckle near the rear side of the third floorbeam. There is 1" section thickness remaining on the 1 5/8" lower chord eyebar member near the midspan of the right-side.

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</table>

Conformance Comments:

Status Notes:

Alignment / Sight Distance: 5 - Condition somewhat better than minimum adequacy to tolerate being left in place as is
III. HISTORICAL SIGNIFICANCE

Historical Rank: Exceptional

Summary of Significance:
This bridge is eligible for the National Register under Criterion C as a fairly unique pre-1890 example of a pin-connected Pratt pony truss bridge. The bridge was originally designed for railroad use and was likely moved to this site early in the twentieth century. This bridge may be the only surviving railroad pony truss bridge from the post-Civil War years designed for double tracks, and as of 2009 another bridge with similar structural details had not been found in Ohio or other states in the region. While pin-connected Pratt trusses are fairly common in Ohio, the pre-1890 examples have a higher level of engineering significance since the structural details of these bridges tend to be more distinctive, whereas the post-1890 bridges often have a higher level of standardization of structural elements. Although relocated and fitted with a concrete deck, the truss of this bridge is still quite intact.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge was originally designed for the support of two railroad lines. Since this style of bridge was unique at the time, the design was intended to be fairly conservative. Although, there is damage to several members due to impact and deterioration, the capacity of a fully restored bridge would likely be able to accommodate full HS20 and Ohio Legal live loading. Furthermore, several alterations could fairly easily be made that would greatly improve the preservation of this structure without adverse effect to its historical significance.

- No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.
- Rehab without adverse effect: Maintain Current Use:
  - Currently, this bridge is posted for a 50% Ohio Legal Load weight restriction. The bridge inventory indicates that this current 50% weight reduction posting is the result of a 2009 load rating that was based on engineering judgment. During the site visit for this project, strain gauge monitoring devices were observed installed on the bridge. When this data collection is complete, it is recommended that an analytical based load rating be performed to more accurately determine the current live load capacity for each member of this structure.

  Following this analysis, an appropriate rehabilitation is recommended to ensure that this structure can adequately support Ohio Legal and HS20 live loads without adversely affecting the historic significance. Such rehabilitation could include: Repair of the vertical member vehicular impact damage, replacement of the concrete deck with a reinforced concrete slab, replacement of missing rivets, cleaning and painting of wrought iron, removal of interfering vegetation, and replacement of significantly deteriorated members (i.e. lower chord eyebars, turnbuckles, etc.).

  Several additional alterations and maintenance tasks could significantly improve the preservation of this structure. The elimination or sealing of the longitudinal deck joint and installation of scuppers (if needed) would minimize the deterioration of the deck and structural floor system below the deck. The routine removal of debris along the curb line would allow for better drainage and minimize deterioration of the concrete and structural steel. The repair of the gas line encasement pipe and relocation of this utility to below the deck would minimize the risk of vehicular impact and potential or pipe rupture or fire. Finally, the installation of a concrete barrier that is supported by the deck (instead of the truss) would prevent future repeat damage to the historic truss members.

Ohio Legal Loading:
Refer to "Maintain Current Use" for additional information.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 4631838 Owner: COUNTY
Municipality: LOGANSVILLE County: LOGAN District: 07
Feature Carried: CR 21 Feature Under: MIAMI RIVER

B. STRUCTURAL INFORMATION
Main Span Type: THRU TRUSS Design: DOUBLE INTERSECTION PRATT (WHIPPLE)
Material: METAL
Year Built: 1882 Altered/Rehabbed: 1997
Total Number of Spans: 1 Overall Length: 143

C. CLASSIFICATION OF SERVICE
Functional Classification: 09 - Local Road Rural On National Highway System: NO
Direction of Traffic: 3 Number of Lanes On: 1
ADT /Date: 760 / 2010 Waterway Adequacy: 8 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 16 ft Deck Width, Out to Out: 16 ft
Approach Travelway Width: 20 ft Vertical Clearance on Bridge: 16.5 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
Not as wide
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
E. STRUCTURAL EVALUATION

Physical Description:

143-foot, single span, Double-intersection Pratt (or Whipple) truss with built-up compression members, eyebar or rod tension members, and lattice portal bracing with a builders plaque. The truss supports a timber deck with asphalt wearing surface on steel beam stringers and built-up I-girder floorbeams.

Summary of Structural Deficiencies:

This structure has several minor structural deficiencies. The abutments are in very good condition with only minimal and localized cracking. The structural steel stringers and floorbeams have substantial surface corrosion. More significant section loss was observed at the stringer/floorbeam interface. The timber deck shows signs of retained moisture and localized rot. The asphalt wearing surface is pitted and cracked throughout. The forward left end-diagonal interior flange edge is slightly bent due to collision damage.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:

2011 Inventory load rating indicates a 27 ton H-10 inventory rating, a 37 ton H-10 operating rating, and a 30% Ohio Legal load rating (inadequate). The bridge is currently posted at 9 tons for a 2-axle
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Built in 1882, this bridge is a good example of the technologically significant pin-connected Pratt double intersection through truss. Bridges with this truss type are rare nationally and there were only 13-14 examples of this type in Ohio in 2009. Examples of this truss type were built mainly in the 1880s, and were an important step in the evolution of pin-connected through truss bridges. As an excellent example of this significant bridge type, this bridge is eligible under National Register Criterion C for engineering significance.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge has a good potential for in-place preservation. The stone abutments are in very good condition and the current truss deterioration appears minor. Consequently, this bridge, which is slated for rehabilitation in the next couple of years, has a very high preservation potential.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge is slated for rehabilitation in the next couple of years. As described above, this truss will be disassembled, repaired in a shop, and then reassembled at the original location. This type of rehabilitation will preserve the historical integrity of the truss by returning the truss to its original double-intersection truss configuration. The cleaning and galvanization of the structural steel, which is scheduled to be a part of this rehabilitation, will act as an excellent barrier against further corrosion. If a timber deck is utilized on the rehabilitated bridge, an asphalt overlay should be avoided. Asphalt prevents moisture from evaporating out of the timber. Consequently, the perpetually moist timber not only rots quicker, but accelerates the corrosion of the steel floorsystem below. If possible, the guardrail should be revised to be attached to the deck system rather than the truss to better protect the truss against collision damage. Abutment cracks should be epoxy injected to minimize the infiltration of water and prevent further cracking. Following the rehabilitation, regular preservation maintenance of this structure could include the cleaning of debris from truss joints and abutment bearing seats.

Ohio Legal Loading:
This bridge is currently supporting a reduced Ohio Legal loading. This reduction is likely a result of the original design loading as well as deterioration. Strengthening might include the addition of supplemental steel, providing auxiliary members, and/or post tensioning. An analysis based load rating would be required during the rehabilitation design to determine if this bridge could be strengthened to 100% Ohio Legal loading without altering the original double-intersection truss configuration and therefore adversely effecting the historical integrity. Since an alternate route exists for this site, this bridge could be maintained on-site with a reduced loading without excessive inconvenience for the infrequent heavier vehicles.

HS20 Loading:
Based on the condition of this bridge and the current weight restrictions, it is unlikely that this bridge could ever support full HS20 loading without significantly altering the original design and thereby adversely effecting the historic integrity.

Bypass/historic bridge left in place:
Since this bridge is adequately serving the majority of traffic on this road and an alternate route currently exists for this bridge, a bypass bridge is not needed nor recommended for this site.

Other: No other options were considered.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 4734173    Owner: COUNTY
Municipality: WELLINGTON TWP    County: LORAIN    District: 03
Feature Carried: CEMETERY RD
Feature Under: WELLINTON CK

B. STRUCTURAL INFORMATION
Main Span Type: ARCH    Design: STONE ARCH
Material: STONE
Year Built: 1885CA    Altered/Rehabbed: N/A
Total Number of Spans: 1    Overall Length: 26

C. CLASSIFICATION OF SERVICE
Functional Classification: 09 - Local Road - Rural    On National Highway System: NO
Direction of Traffic: 2    Number of Lanes On: 2
ADT /Date: 210 / 1996    Waterway Adequacy: 7 - Slight chance of overtopping bridge dec

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 18.6 ft    Deck Width, Out to Out: 18.6 ft
Approach Travelway Width: 30 ft    Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

28-foot, single-span, rusticated ashlar sandstone arch bridge with block capstones that also serve as roadway parapets.

Summary of Structural Deficiencies:

According to the Lorain County Engineer’s Office (LCEO) scour is a significant issue at this site. The forward right inside face of the stone arch has been stabilized with a cast-in-place reinforced concrete abutment wall from a previously observed erosion problem. However, scour reportedly creates a significant drop in the flowline elevation from the south to the north (heading downstream). The top of roadway surface adjacent to the stone parapets has an uneven profile due to either settlement or loss of fill. Erosion exists at the corners of this culvert due to poor surface water drainage. Several parapet stones have been shifted from their original positions and have localized cracks and spalls likely due to vehicular impact.

II. CONFORMANCE WITH STANDARDS

<table>
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<td>Bridge Roadway Width</td>
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<tr>
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<td>-</td>
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</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: Moderate

Summary of Significance:
Built in 1885, this structure is significant under Criterion C as the most intact representation of the series of sandstone arch bridges that were built by the Lorain County Engineer between 1880 and 1900. The bridge’s substructure is highly intact but it also retains the original stone parapets; similar parapets have been removed and replaced with modern railings on many of the county’s other stone arch bridges. The masonry of the bridge also shows a high level of craftsmanship and skill, adding to the bridge’s significance under Criterion C. The bridge is also a reflection of the importance of Lorain County’s stone industry, as the high number of stone bridges in the county is directly related to the nationally important sandstone quarries in the vicinity of communities like Berea and Amherst.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge can be preserved in place through rehabilitation and routine maintenance.

| No build: | The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent. |
| Rehab without adverse effect: | Maintain Current Use: This bridge is currently supporting full HS20 and Ohio Legal load vehicular traffic. This bridge can be rehabilitated to maintain this current use while preserving its historical significance. Such rehabilitation might include the addition of rock channel protection in areas where scour is a problem, the replacement and compaction of lost fill at the bridge corners as well as the installation of drainage flumes, the grinding down of the asphalt wearing surface and re-planing of the profile, the re-alignment, re-grouting, and re-pointing of shifted or loose stones, the epoxy injection repair of cracked stones, the replacement of severely spalled stones, and the installation of approach guardrail to protect against blunt vehicular collision at the corners. Additional maintenance might include the routine cleaning of debris and vegetation from the roadway gutter. |
| Ohio Legal Loading: | Refer to “Maintain Current Use” |
| HS20 Loading: | Refer to “Maintain Current Use” |
| Bypass/historic bridge left in place: | Although the removal of traffic from this structure through the use of a bypass bridge might eliminate any potential for vehicular impact to the stone parapets, the cost for a bypass bridge at this site might be difficult to justify considering that this bridge appears to be serving its current use well and future vehicular damage can be mitigated through the installation of approach guardrail. As a result, a bypass structure is not recommended. |
| Other: | No other alternatives were considered. |

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 4741153  Owner: COUNTY
Municipality: PITTSFIELD TWP  County: LORAIN  District: 03
Feature Carried: WHITNEY RD
Feature Under: TR BLACK RIV

B. STRUCTURAL INFORMATION
Main Span Type: SLAB  Design: STONE SLAB
Material: STONE
Year Built: 1890CA  Altered/Rehabbed: 1985CA
Total Number of Spans: 2  Overall Length: 32

C. CLASSIFICATION OF SERVICE
Functional Classification: 09 - Local Road - Rural  On National Highway System: NO
Direction of Traffic: 2  Number of Lanes On: 2
ADT /Date: 200 / 1997  Waterway Adequacy: 6 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 20.6 ft  Deck Width, Out to Out: 24 ft
Approach Travelway Width: 25 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:
32-foot, 2-span, stone slab bridge with ashlar stone abutments, wingwalls, and center pier. The spandrel walls consist of two courses of rusticated ashlar stone masonry and a cast-in-place concrete cap mounted with guardrail posts and rail. An asphalt wearing surface extends between the back faces of the cast-in-place concrete caps.

Summary of Structural Deficiencies:
There is evidence of abutment, wingwall, and spandrel wall movement and stone crushing on the east side of the downstream elevation. This movement has created a large crack through the slab, abutment and pier stones across the entire right side longitudinal length of the second span. This movement and associated loss of fill is evident by longitudinal cracks and settlement found in the eastbound lane of the asphalt wearing surface. Several other individual stones have full depth cracks or significant spalls. The first spandrel wall stone coarse above the deck slab at the southeast corner is shifted 3-4” outward with a visible gap between the asphalt wearing surface and the back face of wall. Poor drainage control and waterproofing of the structure has caused deterioration to the stones at the ends of the wingwalls as well as saturation of the stone slab and abutment walls at various locations.

II. CONFORMANCE WITH STANDARDS

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<td>Load Rating Inventory (Operating)</td>
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<tr>
<td>Bridge Roadway Width</td>
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<tr>
<td>Geometric Adequacy</td>
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</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This structure is significant under Criterion C as Ohio’s most intact example of a stone slab bridge, and it may also be one of the nation’s most intact examples of this bridge type. Stone slab bridges were typically only built in areas with strong stone quarrying industries, such as Lorain County, Ohio, and the granite quarrying areas of Maine and northern Massachusetts, so the type is fairly uncommon and restricted to limited geographical areas. As such, the bridge is also a reflection of Lorain County’s sandstone quarrying industry. Although the original stone parapets are not in place on this bridge, the substructure is highly intact, so it has a high level of overall integrity. The stone masonry of the bridge also shows a very high level of craftsmanship, which adds to the Criterion A significance of the bridge.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? NO

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Based on the extensive stone cracking damage to this bridge and the ineffectiveness of previous rehabilitation attempts, this bridge has limited preservation potential as a vehicular structure. Potential preservation could include the use of the stone from this bridge elsewhere. The LCEO currently plans to replace this bridge in 2013.

<table>
<thead>
<tr>
<th>No build:</th>
<th>The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehab without adverse effect: Maintain Current Use:</td>
<td>Considering the current extensive damage to the right half of this structure, and the ineffectiveness of previous rehabilitation attempts, this bridge has limited preservation potential to maintain its current use as a vehicular bridge.</td>
</tr>
<tr>
<td>Ohio Legal Loading:</td>
<td>Refer to “Maintain Current Use”</td>
</tr>
<tr>
<td>HS20 Loading:</td>
<td>Refer to “Maintain Current Use”</td>
</tr>
<tr>
<td>Bypass/historic bridge left in place:</td>
<td>Although it is feasible to construct a bypass bridge without demolishing this historical structure, the substructure and backfill issues that have plagued the current bridge, would continue to adversely affect the structure and be difficult to arrest and repair. Furthermore, the realignment would likely require right-of-way acquisition, extensive tree removal, and embankment construction. Consequently, the prudency of a bypass structure is debatable.</td>
</tr>
<tr>
<td>Other:</td>
<td>No other alternatives were considered.</td>
</tr>
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</table>

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 5131464        Owner: COUNTY
Municipality: TULLY TWP        County: MARION        District: 06
Feature Carried: CR 67R
Feature Under: OLENTANGY RIVER

B. STRUCTURAL INFORMATION

Main Span Type: THRU TRUSS        Design: PRATT (PINNED)
Material: METAL
Year Built: 1876        Altered/Rehabbed: 1977
Total Number of Spans: 1        Overall Length: 93

C. CLASSIFICATION OF SERVICE

Functional Classification: 00-Park or Other Public Reservation Road        On National Highway System: NO
Direction of Traffic: Number of Lanes On: 0
ADT /Date: 0 / 2012        Waterway Adequacy: 0 - Bridge closed

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 15.5 ft        Deck Width, Out to Out: 16.5 ft
Approach Travelway Width: 0 ft        Vertical Clearance on Bridge: 13 ft.
Is Bridge Roadway as Wide or Wider Than Approaches? N/A
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:

93-foot, single-span, cast- and wrought-iron, pin-connected Pratt thru truss bridge with built-up box section inclined end posts and upper chords, built-up I-section inner verticals, parallel plate eyebar lower chords, and bar stock diagonals and end verticals with upturned ends for connecting at the panel points. The floor system consists of an asphalt covered timber plank deck supported by metal longitudinal I-beam stringers and transverse I-beam floorbeams that hang with inverted threaded U-bolts from the truss panel point pins. The bridge sits on stone wall-type abutments that have been encased in unreinforced shotcrete.

Summary of Structural Deficiencies:

The shotcrete encasement over the stone abutments is significantly cracked, spalled, and, in some areas, completely missing from the face of the existing stone. Exposed abutment stones appear loose and somewhat shifted with emerging vegetation visible in localized areas. The asphalt wearing surface is significantly worn, cracked, and potholed with many areas sprouting vegetation. The timber deck has rotted out in many areas due to the retention of moisture at the asphalt and timber interface. Portions of the timber deck are missing near the edge of deck. The stringers and floorbeams have moderate section loss due to prolonged corrosion.

II. CONFORMANCE WITH STANDARDS

<table>
<thead>
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<th>Actual</th>
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<td>Load Rating Inventory (Operating)</td>
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<td>Bridge Roadway Width</td>
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<td>Number of Lanes</td>
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<td>Alignment/Sight Distance</td>
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</tr>
<tr>
<td>Geometric Adequacy</td>
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<td>-</td>
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</table>

Conformance Comments:

Status Notes:

Alignment/Sight Distance: N - Not applicable
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Built in 1874, this structure is the oldest documented pin-connected Pratt through truss bridge in Ohio. The bridge is eligible for the National Register under Criterion C as the state’s oldest documented example of this technologically significant bridge type. Pre-1890 examples of the pin-connected Pratt truss are more significant as they tend to include unique structural details that were often patented by bridge designers; these details do not tend to appear in the more heavily standardized pin-connected Pratt truss bridges of the post-1890 years. The bridge is one of the most important early Ohio examples of the pin-connected Pratt through truss and is also significant for its distinctive structural details.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? NOT PRUDENT

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Although the historic truss is in relatively good condition, due to the significant deterioration of the remaining superstructure and substructure components and the numerous maintenance issues, preservation of this structure would be best served in a different location that requires a pedestrian crossing and where routine maintenance could be justified and provided.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
Although this bridge could be rehabilitated without adversely affecting its historical significance, it does not appear prudent to invest the required effort to maintain this structure for its current closed condition. If rehabilitation is desired, the following work would be required to maintain its current use: timber deck replacement, stringer and floorbeam cleaning and painting or replacement, and stone abutment stabilization and re-encased with a cast-in-place reinforced concrete wall. Additionally, routine vegetation removal and joint and bearing seat cleaning maintenance would be required to preserve this bridge. An analytical based load rating would be required to confirm the true load carrying capacity of this bridge.

Ohio Legal Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. In order to rehabilitate this bridge to support Ohio Legal Loading, an analysis would need to be performed and inadequate members would need to be identified for strengthening. Although it may be possible to rehabilitate this bridge to support Ohio Legal loading without adverse effect, it is likely that the original design was not intended to support this heavier load. Additionally, the current width of this structure would limit this structure to only one lane of traffic. Widening of this structure type is not feasible. Furthermore, depending on the volume of Ohio Legal loading that would be desired, there is potential fatigue ramifications of reservicing the existing truss wrought-iron eyebar connections. Strengthening might include the addition of supplemental wrought iron, providing auxiliary members, and/or post tensioning.

HS20 Loading:
Refer to Ohio Legal Loading for additional information

Bypass/historic bridge left in place: This bridge is currently bypassed. However, a rehabilitation and routine maintenance are recommended in order to preserve this bridge at its current location.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the current steel superstructure could be carefully dismantled, cleaned and painted in a shop, and
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 51XXXX1         Owner: COUNTY
Municipality: CALEDONIA        County: MARION        District: 06
Feature Carried: ABANDONED ROAD (CALEDONIA BRIDGE)
Feature Under: OLENTANGY RIVER

B. STRUCTURAL INFORMATION

Main Span Type: THRU TRUSS         Design: BOWSTRING
Material: METAL
Year Built: 1873               Altered/Rehabbed: N/A
Total Number of Spans: 1            Overall Length: 104

C. CLASSIFICATION OF SERVICE

Functional Classification: N/A        On National Highway System: NO
Direction of Traffic:               Number of Lanes On: 0
ADT /Date: 0 / 2012                 Waterway Adequacy: 0 - Bridge closed

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 15.7 ft        Deck Width, Out to Out: 16 ft
Approach Travelway Width: ft          Vertical Clearance on Bridge: 13 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
N/A
Sidewalk Width Left/Right: ft / ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

104-foot, single-span, wrought iron bowstring thru truss with tubular arch upper chords composed of Phoenix sections, wrought iron rod diagonals, alternating latticed and non-latticed built up verticals, and parallel bar plate lower chords. The truss supports an asphalt covered timber deck on I-beam floorbeams and stringers. The end truss bearings are supported by a floorbeam that spans between two drilled shafts. Upper lateral bracing consists of built-up lattice members at every other vertical. The lower lateral bracing consists of diagonal bars below the deck and connected to the floorbeams.

Summary of Structural Deficiencies:

Surface corrosion exists on all metal surfaces. 100% web section loss was observed for most of each stringer and the end portions of the end floorbeams. 90% flange section loss was observed along the interior floorbeams. The timber deck is rotted in most areas with the entire forward end missing. The asphalt wearing surface is completely deteriorated. 90% section loss was noted along several vertical members. Moderate section loss was observed on lower chord members at panel point connections.

II. CONFORMANCE WITH STANDARDS

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</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Built in 1873, the Caledonia Bridge was listed in the National Register in 1978, and is significant under National Register Criterion C as an example of a bowstring truss bridge. As of 2009, 22 examples of bowstring truss bridges dating to 1864-1880 remained in Ohio, and the type is very rare nationally. The Caledonia Bridge was also fabricated by the Wrought Iron Bridge Company of Canton, an important nineteenth-century Ohio bridge fabricator. The bowstring truss design was an important engineering advancement for its time, and the Caledonia Bridge therefore has a high level of significance as an example of this type.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? NOT PRUDENT

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Although this historic truss is in relatively good condition, significant rehabilitation and maintenance would be required to preserve this bridge. Considering that a vehicular crossing is no longer needed at this site, if preservation is desired, this structure could be rehabilitated and maintained as a pedestrian crossing;

- No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

- Rehab without adverse effect: Maintain Current Use:
Although this bridge could be rehabilitated without adversely affecting its historical significance, it does not appear prudent to invest the required effort to maintain this structure for its current closed condition. If rehabilitation is desired, the following work would be required to maintain its current use: Truss and floorbeam cleaning and painting, stringer, end floorbeam, and deck replacement, and replacement or repair of deteriorated vertical members. Routine maintenance might include: removal of adjacent and interfering vegetation and debris removal from the bearing seats.

Ohio Legal Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. In order to rehabilitate this bridge to support Ohio Legal Loading, an analysis would need to be performed and inadequate members would need to be identified for strengthening. Although it appears unlikely that this bridge could be strengthened to support full Ohio Legal loading, in addition to the recommendations under "Maintain Current Use", potential strengthening might include the addition of supplemental wrought iron, providing auxiliary members, and lower chord post tensioning. It should be noted that the current width of this structure would limit any future vehicular use to one lane of traffic. Widening of this structure type is not feasible.

HS20 Loading:
Refer to Ohio Legal Loading for additional information

Bypass/historic bridge left in place: Due to the lack of need for a vehicular crossing at this site, a bypass bridge is not considered or recommended.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading either at its current location or in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the current superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. A rehabilitated structure would require the replacement or rehabilitation of currently deteriorated members as described above under "Maintain Current Use". A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which
members require rehabilitation. Considering the proximity of this bridge to downtown Caledonia, and its current natural setting, preservation of this bridge at its current location as a pedestrian structure may be a prudent solution.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 55XXXX3 Owner: PRIVATE
Municipality: NEWTON County: MIAMI District: 07
Feature Carried: PRIVATE DRIVE AT 8455 SUGAR GROVE ROAD (CR 77)
Feature Under: PANTHER CREEK

B. STRUCTURAL INFORMATION
Main Span Type: THRU TRUSS Design: BOWSTRING
Material: METAL
Year Built: 1880CA Altered/Rehabbed: N/A
Total Number of Spans: 1 Overall Length: 80

C. CLASSIFICATION OF SERVICE
Functional Classification: PRIVATE On National Highway System: NO
Direction of Traffic: Number of Lanes On: 1
ADT /Date: / Waterway Adequacy: 9 - Bridge deck and roadway approaches a

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 16.25 ft Deck Width, Out to Out: 16 ft
Approach Travelway Width: 14 ft Vertical Clearance on Bridge: 13.2 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
WIDER
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

80-foot, 6-panel, single span, bowstring thru truss on stone abutments. The upper chord is a built-up section of toe-out channels with cover plate and battens. There is upper-lateral bracing of laced angles between the arch crowns at midspan. The verticals are laced angles, and the diagonals are loop-welded eyebars. The lower-chords are bars with riveted splice plates. The upper-chord connections are pins. The lower-chord connections are formed by cast-iron connecting pieces that rest atop the built-up fishbelly floorbeams and have cradles to hold two pins for the diagonal connections. The lower vertical connections are formed by bolts that pass through the flanges of the floorbeams. Another cast-iron piece rests atop the lower chord bars, forming a spacer as well as a cradle for looping an inverted U-shaped hanger for the floorbeam.

Summary of Structural Deficiencies:

Tree growth beneath the left side of the first floorbeam from the rear abutment is inducing an upward force at that connection. This is possibly the cause of the buckled vertical lacing at the same location. Although most of the timber deck boards were recently replaced, at the time of the site visit, several boards were rotted and still in need of replacement. New timber boards resting on top of the deck indicate that these boards will likely be replaced in the near future. Upper truss chord top plates, splice plates, and pin stiffening plates typically have pack rust along the edges and between connection rivets. Several of those locations have small isolated areas of significant section loss as well as missing bolts and nuts. Minor surface corrosion exists along the faces of all structural steel. Several steel stringers have 100% flange and web section loss. Several steel floorbeams have significant bottom flange pack rust and section loss.

II. CONFORMANCE WITH STANDARDS

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</table>

Conformance Comments:

Status Notes:

Alignment/Sight Distance: 8 - Condition equal to present desirable criteria
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Dating to ca. 1880, this bridge is eligible for the National Register under Criterion C as one of only 22 examples of bowstring truss bridges in Ohio dating to 1864-1880, based on 2009 bridge survey data. This bridge shares many similar features with the Wrought Iron Bridge Company's patented tubular bowstring truss bridge. However, instead of the tubular top member seen in the Wrought Iron Bridge Company's patented design, this bridge features an upper chord with channels, cover plates, and battens. This bridge may represent the further evolution of the Wrought Iron Bridge Company's bowstring truss designs. Although there are 22 post-Civil War bowstring truss bridges in Ohio, the design was a great engineering advancement for its time, and the type is rare nationally, so this bridge has a high level of significance as an example of this type.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Preservation of this bridge is possible through load rating and rehabilitation. A load rating would be required to determine the load carrying capacity and to identify members in need of strengthening. Rehabilitation could likely be done without complete disassembly.

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<th>Preserves Potential Description</th>
<th>Description</th>
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<tr>
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<td>The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.</td>
</tr>
<tr>
<td>Rehab without adverse effect</td>
<td>Maintain Current Use: An analytical based load rating would be required to confirm the true load carrying capacity of this bridge. However, rehabilitation would likely be required and could likely be done in-place to preserve this bridge and maintain its current use. Such rehabilitation could include a complete cleaning and painting of the superstructure steel, the addition of bolted steel stiffening plates to repair areas with structural steel section loss, the replacement of severely deteriorated stringers and timber deck boards, and the removal of adjacent trees that are bearing against this structure. Additionally, routine joint and bearing seat cleaning maintenance would be required to preserve this bridge.</td>
</tr>
</tbody>
</table>

Ohio Legal Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. Although this bridge is on private property and likely would not need to support full Ohio Legal loads, in order to rehabilitate this bridge to support Ohio Legal Loading, an analysis would need to be performed and inadequate members would need to be identified. Although it may be possible that this bridge could be rehabilitated to support Ohio Legal loading without adverse effect, it is likely that this effort would involve a significant amount of effort and cost. Additionally, the current width of this structure would limit this structure to only one 10-foot lane of traffic. Widening of this structure type is not feasible.

HS20 Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. Although this bridge is on private property and likely would not need to support full HS20 loads, in order to rehabilitate this bridge to support HS20 Loading, an analysis would need to be performed and inadequate members would need to be identified. Although it might be possible that this bridge could be rehabilitated to support HS20 loading without adverse effect, it is likely that this effort would involve a significant amount of effort and cost. Additionally, the current width of this structure would limit this structure to only one 10-foot lane of traffic. Widening of this structure type is not feasible.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 55XXXX6 Owner: PRIVATE
Municipality: BRADFORD County: MIAMI District: 07
Feature Carried: FARM LANE (PRIVATE)
Feature Under: STILLWATER RIVER

B. STRUCTURAL INFORMATION
Main Span Type: PONY TRUSS Design: PRATT (PINNED)
Material: METAL
Year Built: 1885CA Altered/Rehabbed: N/A
Total Number of Spans: 1 Overall Length: 42

C. CLASSIFICATION OF SERVICE
Functional Classification: PRIVATE On National Highway System: NO
Direction of Traffic: Number of Lanes On: 1
ADT /Date: 0 / 2012 Waterway Adequacy: 9 - bridge deck and roadway approaches a

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 13 ft Deck Width, Out to Out: 14 ft
Approach Travelway Width: 15 ft Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:

42-foot, single span, pin-connected Pratt pony truss bridge with built-up compression and eyebar tension members supported on concrete abutments. The upper chords are toe-out channels with cover plates and battens. The tapered verticals are channels with battens. The eyebars for the lower chords are heavier weight eyebars for the two interior panels and lighter weight bars for the end panels. The end panel lower chords are slightly haunched. The bridge has built-up fishbelly floorbeams, rolled stringers, and a wood deck. The stringers are embedded in the concrete abutments. The bridge is finished with squat, urn-shaped finials set atop the inclined end posts and a builders plaque that identifies it as fabricated by the Smith Bridge Co. of Toledo, Ohio.

Summary of Structural Deficiencies:

The timber deck on this bridge is severely rotted with some areas completely missing. The steel stringers have surface corrosion throughout and localized section loss at the abutments and along the top flanges. An interior stringer has a crushed web at the forward abutment. The spacing of the stringers is somewhat sporadic and likely a result of additional stringers being added during a previous deck replacement. The eyebars and pins have surface corrosion at the lower truss connections. Pack rust is visible between the upper chord plates and between the rivets. There are full depth vertical shear cracks at the abutment corners and the upper edges of the bearing seats are spalled off.

II. CONFORMANCE WITH STANDARDS

<table>
<thead>
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<th>Actual</th>
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<th>Adequate (Y/N)</th>
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</table>

Conformance Comments:

Status Notes:

Alignment/Sight Distance: 8 - Condition equal to present desirable criteria
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Built ca. 1885, this bridge is significant under National Register Criterion C as a fairly early example of a pin-connected Pratt pony truss. In 2009, about 60 pre-1900 Pratt truss bridges existed in Ohio. Pre-1890 examples of the pin-connected Pratt truss are more significant as they tend to include unique structural details that were often patented by bridge designers. The bridge contains features like fishbelly beams and tapered verticals that are not seen in the more heavily standardized pin-connected Pratt truss bridges that were built after 1890. The bridge is an important early example of the pin-connected Pratt truss and is also significant for its distinctive structural details.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge is in a remote location with a potential to serve a single property owner. Although the deck and stringers are significantly deteriorated, the historic truss is in relatively good condition. Furthermore, this bridge is in a setting that can avoid the impacts of higher traffic volumes. Consequently, this bridge can likely be preserved through in-place rehabilitation.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect:
Maintain Current Use:
This bridge is privately owned and maintained as a low-volume property access. Although this structure is in need of significant rehabilitation, based on the observed overgrowth, apparent lack of use, and available alternate route, it is unlikely that this work will be initiated by the private owner. However, this rehabilitation could likely be completed without adversely affecting the historical significance. Such rehabilitation might include the following work: timber deck replacement, steel stringer repair or replacement, structural steel cleaning and painting, and abutment crack repair and spall patching. Additionally, routine joint and bearing seat cleaning maintenance would be required to preserve this bridge. An analytical based load rating would be required to confirm the true load carrying capacity of this bridge.

Ohio Legal Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. Although this bridge is on private property and likely would not need to support full Ohio Legal loads, in order to rehabilitate this bridge to support Ohio Legal Loading, an analysis would need to be performed and inadequate members would need to be identified. Although it is possible that this bridge could be rehabilitated to support Ohio Legal loading without adverse effect, it is likely that this effort would involve a significant amount of effort and cost. Additionally, the current width of this structure would limit this structure to only one lane of traffic. Widening of this structure type is not feasible.

HS20 Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. Although this bridge is on private property and likely would not need to support full HS20 loads, in order to rehabilitate this bridge to support HS20 Loading, an analysis would need to be performed and inadequate members would need to be identified. Although it is possible that this bridge could be rehabilitated to support HS20 loading without adverse effect, it is likely that this effort would involve a significant amount of effort and cost. Additionally, the current width of this structure would limit this structure to only one lane of traffic. Widening of this structure type is not feasible.
Bypass/historic bridge left in place: The current inventory indicates that this bridge has not been load rated based on analysis. In order to rehabilitate this bridge to remain in place and support live load, an analysis would need to be performed and inadequate members would need to be identified. An alternate route currently exists. Therefore, a bypass bridge is not necessary.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the current steel superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. A rehabilitated structure would require the replacement of currently deteriorated members including: a new timber deck and the rehabilitation or replacement of steel stringers. All superstructure steel could be cleaned and painted. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which members require rehabilitation.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 5930197  Owner: COUNTY
Municipality: GILEAD TWP  County: MORROW  District: 06
Feature Carried: TR 127 (LOREN ROAD)
Feature Under: WHETSTONE CREEK

B. STRUCTURAL INFORMATION

Main Span Type: THRU TRUSS  Design: BOWSTRING
Material: METAL
Year Built: 1879  Altered/Rehabbed: 1999
Total Number of Spans: 1  Overall Length: 104

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road - Rural  On National Highway System: NO
Direction of Traffic: 3  Number of Lanes On: 0
ADT /Date: 0 / 2012  Waterway Adequacy: 0 - Bridge closed

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 14.1 ft  Deck Width, Out to Out: 14.1 ft
Approach Travelway Width: 22 ft  Vertical Clearance on Bridge: 9.5 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

104-foot, single-span, wrought-iron bowstring thru-truss bridge with tubular upper chord, built-up verticals, rod diagonals, and lower chord bars. The truss supports a timber deck on I-beam stringers and floorbeams. The entire structure is supported on a wall-type stone forward abutment and a wall-type reinforced concrete rear abutment. A wooden board attached directly to the truss members serves as the roadway barrier.

Summary of Structural Deficiencies:

The truss members have general surface corrosion. The floorbeams and stringers have more significant section loss. Several floorbeams have 100% web and bottom flange deterioration and have been supplemented with adjacent newer floorbeams. The forward abutment stones are cracked and slightly shifted at the truss bearing locations. The rear right abutment bearing appears settled due to a missing abutment stone and loss of backfill. The rear abutment concrete breastwall is spalled and saturated with water due to poor deck drainage. The left truss plane is bowed inward and has an outward kinked vertical with a sheared off vertical connection to the upper chord as a result of vehicular impact. The right truss has a split timber railing and an outward kinked vertical due to vehicular impact. Several truss diagonals are loose and bent out of alignment.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Built in 1879, this structure is eligible for the National Register under Criterion C as an example of a bowstring truss bridge dating to the 1864-1880 era. The bridge was also fabricated by the Wrought Iron Bridge Company of Canton, Ohio, one of the most important bridge fabrication firms of nineteenth-century Ohio. The bridge was rehabilitated in 1999 and is now closed due to vehicle impact damage sustained in 2005. As of 2009, there were 22 post-Civil War bowstring truss bridges in Ohio, but the design was an engineering advancement, and the type is rare nationally, so this bridge has a high level of significance as an example of this type.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? NO

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Although this historic truss is in relatively good condition, due to the current vehicular impact damage, and the deterioration of the remaining superstructure and substructure components, a significant rehabilitation would be required to preserve this bridge. Considering that this structure will unlikely be able to be strengthened without significant alterations to support full Ohio Legal loading and the fact that there is a vertical clearance of 9’-6” on the bridge, preservation of this structure is recommended to support either a load restricted vehicular or a pedestrian crossing.

No build: The no-build option does not address the deficiencies and deterioration that are affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect:
Maintain Current Use:
Although this bridge could be rehabilitated without adversely affecting its historical significance, it does not appear prudent to invest the required effort to maintain this structure for its current closed condition. If rehabilitation is desired, the following work would be required to maintain its current use: Truss, stringer, and floorbeam cleaning and painting, stone forward abutment rehabilitation (stabilization, missing stone replacement, and re-pointing), concrete rear abutment patching and sealing, and damaged truss repair (realignment of left truss plane and vertical and diagonal member repairs).

Ohio Legal Loading:
The current inventory indicates that this bridge has not been load rated based on analysis. In order to rehabilitate this bridge to support Ohio Legal Loading, an analysis would need to be performed and inadequate members would need to be identified for strengthening. Although it may be possible to rehabilitate this bridge to support Ohio Legal loading without adverse effect, the current vertical clearance is inadequate and it is likely that significant structural alterations would be required. Strengthening alterations might include the addition of a post tensioned supplemental lower chord cable. Additionally, the current width of this structure would limit this structure to only one lane of traffic. Widening of this structure type is not feasible.

HS20 Loading:
Refer to Ohio Legal Loading for additional information

Bypass/historic bridge left in place:
This bridge could be a candidate for a new bypass bridge. However, in addition to the construction of a bypass bridge, rehabilitation and routine maintenance are recommended in order to preserve this bridge at its current location.

Other:
A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading either at its current location or in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the current wrought iron superstructure could be carefully dismantled,
cleaned and painted in a shop, and then reassembled at a new location on new substructures. A rehabilitated structure would require the replacement or rehabilitation of currently deteriorated members as described above under “Maintain Current Use”. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which members require rehabilitation. Considering the proximity of this bridge to downtown Mount Gilead, and its current natural setting, preservation of this bridge at its current location as a pedestrian structure with a new vehicular bypass bridge is not only feasible, but may also be prudent.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 5930669 Owner: COUNTY
Municipality: NORTH BLOOMFIELD TWP County: MORROW District: 06
Feature Carried: CR 29 Feature Under: WHETSTONE CREEK

B. STRUCTURAL INFORMATION

Main Span Type: THRU GIRDER Design: CONCRETE THRU GIRDER
Material: REINFORCED CONCRETE
Year Built: 1905 Altered/Rehabbed: N/A
Total Number of Spans: 1 Overall Length: 51

C. CLASSIFICATION OF SERVICE

Functional Classification: 08 - Minor Collector - Rural On National Highway System: NO
Direction of Traffic: 3 Number of Lanes On: 1
ADT /Date: 500 / 1992 Waterway Adequacy: 9 - Bridge deck and roadway approaches a

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 16 ft Deck Width, Out to Out: 20 ft
Approach Travelway Width: 20 ft Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:
51-foot, single-span, 43-degree skewed, reinforced concrete thru-girder bridge with reinforced concrete deck and transverse floorbeams on stone abutments with unreinforced concrete facing.

Summary of Structural Deficiencies:
There are numerous structural deficiencies on this bridge including: cracked and spalled concrete on the bottom surface of the deck, cracked and deteriorated concrete at the inside toe of the concrete thru-girders with vegetation growth evident, severely delaminated upper surfaces of the concrete thru-girders with spalled ends and exposed reinforcing steel, spalled concrete abutment encasements, and shifted wingwall stones with visible holes behind walls at abutment/wingwall interfaces due to poor drainage control.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: Moderate

Summary of Significance:
This structure is a reinforced concrete through girder bridge and is primarily significant under National Register Criterion C because its early construction date of 1905 makes it possibly Ohio’s oldest surviving reinforced concrete bridge. As of 2008, Ohio retained about 64 reinforced concrete bridges built between 1905 and 1938. Although the concrete through girder type is fairly common and more technologically significant early examples exist dating to about 1910, the early date of construction of this bridge makes it significant. Although no documents were found at the Morrow County Engineer’s Office to confirm the 1905 construction date of this bridge, the county’s construction dates of record for bridges are usually accurate.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? Doubtful

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge can be preserved in place for its current use. However, a significant rehabilitation would be required. Considering the current condition of this bridge, the low-volume of traffic that it serves, its relatively small size, and current safety issues that it poses, the prudence of such rehabilitation is questioned.

No build: The no-build option does not address the safety issues and deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge currently supports unrestricted Ohio Legal traffic on a narrow, low-volume, rural road. In addition to the deterioration that exists, although the bridge approaches are protected with guardrail, the bridge thru-girders extend approximately 6” above the pavement surface and do not provide adequate barrier protection for the vehicular traffic. Concrete deflector parapets cast and doweled on top of the existing thru-girders might remedy this safety concern but would add significant weight. The support of this additional weight would need to be confirmed through a load rating analysis. In addition to providing better barrier protection, preservation rehabilitation could include patching and epoxy injection repair of the cracked and spalled concrete on the concrete thru-girders and the bottom surface of the deck, stabilization of the stone abutments and wingwalls with new reinforced concrete breastwalls cast in front and a low strength slurry pumped into existing abutment voids, and improvement of the current erosion due to poor surface drainage at the corners of the bridge through the installation of concrete curbs and sodded flumes. Concrete sounding, sample coring, and chloride-ion testing may be required to fully determine the extent and method of repair needed.

Ohio Legal Loading:
This structure currently supports full Ohio Legal loading. Refer to “Maintain Current Use” for further information.

HS20 Loading:
This structure currently supports full HS20 loading. Refer to “Maintain Current Use” for further information.

Bypass/historic bridge left in place: Although the straight horizontal alignment of this road would be conducive to the installation of a bypass bridge, the prudence of such a project is debatable. In addition to the significant roadway realignment work required to accommodate the poor vertical alignment and sight distance, and the installation of a new structure, a rehabilitation of the current structure would still be required for preservation. This rehabilitation would require the items described under “Maintain Current Use” excluding the installation of the concrete deflector parapets.

Other: No other alternatives were considered.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

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<th>SFN Number: 6005284</th>
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<tr>
<td>Municipality: DRESDEN</td>
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<tr>
<td>Feature Carried: SR 208/SR 666 (BYPASSED)(DRESDEN BRIDGE)</td>
<td>Feature Under: MUSKINGUM RIVER</td>
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B. STRUCTURAL INFORMATION

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C. CLASSIFICATION OF SERVICE

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<td>ADT /Date: 0 / 2012</td>
<td>Waterway Adequacy: 0 - Bridge closed</td>
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D. GEOMETRIC INFORMATION

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<th>Bridge Travelway Width: 20.1 ft</th>
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<tbody>
<tr>
<td>Approach Travelway Width: 20 ft</td>
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Is Bridge Roadway as Wide or Wider Than Approaches?

As Wide

<table>
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<th>Sidewalk Width Left/Right: 0 ft / 0 ft</th>
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Crash Data:

N/A
E. STRUCTURAL EVALUATION

Physical Description:

705-foot, 3-span (194’-449’-62’), eye-bar chain, suspension bridge with an asphalt concrete wearing surface supported by corrugated metal, stay-in-place forms, steel beam stringers, and steel beam floorbeams. Substructures consist of a reinforced concrete, wall-type rear abutment, reinforced concrete and steel tower piers, and a reinforced concrete stub-type forward abutment.

Summary of Structural Deficiencies:

This structure is currently closed and gated to prevent all forms of traffic from passing. Although this bridge was painted in 1997, no repairs were made to the significant deterioration that exists. Significant concrete spalling exists at each substructure unit. The spalled and deteriorated rear abutment concrete is significant enough that a transverse steel beam has been installed in an attempt to prevent a shear failure of the bearing seat and loss of support of the rear abutment bearings. The forward anchorage chamber is also significantly spalled, cracked, and delaminated with exposed efflorescence. Significant superstructure steel corrosion is evident. Several forward abutment bearings are completely deteriorated and missing. A significant portion of the steel lacing at the piers and near the forward abutment is completely corroded and missing. There is 100% section loss of the stay-in-place decking at the fascia edges and there is significant corrosion throughout its remaining transverse width. Many gusset plates (especially near the forward abutment) have large areas with 100% section loss. Visible section loss was observed on several steel pins localized near the eyebar/pin interface. There is 100% section loss of the steel tower lateral bracing members and fascia stringer connections to the floorbeams. Vegetation is a significant problem at this site. A large tree root is growing within and directly behind the rear abutment bearings. This is likely causing additional pressure against the back face of this wall-type foundation. Significant vegetation growth exists throughout and in between structural steel members at the forward abutment.

II. CONFORMANCE WITH STANDARDS

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<th>Actual</th>
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<td>Load Rating Inventory (Operating)</td>
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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank:  High

Summary of Significance:

The Dresden Suspension Bridge, built in 1914, was listed in the National Register in 1976, and is one of only two eye-bar suspension bridges in Ohio; the other example is the 1895 Mill Creek Park Bridge in Youngstown. The eye-bar suspension bridge is a significant bridge type and the Dresden structure is one of only two remaining examples in the state. The bridge therefore has a very high level of significance under National Register Criterion C.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage?  NO

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:

Although this bridge could be preserved, due to its large size, preservation in the form of a functioning bridge would have to occur on location. Relocation of this bridge is not practical. The significant rehabilitation and maintenance required to preserve this structure as a functioning bridge is not prudent. However, prudent preservation could occur by salvaging key structural elements during demolition for use in a museum or park display.

No build:  The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect:  Maintain Current Use:

This bridge is currently closed to all traffic with a bypass vehicular bridge. A sizable rehabilitation to allow this structure to support its own dead weight and still remain closed to live load could include the following: vegetation removal, complete substructure concrete repair, bearing repair and reconstruction, superstructure member repair (including stringers, floorbeams, gusset plates, lateral bracing members, steel piers, pins, and eyebars).

Ohio Legal Loading:

In addition to the items mentioned above under “Maintain Current Use”, a rehabilitation of this structure to support Ohio Legal Loading (or pedestrian loading) could include a new stay-in-place corrugated steel deck and asphalt or concrete wearing surface. Considering that this bridge is already bypassed for the support of Ohio Legal Loading, this alternative is not recommended.

HS20 Loading:

In addition to the items mentioned above under “Maintain Current Use”, a rehabilitation of this structure to support HS20 Loading could include a new stay-in-place corrugated steel deck and asphalt or concrete wearing surface. Considering that this bridge is already bypassed for the support of HS20 Loading, this alternative is not recommended.

Bypass/historic bridge left in place:

This bridge is currently bypassed. Preservation of this structure as a bridge would be impractical at a different location.

Other:

A prudent and practical preservation alternative for this structure could occur by salvaging key structural elements during demolition for use in a museum or park display.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 6032613  Owner: COUNTY
Municipality: CHANDLERSVILLE  County: MUSKINGUM  District:
Feature Carried: TR 209  Feature Under: BUFFALO FORK

B. STRUCTURAL INFORMATION
Main Span Type: PONY TRUSS  Design: CAMELBACK (RIVETED)
Material: STEEL
Year Built: 1935ca  Altered/Rehabbed: 2004
Total Number of Spans: 1  Overall Length: 101

C. CLASSIFICATION OF SERVICE
Functional Classification: 09 - Local Rural Road  On National Highway System: NO
Direction of Traffic: Number of Lanes On: 1
ADT /Date: 150 / 2005  Waterway Adequacy: 8 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 18 ft  Deck Width, Out to Out: 18.2 ft
Approach Travelway Width: 17 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
WIDER
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:
101-foot, 1-span, riveted, camelback, pony truss with rolled I-section floorbeams and stringers supporting an asphalt filled corrugated steel decking. The truss consists of two parallel rolled angles for lower chord members, opposing steel channels connected with steel plates and lattice for upper chords, steel angles for verticals, and built-up steel angles for diagonals. Reinforced concrete, wall-type abutments were built with cast-in-place wall-type, sheet-pile, and interlocking precast wingwalls (different style wingwalls at each corner).

Summary of Structural Deficiencies:
Almost all steel components exhibit minor surface corrosion. Truss chord members at bearing seats show more significant section loss.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
Alignment/Sight Distance: 3 - Basically intolerable condition requiring high priority of repair. Coordinates for this structure are missing from the BMS. The coordinates are: N39.90298, W81.83903
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is a riveted camelback pony truss, and appears to have been built ca. 1935. In the 1980s, as part of the First Statewide Bridge Survey, this bridge was identified as the only example of its type in the state. The bridge is significant under National Register Criterion C as the only known representative of its structural type in Ohio.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge has been well maintained and is adequately serving current traffic. With minor rehabilitation and continued maintenance efforts, this bridge could continue to be preserved for many more years.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
Although posted for a 15 ton weight restriction, this bridge is currently supporting a low volume of vehicular traffic without any observed distress. In order to maintain and preserve this bridge, there are several tasks that could be performed on this bridge without adversely affecting its historical significance. Current surface drainage is over-the-side with deflector plates installed at the ends of this bridge to avoid surface drainage from pouring onto the bearing seats. However, similar deflector plates are not installed to protect each floorbeam location. Such plates could be installed. Steel bearings could be cleaned and repaired in areas where excessive corrosion has occurred. Guardrail could be revised to be attached to the deck system to prevent collision damage to the truss. All steel members could be cleaned and painted to avoid further corrosion.

Ohio Legal Loading:
This bridge is currently posted for reduced Ohio Legal Loads based on a recent load rating analysis. In addition to the recommendations made above for preservation, there is a possibility that this bridge could be rehabilitated to accommodate full Ohio Legal loading depending on what is controlling the load reduction. Several retrofits could include: the addition of steel plates fastened to the outside of the existing gusset plates or truss members and/or post-tensioned steel rods along the outside of each lower chord and fastened to bulkheads at the abutments. However, considering the location, the poor approach alignment, the narrow bridge width, the low volume of traffic, and the availability of an alternate route, the need for truck traffic to utilize this bridge is minimal. Therefore, although the ability to upgrade this bridge to support Ohio Legal Loading may be feasible, it is not considered prudent.

HS20 Loading:
Since this bridge is a through-truss, options, beyond those described above, to retrofit this bridge to support additional loading are limited. Although verification would be necessary through analysis, considering the current Ohio legal load rating posting, it is unlikely that this bridge could be upgraded to support HS20 loading. Furthermore, for reasons mentioned above, upgrading this structure to support HS20 loading is also not prudent.

Bypass/historic bridge left in place: This bridge can continue to be preserved in place for current traffic while maintaining the current bypass route for heavier vehicular loads. No additional bypass is needed at this time.

Other: This structure is posted for a reduced legal loading. Therefore, it is not capable of supporting additional weight while still supporting the current vehicular loading. Consequently, even though this style of bridge is typically not widened, it cannot be widened without sacrificing its
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 6036155  Owner: COUNTY
Municipality: CLAY TWP  County: MUSKINGUM  District: 05
Feature Carried: CR 32 (MAIN STREET)
Feature Under: MOXAHOLA CREEK

B. STRUCTURAL INFORMATION

Main Span Type: STRINGER  Design: BEAM
Material: PRESTRESSED CONCRETE
Year Built: 1952  Altered/Rehabbed: N/A
Total Number of Spans: 5  Overall Length: 230

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Rural Road  On National Highway System: NO
Direction of Traffic: 2  Number of Lanes On: 2
ADT /Date: 1500 / 2004  Waterway Adequacy: 6 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 24 ft  Deck Width, Out to Out: 27.7 ft
Approach Travelway Width: 22 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
WIDER
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:
226-foot, 5-span (5 @ 44’), simply supported prestressed concrete beam bridge with a composite concrete deck supported on concrete wall-type piers and stub abutments. The deck and substructure units are built with a 45-degree skew. Each span is supported by nine 30"-deep beams with 28" wide top flanges spaced at 3'-0" c/c. The 8" space between the top flanges accommodated installation of the transverse tie bars through the flanges. Each beam has 32, 7-wire strands. The bridge was tied together transversely through two intermediate diaphragms in each span in order to ensure good transverse distribution of live loads. Each diaphragm is parallel to the 45-degree skewed abutments and piers. The structure mounted railings are composed of 2 rails of angles attached to rolled T-section posts. The steel railing terminates into concrete pylons at the four corners of the bridge. The concrete curbs have open drain panels set into them. According to previous reports, the designers under-stressed the beams to ensure flexibility under overloads and eliminate brittleness.

Summary of Structural Deficiencies:
This bridge was designed to have over-the-side drainage through the cast-in-place curb slots. However, these drainage slots have been plugged by the asphalt wearing surface that was more recently added to this bridge as well as by dirt and debris. As a result, surface drainage is flowing across the unsealed deck joints at each pier and eroding the ends of beams at the piers as well as the pier caps. Hairline cracking with exposed efflorescence is visible at each pier cap and beam end. Pier bearing retainers are cracked and spalled. The fascia ends of the forward abutment bearing seats have collected dirt and debris as a result of the poor drainage. This built up dirt and debris is causing the bottom of the forward fascia beams to begin to show signs of deterioration due to the constant exposure to moisture. 45-degree cracks were observed at the top of the approach slab beam notch-outs on the forward abutment fascia beams.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
Alignment/Sight Distance: 5 - Condition somewhat better than minimum adequacy to tolerate being left in place as is.
III. HISTORICAL SIGNIFICANCE

Historical Rank: Exceptional

Summary of Significance:
The Roseville County Route 32 Bridge over Moxahala Creek is significant under National Register Criterion C as the earliest pre-stressed concrete I-beam bridge in Ohio, and is also believed to be the earliest documented bridge of this type in the United States. After being introduced in 1952, pre-stressed concrete bridges were quickly adopted by several counties in Ohio due to the type’s many advantages, including speed of construction and low maintenance. By the 1960s, this type of bridge had gained a high level of dominance for highway bridges in the United States. This bridge is the earliest example of a structural type that would go on to play an important role in American highway construction in the last half of the twentieth century.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Several areas of minor deterioration and poor detailing/maintenance could be repaired to preserve this historic bridge for many years to come.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge is designed for H20 loading and is currently supporting Ohio Legal Load traffic without any observed stress. However, in order to maintain and preserve this bridge, there are several items that could be rehabilitated, without adversely affecting its historical significance. The asphalt pavement could be tapered down and the dirt and debris could be removed so as not to block the current drainage slots underneath the sidewalk. Strips of asphalt could be removed over the piers and the deck joints could be sealed and waterproofed prior to replacing the removed asphalt wearing surface. Chloride ion testing is recommended to determine the extent of chloride contamination. Based on the results of this testing and observed cracking and efflorescence, the bottom of beam seats may require jacking and temporary support in order to replace the pier and abutment bearing seats and/or a cathodic protection system may be considered. Cracked concrete pier caps and end of beams could be cleaned and repaired with epoxy-injection and patching. Damaged pier concrete bearing retainers could be replaced.

Ohio Legal Loading:
Since this bridge is currently supporting Ohio Legal Loads, refer to “Maintain Current Use” for recommendations.

HS20 Loading:
Refer to “Maintain Current Use” for recommendations.

Bypass/historic bridge left in place:
This bridge can continue to be preserved in place without utilizing a bypass route for current traffic.

Other:
This bridge can continue to be preserved. However, since this bridge already has sidewalks along both sides and is currently adequately serving the pedestrian and vehicular needs of its location, it is not recommended that this bridge be reconfigured for an alternate use.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 6040349  Owner: COUNTY
Municipality: LICKING VIEW  County: MUSKINGUM  District: 05
Feature Carried: OLD NATIONAL ROAD (JOHN CARNAHEN STONE ARCH)
Feature Under: TRIBUTARY TIMBER RUN

B. STRUCTURAL INFORMATION

Main Span Type: ARCH  Design: ARCH
Material: STONE
Year Built: 1830  Altered/Rehabbed: N/A
Total Number of Spans: 1  Overall Length: 12

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road Rural  On National Highway System: NO
Direction of Traffic:  Number of Lanes On: 2
ADT /Date: 800 / 2004  Waterway Adequacy: 7 - Slight chance of overtopping bridge dec

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 27.5 ft  Deck Width, Out to Out: 30 ft
Approach Travelway Width: 28 ft  Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?
As wide

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

11’-2” single span stone arch bridge with ashlar stone voussoirs, parapets, and spandrel walls. The voussoirs and keystones have an alternating recessed / non-recessed pattern from the plane of the spandrel walls. The parapet end posts are corbelled over the wingwalls. The southwest, southeast, and northeast corners have guardrail abutting the parapet end posts. A builder’s stone (inscribed with “John Carnahen, Builder, A.D. 1830”) is set into the middle of the roadway fascia of the north parapet.

Summary of Structural Deficiencies:

There are several minor structural deficiencies on this bridge including: mortar joint separation at the northeast corner and through the parapet, several cracked arch fascia stones, minor surface efflorescence on the outside fascia of the northwest wingwall, sporadic spalled or cracked stones along the interior fascia of the parapets, slightly tilted and separated cast-in-place west interior liner repair wall from earlier repair, cracked and spalled stone at northeast inlet opening edge, leakage of surface water along toe of north parapet through voussoirs.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:

Alignment/Sight Distance: 8 - Condition equal to present desirable criteria

The BMS Inventory lists this bridge as having both an Inventory and Operating Rating of 99 tons. However, this bridge is posted with a sign indicating an 18 ton weight limit. This disconnect should be resolved.
III. HISTORICAL SIGNIFICANCE

Historical Rank:  Moderate

Summary of Significance:
This structure is significant under Criterion C as a small example of pre-Civil War stone masonry arch bridge construction, and has additional significance under Criterion A for its associations with the construction of the National Road (U.S. Route 40) through Ohio. This bridge was completed in 1830 and is marked with the name of the builder, John Carnahen, and the construction date. The bridge was part of the effort to extend the National Road through Ohio, and as such it is a fairly early example of stone arch bridge construction; Ohio examples of this bridge type generally date from ca. 1825-1940. The bridge’s stone masonry arch construction illustrates the high level of craftsmanship of nineteenth-century stone masons, and the bridge also represents early efforts to expand the transportation network in Ohio through the construction of highways and turnpikes.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage?  YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This two-lane road bridge appears adequate for the low-volume traffic that it serves. However, there are several structural deficiencies that should be addressed in order to preserve this historic bridge. Spalled concrete or stones could be patched. Cracked concrete and stone could be epoxy injected. Approach guardrail could be added or realigned to better protect the stone parapets. The gutters along the length of parapets could be cleaned, sealed, and re-graded with a paved swale to better collect and divert surface drainage. The existing tree stump along the southwest wingwall should be carefully removed and the ground re-graded to avoid adverse pressure against the spandrel walls.

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No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use: This bridge is currently adequately servicing vehicular traffic with a maximum gross weight of 18 tons. This current use can be maintained with minimal rehabilitation and maintenance. Spalled or cracked concrete could be patched or epoxy injected. Loose stones could be reset and remortared. The few deteriorated or broken stones could be replaced. Approach guardrail could be added at the northwest corner to protect the northwest corner parapets from eastbound vehicular impact. Existing guardrail could be reconfigured to better align with the front face of end parapet posts and eliminate potential vehicular impact snag points. The gutters along the length of parapets could be cleaned, sealed, and re-graded with a paved swale to better collect and divert surface drainage. The existing tree stump along the southwest wingwall could be carefully removed and the ground re-graded to avoid adverse pressure against the spandrel walls.

Ohio Legal Loading: In addition to the recommendations mentioned above, an analysis (or field testing) based load rating should be prepared for this structure to validate the current weight restriction. If the restriction is validated, and 100% Ohio Legal Loading is required, there are several potential options for strengthening this structure without adversely affecting its historical significance. These options include: Careful removal and replacement of pavement and backfill with a lighter weight material (i.e. Elastizell, Stalite, etc.) or installation of a corrugated metal or precast concrete arch behind the existing arch and between the spandrel walls with the annulus pump filled with a low slump mortar.

HS20 Loading: See Ohio Legal Loading for similar recommendationson.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 6046215 Owner: COUNTY
Municipality: MADISON TWP County: MUSKINGUM District: 05
Feature Carried: STILLWELL ROAD (CLOSED)
Feature Under: MUSKINGUM RIVER

B. STRUCTURAL INFORMATION
Main Span Type: THRU TRUSS Design: WARREN (RIVETED)
Material: STEEL
Year Built: 1904 Altered/Rehabbed: 1972
Total Number of Spans: 3 Overall Length: 468

C. CLASSIFICATION OF SERVICE
Functional Classification: N/A (bridge is closed) On National Highway System: NO
Direction of Traffic: 3 Number of Lanes On: 0
ADT /Date: 100 / 1994 Waterway Adequacy: 0 - Bridge closed

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 15 ft Deck Width, Out to Out: 15 ft
Approach Travelway Width: 15 ft Vertical Clearance on Bridge: 15 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
As Wide
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

468-foot, 3-span (150'-159'-159’), rivet connected, steel, Warren thru-truss bridge with steel beam stringers and floorbeams supporting a corrugated steel plate deck with an asphalt wearing surface. The abutments and piers are wall type, concrete-capped ashlar stone. The northern truss is shorter and composed differently than the two longer southern spans.

Two Southern Spans: The 5-slope polygonal upper chords are composed of paired channels with cover plates and lacing. The verticals are angles with battens, and the diagonals are paired channels with lacing. The lower chords are paired angles with battens. The spans have A-frame portal bracing with some welded repairs.

Northern Span: The northern most span, which is shorter than the others, has sub-divided panels with channel struts. The polygonal upper chord is composed of paired channels with battens. The lower chords, verticals, and diagonals are paired angles with battens.

Summary of Structural Deficiencies:

This structure is currently being demolished by the Muskingum County Engineer’s Office. Although there was no observed active demolition work occurring during the site visit, portions of the bridge were clearly removed with intention. Most of this demolition appears to have occurred at the southern end and included the longitudinal steel stringers, corrugated steel decking, the asphalt concrete wearing surface, and the original riveted lattice railings. The south abutment has full-height cracks developed along the stone joints on the outside fascias of the truss.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:

Alignment/Sight Distance: 3 - Basically intolerable condition requiring high priority of repair.
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:

Built in 1904, this structure is eligible for the National Register under Criterion C as an early example of a riveted Warren through truss bridge. The Warren truss is one of the most common in Ohio, with 500 known examples dating to 1897-1961. This type of truss is characteristic of the twentieth century, since its design was not well suited to the pin connection technology common for nineteenth century metal bridges, but was very suitable for use once rigid (riveted and later welded) connection technologies became widely available for bridge construction after about 1900. In 2009, the ODOT inventory had only 12 examples of riveted Warren trusses from 1910 or earlier. This bridge is also the oldest of 40 riveted through truss bridges built in Ohio from 1904-1959.

IV. SUMMARY OF PRESERVATION POTENTIAL

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:

Due to the current and ongoing demolition of this bridge, it is impossible to preserve this entire structure. However, at the time of the site visit, there is a possibility that all of the historic trusses could be preserved and two of the three complete historic spans (including floor systems) could be preserved. Preservation of this bridge could be accomplished in one of two ways, both of which would require the immediate halting of the current demolition. Disassembly, rehabilitation, relocation, and reconstruction of this bridge (or individual spans of this bridge) to a new location is one solution for preservation. Another solution for preservation could include rehabilitation of this bridge to be used in-place for pedestrian and bike traffic.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect:维持现状使用。

This bridge is currently closed to all traffic. Although this partially demolished bridge could be rehabilitated while minimizing affect to its historical significance, it would not be prudent to invest the required effort to preserve and maintain this remote structure as closed.

Ohio Legal Loading: The current inventory indicates that this closed bridge has not been load rated based on analysis. In order to rehabilitate this bridge to support Ohio Legal Loading, an analysis would need to be performed and inadequate members would need to be identified. Although it is possible that this bridge could be rehabilitated to support Ohio Legal loading without adverse effect, it is likely that this effort would involve a significant amount of effort and cost. Additionally, the current width of this structure would limit this structure to only one lane of traffic. Widening of this structure type is not feasible.

HS20 Loading: The current inventory indicates that this closed bridge has not been load rated based on analysis. In order to rehabilitate this bridge to support HS20 Loading, an analysis would need to be performed and inadequate members would need to be identified. Although it might be possible that this bridge could be rehabilitated to support HS20 loading without adverse effect, it is likely that this effort would involve a significant amount of effort and cost. Additionally, the current width of this structure would limit this structure to only one lane of traffic. Widening of this structure type is not feasible.

Bypass/historic bridge left in place: The current inventory indicates that this closed bridge has not been load rated based on analysis. In order to rehabilitate this bridge to remain in place and support live load, an analysis would need to be performed and inadequate members would need to be identified. Although a bypass bridge could be constructed at this site, a sizeable bridge with river piers would be required. The benefits of such a remote crossing with expected low traffic volumes...
would have to be evaluated against the expected costs.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading either in-place or in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the current superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. A rehabilitated structure would require the replacement of currently deteriorated members including: a new corrugated metal plate deck with asphalt wearing surface, numerous steel stringers and floorbeams, and several lower chord truss connections. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which members require rehabilitation/strengthening.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 6333230  Owner: COUNTY
Municipality: AUGLAIZE TWP  County: PAULDING  District: 01
Feature Carried: TOWNSHIP ROAD 153
Feature Under: SIX MILE CREEK

B. STRUCTURAL INFORMATION

Main Span Type: ARCH CULVERT  Design: STONE ARCH
Material: STONE
Year Built: 1835CA  Altered/Rehabbed: N/A
Total Number of Spans: 1  Overall Length: 28

C. CLASSIFICATION OF SERVICE

Direction of Traffic: 3  Number of Lanes On: 1
ADT /Date: 80 / 1951  Waterway Adequacy: 7 - Slight chance of overtopping bridge dec

On National Highway System: NO

Functional Classification: 09 - LOCAL ROAD - RURAL

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 17 ft  Deck Width, Out to Out: 17 ft
Approach Travelway Width: 17 ft  Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

AS WIDE

Sidewalk Width Left/Right: 0 ft  / 0 ft

Crash Data:
1 crash

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E. STRUCTURAL EVALUATION

Physical Description:
28-foot, single-span stone arch bridge with coursed ashlar barrel, spandrel walls, and wingwalls. The roadway above is supported by fill that tapers down and flattens at the edges of the arch. There are no built up headwalls or parapets. Significant tree growth and vegetation is present within the fill above the arch. The stepped top wingwalls curve outward and away from the roadway and arch barrel. The asphalt paved roadway above is 17'-0" wide and starts approximately 38-feet from the left end of the 170-foot long barrel length.

Summary of Structural Deficiencies:
The roadway drainage appears to flow toward the left and is causing an erosion of the left side embankment. An attempt to contain this erosion has been made by installing a sheet steel retaining wall supported by driven stakes into the ground. The success of this wall appears to be somewhat limited. The effects of this poor drainage are evident by water leakage inside the barrel near the inlet (left) end. Several stones at the ends of both the inlet and outlet wingwalls appear shifted and several stones appear to be missing. Most of the stone mortar near the exposed surface has eroded away.

II. CONFORMANCE WITH STANDARDS

<table>
<thead>
<tr>
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<th>Actual</th>
<th>Required</th>
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</tbody>
</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is significant under Criterion C as an example of pre-Civil War stone masonry aqueduct construction, and has additional significance under Criterion A for its associations with the Wabash and Erie Canal. Completed in 1835, this structure was built as an aqueduct as part of the effort to extend the Wabash and Erie Canal through northwest Ohio; this canal connected Evansville, Indiana, on the Ohio River, with Toledo. The structure is also positioned close to the junction of the Wabash and Erie Canal with the Miami and Erie Canal. The structure was converted to roadway use during the early twentieth century after the Wabash and Erie Canal had fallen into disuse. Nine stone aqueducts were built in Henry and Paulding counties from 1835-1842 in connection with the Wabash and Erie Canal, and this example is one of the earliest and most intact.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This structure has largely been well maintained. As a result, through minimal effort, this bridge could continue to be preserved in place for its current use.

No build: The no-build option does not address the deterioration that is affecting the integrity of this historical bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge could be preserved for its current use through minor maintenance and rehabilitation. The current inventory for this structure indicates that it has been load rated based on “engineering judgement”. Although an analytical load rating based on the results of sampled stone compression testing should be performed to more accurately confirm the dead and live load capacity, based on load distribution through the relatively deep volume of fill, live load effects will be minimal. Rehabilitation of this structure could include the installation of a concrete drainage gutter along the left side of the roadway as well as a sodded or rip-rap flume at a location away from the structure and wingwalls to direct the drainage down to the waterway. Installation of a waterproofing membrane covered with larger rock (ODOT Type C or D) could be used to fill in areas where erosion of the embankment above the arch has already occurred. Missing wingwall stones and eroded grout could also be replaced.

Ohio Legal Loading:
Based on the depth of fill and allowable AASHTO load distribution, live load influence will be minimal on the structure. As a result, the recommendations to “maintain current use” also apply to Ohio Legal loading.

HS20 Loading:
Based on the depth of fill and allowable AASHTO load distribution, live load influence will be minimal on the structure. As a result, the recommendations to “maintain current use” also apply to HS20 loading.

Bypass/historic bridge left in place: This structure connects two large bodies of water. As a result, a bypass bridge does not appear prudent at this location.

Other: No other alternatives were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

<table>
<thead>
<tr>
<th>SFN Number: 6503764</th>
<th>Owner: STATE</th>
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<tr>
<td>Municipality: ORIENT</td>
<td>County: PICKAWAY</td>
</tr>
<tr>
<td>Feature Carried: SR 762 BYPASSED (ORIENT BRIDGE)</td>
<td>Feature Under: BIG DARBY CREEK</td>
</tr>
</tbody>
</table>

B. STRUCTURAL INFORMATION

<table>
<thead>
<tr>
<th>Main Span Type: THRU TRUSS</th>
<th>Design: DOUBLE INTERSECTION PRATT (WHIPPLE)</th>
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<tbody>
<tr>
<td>Material: METAL</td>
<td></td>
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<tr>
<td>Year Built: 1885</td>
<td>Altered/Rehabbed: N/A</td>
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<tr>
<td>Total Number of Spans: 1</td>
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</table>

C. CLASSIFICATION OF SERVICE

<table>
<thead>
<tr>
<th>Functional Classification: N/A</th>
<th>On National Highway System: NO</th>
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<tbody>
<tr>
<td>Direction of Traffic:</td>
<td>Number of Lanes On: 0</td>
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<tr>
<td>ADT /Date: 0 /</td>
<td>Waterway Adequacy: 0 - Bridge closed</td>
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</tbody>
</table>

D. GEOMETRIC INFORMATION

<table>
<thead>
<tr>
<th>Bridge Travelway Width: 15.7 ft</th>
<th>Deck Width, Out to Out: 16 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach Travelway Width: 16 ft</td>
<td>Vertical Clearance on Bridge: 18.5 ft.</td>
</tr>
</tbody>
</table>

Is Bridge Roadway as Wide or Wider Than Approaches?

AS WIDE

| Sidewalk Width Left/Right: 0 ft / 0 ft | Crash Data: N/A |

SR 762 BYPASSED (ORIENT BRIDGE)
E. STRUCTURAL EVALUATION

Physical Description:

225-foot, single span, 15-panel, double intersection Pratt (Whipple) truss with built-up compression members and eyebar or rod tension members. It has built-up lattice portals with urn finials and decorative builder’s plaques. The upper lateral bracing has decorative quatrefoil cut outs. Due to the great depth and length of the truss, there is lower lateral bracing composed of rods with turnbuckles. The floorbeams are supported from the lower chord pins by U-shaped hangers. The floorbeams carry metal stringers and a timber plank deck with asphalt wearing surface. The bridge is supported on ashlar stone abutments.

Summary of Structural Deficiencies:

There are numerous deficiencies on this bridge, including: Rotted timber decking with 100% deterioration noted in isolated areas along the left and right edges of deck, general structural steel surface corrosion, typical lower flange stringer section loss, 100% flange and web section loss along outermost and 1st interior stringers adjacent to areas of 100% deck deterioration, excessive vegetation with tree growth around lower chord and through the deck at the rear abutment, around guardrails across the length of the bridge, and through the deck at forward abutment. Welded repairs and strengthening measures were noted at the end-panel floorbeam hangers and southeast end-post and lower-chord intersection.

II. CONFORMANCE WITH STANDARDS

<table>
<thead>
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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is eligible for the National Register under Criterion C as an 1880s example of the technologically significant Pratt double intersection truss, also known as the Whipple truss or the Murphy-Whipple truss. Whipple trusses are uncommon nationally, and although there were 14 surviving examples of Whipple truss bridges in Ohio as of 2009, each of these examples is important due to the nationwide scarcity of this truss type. This bridge is also significant under Criterion C as a rare example of work by the Cleveland Iron Bridge Company, which appears to have only been in business a short time during the 1880s. The bridge has been bypassed, has undergone some welded repairs, and strengthening measures, and the wood deck is in poor condition. However, the structural portion of the bridge has a good level of integrity.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? NOT LIKELY

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
Although a significant rehabilitation would be required, this bridge has preservation potential. Considering its location over the scenic Darby Creek, and the fact that a vehicular bypass bridge currently exists, a rehabilitation could be done that not only preserves this historic structure, but allows it to better serve pedestrians as an access to the Darby Creek and a focal point for the community.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge is currently closed to vehicular and pedestrian traffic with an existing vehicular bypass bridge to the north. As a result, this bridge is not being routinely maintained or preserved. While the cost and effort to rehabilitate this bridge for pedestrian traffic would not be any more than the cost to maintain this bridge as closed, it would at least serve a purpose and allow visitors the chance to better enjoy the bridge. A rehabilitation to preserve this bridge for pedestrian traffic could include the following: replacement of the timber decking, the replacement or rehabilitation of deteriorated stringers and floorbeams, the field cleaning and painting of all remaining structural steel, and the removal of any adjacent vegetation that is either growing on or is currently interfering with this bridge. Prior to rehabilitation, an analysis based load rating should be prepared for this structure to confirm its current and final rehabilitated live load carrying capacities.

Ohio Legal Loading:
A bypass bridge to the north is currently available to support Ohio Legal loading across the Darby Creek at this location. As a result, there is no need to upgrade this bridge, which was likely not originally designed to support the current Ohio Legal loads, for this heavier loading.

HS20 Loading:
A bypass bridge to the north is currently available to support HS20 truck loading across the Darby Creek at this location. As a result, there is no need to upgrade this bridge, which was likely not originally designed to support an HS20 truck, for this heavier loading.

Bypass/historic bridge left in place: This bridge is currently bypassed. However, a rehabilitation and routine maintenance are required in order to preserve this bridge at its current location.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading in a different location with a strong demand for a pedestrian crossing and in an environment that would prefer a more unique and non-standard bridge. If relocated, the current steel superstructure could be carefully dismantled, cleaned and painted.
in a shop, and then reassembled at a new location on new substructures. A rehabilitated structure would require the replacement of currently deteriorated members including: a new timber deck and the rehabilitation or replacement of deteriorated steel stringers and floorbeams. All superstructure steel could be cleaned and painted. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which members require rehabilitation.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 65XXXX1  Owner: COUNTY
Municipality: NEW HOLLAND  County: PICKAWAY  District: 06
Feature Carried: PEDESTRIAN WALKWAY (EGYPT PIKE BRIDGE)
Feature Under: MUD RUN

B. STRUCTURAL INFORMATION
Main Span Type: PONY TRUSS  Design: BOWSTRING
Material: METAL
Year Built: 1876  Altered/Rehabbed: 1984
Total Number of Spans: 1  Overall Length: 30

C. CLASSIFICATION OF SERVICE
Functional Classification: 00-Park or Other Public Reservation Road  On National Highway System: NO
Direction of Traffic:  
ADT /Date: 0  / 2012  Waterway Adequacy: 8 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 5.5 ft  Deck Width, Out to Out: 5 ft
Approach Travelway Width: 6 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
AS WIDE
Sidewalk Width Left/Right: 5 ft  ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:
30-foot, single-span, wrought iron, bowstring pony truss. The upper chord arch is composed of three plates, spaced apart, held together, and stiffened by a zigzag arrangement of braces fabricated by bolts, pipe, and blocks. The verticals and diagonals form a cross-shape in profile. The diagonals are straight rods with threaded ends. The verticals consist of Y-shaped threaded rods as well as an additional threaded rod knee brace, both of which are connected to the floorbeams. The lower chords are wrought-iron bars that have bolted splices and that are looped around special cast iron shoes at the bearings. The bridge is supported on concrete abutments. It appears that the width of this bridge was likely reduced through the removal of the middle portions of the floorbeams and the splicing of the remaining end portions. The current transverse timber deck boards are not original.

Summary of Structural Deficiencies:
Most steel stringers and floorbeams have surface corrosion. Surface corrosion exists on the lower chord members with pack rust developing at the lower chord splices. Hairline cracks were found in the forward abutment concrete below the edges of deck and a localized spall was located on the face of the rear abutment at rear left corner. There are several bent/deformed diagonal rod members and cracked or missing castings at the upper chord interface with the threaded rods.

II. CONFORMANCE WITH STANDARDS

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<th>Actual</th>
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<td>Geometric Adequacy</td>
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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is eligible for the National Register under Criterion C as one of only 22 examples of bowstring truss bridges in Ohio dating to 1864-1880. The bridge is also very significant as an example of the Champion Bridge Company’s distinctive 1874-1875 patented design for a bowstring truss. The most remarkable feature of this design is that the curved top chord is composed of three thin steel plates that are stiffened and linked together by a series of rods, bolts, and iron connecting pieces. In 2009, the ODOT inventory contained only three examples of Champion’s 1874-1875 bowstring design with the three-plate top chord. The Egypt Pike Bridge was converted for pedestrian use in 1987, has a new wood deck, and sits on concrete abutments, but the trusses and other structural elements of the bridge are quite intact.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:

This bridge could continue to be successfully preserved at its current location. However, in order to ensure its preservation, it is recommended that this bridge be routinely maintained to avoid gradual deterioration. This preservation maintenance could easily be incorporated into the work schedule established for the adjacent bypass bridge.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect:

Maintain Current Use:
This bridge is currently being utilized as a pedestrian bridge. Preservation for this current use is recommended and can be accomplished though rehabilitation and routine maintenance. Rehabilitation of this structure could include the following: cleaning and painting of structural steel and wrought iron components, epoxy injection of hairline abutment cracks, patching of spalled abutment concrete, straightening of deformed diagonal rods, and possible re-fabrication and installation of cracked and missing connection castings.

Ohio Legal Loading:
This bridge has been repurposed as a narrower pedestrian bridge. Its current width will not accommodate vehicular traffic. However, if this structure were desired to be re-purposed back as a vehicular bridge capable of supporting Ohio Legal loading, it would require a new and wider deck to be installed on re-lengthened floorbeams. Furthermore, a load rating analysis would be required to confirm the load carrying capacity of this structure and to identify structural members in need of strengthening. This effort is not currently recommended.

HS20 Loading:
Refer to “Ohio Legal Loading”.

Bypass/historic bridge left in place: This bridge is currently bypassed. However, a rehabilitation and routine maintenance are recommended in order to preserve this bridge at its current location.

Other: No other options were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 6831826 Owner: COUNTY
Municipality: GASPER TWP County: PREBLE District: 08
Feature Carried: TR 331 (SEVEN MILE ROAD)
Feature Under: SEVEN MILE CREEK

B. STRUCTURAL INFORMATION
Main Span Type: THRU TRUSS Design: PEGRAM
Material: STEEL
Year Built: 1906 Altered/Rehabbed: N/A
Total Number of Spans: 1 Overall Length: 155

C. CLASSIFICATION OF SERVICE
Functional Classification: 09 - Local Road - Rural On National Highway System: NO
Direction of Traffic: 3 Number of Lanes On: 1
ADT /Date: 70 / 1969 Waterway Adequacy: 7 - Slight chance of overtopping bridge dec

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 15.7 ft Deck Width, Out to Out: 16 ft
Approach Travelway Width: 22 ft Vertical Clearance on Bridge: 11.8 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data: N/A
E. STRUCTURAL EVALUATION

Physical Description:
155-foot, 1-span, pin-connected Pegram thru truss bridge with built-up compression members and eyebar tension members supported on concrete abutments. The upper chords are toe-out channels with cover plate and lacing. The compression members in the web are toe-out channels with lacing. The tension members in the web and the lower chords are eyebars. The upper laterals are angles with lacing. The bridge has A-frame portals with builders plaques. The plaques read, "1906, S. C. Richie, Isaac Ulrich, J. E. Flora, Commissioners, built by Indianapolis Bridge Co., Muncie, Ind." There are original lattice railings. The floorbeam hangers are pin plates from the web members; the hangers do not connect to the lower chords, a characteristic of the Pegram design. There are rolled floorbeams, rolled stringers (with channel fascia beams), and a wood deck.

Summary of Structural Deficiencies:
Sporadic surface corrosion exists on the structural steel floor system with more concentrated areas along fascia side of fascia stringers. Full-height shear cracks exist on the wall-type abutments adjacent to both left and right fascias of the bridge due to expansion and contraction forces. Various existing timber deck members are rotten due to the asphalt wearing surface retaining surface drainage from evaporating. The forward left latticed railing is bowed outward as a result of collision damage. Pack rust exists at the interface of several upper lateral cross bracing members with the upper chords as well as between floorbeam pin hanger plates at the lower panel points.

II. CONFORMANCE WITH STANDARDS

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<td>-</td>
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</table>

Conformance Comments:
* (8 T posting in 2011)

Status Notes:
According to Ron Smith (Preble County), this bridge is slated to be rehabilitated in the next couple of years.
III. HISTORICAL SIGNIFICANCE

Historical Rank: Exceptional

Summary of Significance:
Built in 1906, the Seven Mile Road Bridge is eligible for the National Register under Criterion C as the only known example of a Pegram through truss bridge. The Pegram truss was patented in 1885 by George H. Pegram (1855-1937) and was used during the late nineteenth and early twentieth centuries, but fell out of favor after 1910. The bridge has a high level of integrity and is significant as Ohio’s only known example of a Pegram truss.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge has a good potential for in-place preservation. Although the existing abutments have significant vertical shear cracks and there are multiple areas of structural steel deterioration, repairs can be done, in-place, while maintaining the historical integrity of this bridge. Consequently, this bridge, which is slated for rehabilitation in the next couple of years, has a very high preservation potential.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: This bridge is slated for rehabilitation in the next couple of years. According to Ron Smith of the Preble County Engineer’s office, the county plans to replace the timber deck, repair deteriorated or damaged structural steel members, and encapsulate the existing cracked concrete abutments. Additional preservation could include structural steel cleaning and painting, refurbishment of bearings to better accommodate bridge expansion and contraction, and installation of drainage deflector plates to prevent surface drainage from impacting floorbeam connections and abutment bearings. The current railing could be revised to be more substantial and attached to the deck system to prevent collision damage to the truss. Following the rehabilitation, regular preservation maintenance of this structure could include the cleaning of debris from truss joints and abutment bearing seats.

Although a steady stream of traffic was observed during the site visit, this structure serves a relatively low ADT volume. This bridge is currently posted with an 8 ton weight restriction based on a recent load rating analysis. According to the inventory, the original design for this bridge was based on an H15 truck load. Although a revised load rating of the rehabilitated bridge may not meet full Ohio Legal Load or full HS20 loading, preservation for current local traffic live loading is likely achievable.

Ohio Legal Loading:
This bridge is currently supporting a reduced Ohio Legal loading. This reduction is likely a partial result of the original design loading as well as deterioration. Strengthening might include the addition of supplemental steel, providing auxiliary members, and/or post tensioning. An analysis based load rating would be required during the rehabilitation design to determine if this bridge could be strengthened to 100% Ohio Legal loading without altering the original Pegram truss configuration or integrating supplementary load carrying truss members and therefore adversely effecting the historical integrity. Since an alternate route exists for this low ADT site, this bridge could be maintained on-site with a reduced loading without excessive inconvenience for the infrequent heavier vehicles.

HS20 Loading:
This bridge was originally designed for an H15 truck live load. It is currently posted for a reduced Ohio Legal loading. This reduction is likely a partial result of the original design loading as well as deterioration. Consequently, it is unlikely that this bridge could be
strengthened to 100% HS20 truck loading without altering the original Pegram truss configuration or integrating supplementary load carrying truss members and therefore adversely affecting the historical integrity. Since an alternate route exists for this low ADT site, this bridge could be maintained on-site with a reduced loading without excessive inconvenience for the infrequent heavier vehicles.

Bypass/historic bridge left in place: Since this bridge is adequately serving the majority of traffic on this road and an alternate route currently exists for this bridge, a bypass bridge is not needed nor recommended for this site.

Other: No other options were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 6834078
Owner: COUNTY
Municipality: TWIN TWP
County: PREBLE
District: 08
Feature Carried: UTZ RD
Feature Under: RAPES RUN

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS
Design: SHERMAN PATENT
Material: WOOD/METAL
Year Built: 1877CA
Altered/Rehabbed: N/A
Total Number of Spans: 1
Overall Length: 21

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road - Rural
On National Highway System: NO
Direction of Traffic: 3
Number of Lanes On: 1
ADT /Date: 133 / 1988
Waterway Adequacy: 6 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 16 ft
Deck Width, Out to Out: 18 ft
Approach Travelway Width: 17 ft
Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:
21-foot, single span, Evrett S. Sherman (of Galena, Ohio) patent pony truss with a single, midspan floorbeam support. The abutments and midspan floorbeam support an asphalt wearing surface with corrugated metal stay-in-place forms on longitudinal steel beam stringers which were all likely added at a later date. The 2-panel, inverted king post trusses have timber upper chords with a housing of galvanized sheet metal that was added at a later date. The upper chords rest on rolled I-section end posts, which are not original, and were probably timber in the first iteration of the bridge. Cast-iron blocks at the ends of the upper chord beams provide bolted connections for paired, threaded diagonal iron rods that pass through the upper chords. At the other end of the diagonals are loop-welded eyes that support a pair of stirrups for the bridge's only floorbeam. The floorbeam is a rolled I-beam that is not original, and was probably originally timber. One of the truss lines has a timber vertical post at midspan, but the vertical has been lost from the other truss. The bridge is supported on stone abutments that have been stabilized with a cast-in-place concrete encasement.

Summary of Structural Deficiencies:
The asphalt wearing surface is cracked and pitted. The corrugated metal stay-in-place forms are severely corroded with areas of 100% section loss. The galvanized sheet metal upper chord housing and vertical end-post has been damaged at the northeast corner of the bridge due to vehicular impact. The northeast corner vertical end-post is severely corroded and has 100% section loss at the base. The concrete abutment encasement is cracked at the corners. The steel stringers have pack rust at the interface between the upper flange and the corrugated metal stay-in-place forms as well as surface corrosion throughout. The midspan floorbeam has surface corrosion throughout. The southern truss midspan timber vertical is missing.

II. CONFORMANCE WITH STANDARDS

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<td>36T</td>
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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is one of a few surviving examples of the post-Civil War composite bridge type; these bridges contained a combination of wood and metal elements. This bridge matches a bridge design patented in 1877 by Everett S. Sherman, a bridge designer and builder who lived in Galena, Ohio. Sherman represented his 1877 patented design as being simple and inexpensive to build. The short-span Sherman patent bridges were once common but most have been replaced, so they are now rare. Although this bridge has been altered, is missing some of its original elements, and not functioning structurally as it was originally intended, the rarity of this bridge type makes it significant under National Register Criterion C.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? DEBATABLE

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
According to a previous survey on this bridge, “the bridge has lost original fabric and is no longer functioning as intended, but retains sufficient original materials, including the iron hardware, to convey its technological significance as a very rare survival.” Although there is extensive deterioration and a number of structural components that have already been replaced and are not original, it is feasible to preserve the original iron hardware on this structure to maintain its current usage. This would require an analysis-based load rating (rather than engineering judgment) to confirm the live load potential for these members. Furthermore, it would require an extensive rehabilitation to replace the numerous deteriorated members. Considering the potential costs to preserve this structure for its current usage, the prudency of such rehabilitation is debatable.

No build: The no-build option does not address the deterioration that is affecting the integrity of this historical bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
In order to maintain this structure for current use, a significant rehabilitation would be required. Such a rehabilitation could include the following: The replacement of the southern truss midspan vertical, the replacement of the northeast corner truss vertical, the cleaning and painting of all structural steel, the replacement of the steel stringers with significant top flange deterioration, the replacement of the corrugated metal stay-in-place decking and asphalt overlay, and the repair of abutment cracks with epoxy injection. The current railing is the upper chord of the historic truss. An auxiliary railing would be ideal to protect this historic element from vehicular collision. This bridge is currently load rated based on engineering judgement for 100% Ohio Legal loading as well as for a full 36 ton HS20 vehicle. It is strongly advised that this bridge be load rated utilizing analytical methods as well as the most recent inspection findings.

Ohio Legal Loading:
This structure is located on a public road with no current load restriction. Therefore, its current use is intended to support full Ohio Legal loading. Refer to “Maintain Current Use” for additional information.

HS20 Loading:
This structure located on a public road with no current load restriction and inventoried to support full HS20 truck loading. Therefore, refer to “Maintain Current Use” for additional information.

Bypass/historic bridge left in place: This bridge currently serves and is located in close proximity to residential homes. It is located on a road that currently has alternate access routes at each end of the bridge. Considering the residential right-of-way acquisition that would be required to realign this road for the installation of a bypass bridge, and due to the extensive deterioration, the extent of alterations, and the
number of structural components that have already been replaced and are not original, installation of a bypass bridge at this site in an effort to preserve the current bridge is not recommended.

Other: No other options were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 6931928  Owner: COUNTY
Municipality: PALMER TWP  County: PUTNAM  District: 01
Feature Carried: TR 18A
Feature Under: NORTH POWELL CREEK

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS  Design: PRATT(PINNED)
Material: METAL
Year Built: 1875CA  Altered/Rehabbed: N/A
Total Number of Spans: 1  Overall Length: 40

C. CLASSIFICATION OF SERVICE

Direction of Traffic: 3
On National Highway System: NO
Number of Lanes On: 1
ADT /Date: 60 / 1991
Functional Classification: 09 - LOCAL ROAD - RURAL
Waterway Adequacy: 6 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 18 ft  Deck Width, Out to Out: 18 ft
Approach Travelway Width: 13 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
WIDER
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

40-foot, single-span, cast- and wrought-iron, pin connected, Pratt truss. The end posts, upper chords, and verticals are rolled I-sections, and the lower chords are spliced plates. The diagonals and counter are rods with eye or upturned ends. The verticals are connected to the lower panel points with cast iron castings. Block-like cast connecting pieces are used for the diagonals that pass through the upper chords. Supplementary I-shaped floorbeams with draped rods, spacer brackets, and turnbuckles support the smaller primary I-shaped floorbeams at every other (even numbered) vertical. The floorbeams support a timber deck with asphalt wearing surface on rolled I-beam stringers. The abutments are cast-in-place reinforced concrete wall-type with apparent tie-back rods.

Summary of Structural Deficiencies:

This structure has a live load weight restriction of 10 tons based on a working stress, analysis-based, load rating. The asphalt wearing surface is severely deteriorated and the timber deck has localized areas where it is deteriorated, gouged, or warped. The forward abutment has areas of spalled concrete along the lower half. No noticeable deficiencies were observed on the truss.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This bridge is eligible for the National Register under Criterion C as a fairly early example of a pin-connected Pratt pony truss. In 2009 about 60 pre-1900 Pratt truss bridges existed in Ohio. Pre-1890 examples of the pin-connected Pratt truss are more significant as they tend to include unique structural details that were often patented by bridge designers. This bridge was also designed by David Morrison, an important early Ohio bridge designer, and was fabricated by Morrison’s company, the Columbia Bridge Works, of Dayton. This bridge also shows how Morrison applied structural features from his patented bowstring truss designs to improve the designs of his Pratt truss structures. Only about 6 other known examples of bridges by the Columbia Bridge Works had been identified in Ohio as of 2009. This bridge is very significant as an illustration of the application of bowstring truss technology to Pratt trusses, and for its associations with Morrison and his Columbia Bridge Works.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This truss bridge has been well maintained and is currently being preserved. However, there are several routine maintenance and rehabilitation actions that could be performed that might improve the preservation of this structure.

No build: The historic truss elements of this structure do not appear to be in immediate need of rehabilitation. However, the no-build option does not address the deterioration of the deck that protects the historic truss. Therefore, even if no work is performed on the truss, it is recommended that the deck be repaired or replaced in the relatively near future.

Rehab without adverse effect: Maintain Current Use: This structure is currently posted for a weight limit of 10 tons. This bridge could be rehabilitated and maintained for preservation without additional strengthening efforts and without adverse effect on its historical significance. Such rehabilitation and maintenance might include the installation of approach guardrail at each corner as well as railing across the bridge and attached to the deck supports to better protect the trusses from vehicular impact, the patching of spalled abutment concrete, and the routine cleaning of debris from the abutment bearing seats to minimize the exposure of the truss and floor system elements to moisture.

Ohio Legal Loading: It is unlikely that this structure could be strengthened to support full Ohio Legal live loading. However, several modifications could be performed that would likely increase the live load capacity. These modifications, the effects of which would need to be confirmed through analysis, might include: the installation of additional stringers, the installation of supplemental floorbeams at the remaining vertical locations, or the installation of supplemental wrought iron or steel, auxiliary members, and/or post tensioning.

HS20 Loading: Refer to Ohio Legal Loading for recommendations.

Bypass/historic bridge left in place: Considering the straight and flat horizontal and vertical alignments of this location, a bypass bridge could be an alternative for preservation of this structure. However, considering the low volume of traffic that utilizes this structure, the good condition of the current historic bridge, and the fact that this bridge is located at a site where alternate routes are readily available, a bypass crossing does not seem practical.

Other: A potentially prudent solution to preserve this historical structure could be to rehabilitate this bridge for pedestrian loading in a location with a strong demand for a pedestrian crossing in an environment that would prefer a more unique and non-standard bridge. If relocated, the
current steel superstructure could be carefully dismantled, cleaned and painted in a shop, and then reassembled at a new location on new substructures. A load rating analysis would be required to confirm the capacity for any revised loading on this bridge and to determine which, if any, members require rehabilitation. If the bridge were removed from the current site, a new structure, without Ohio Legal load restriction, could be built at the existing location as a replacement.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 6932509 Owner: COUNTY
Municipality: RILEY TWP County: PUTNAM District: 01
Feature Carried: TR M-6 (MALLAHAM BRIDGE)
Feature Under: RILEY CREEK

B. STRUCTURAL INFORMATION

Main Span Type: PONY TRUSS Design: BOWSTRING
Material: METAL
Year Built: 1871 Altered/Rehabbed: N/A
Total Number of Spans: 1 Overall Length: 86

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - LOCAL ROAD RURAL On National Highway System: NO
Direction of Traffic: 3 Number of Lanes On: 1
ADT /Date: 72 / 1991 Waterway Adequacy: 6 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 16 ft Deck Width, Out to Out: 16 ft
Approach Travelway Width: 22 ft Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

86-foot, single-span, bowstring truss with chorded straight I-beam sections to form the arched upper member, small I-beam sections as verticals with transverse metal rod knee braces, metal rod cross-bracing (diagonal, vertical, and horizontal) clamped in the middle with circular castings, and parallel steel plate lower chord members. Supplementary I-shaped floorbeams with draped rods, spacer brackets, and turnbuckles support the smaller primary I-shaped floorbeams that hang at each vertical from metal rods. The floorbeams are braced with lower lateral, metal rod, cross bracing members. The floorbeams support a timber deck with asphalt wearing surface on rolled I-beam stringers. Latticed metal railings are attached to each vertical. The abutments are wall-type ashlar stone encased in cast-in-place concrete.

Summary of Structural Deficiencies:

The concrete abutment encasements are spalled at the corners and face of forward abutment. There is evidence of surface drainage erosion at the corners of the abutment wingwalls. Surface corrosion exists on the floorbeams and stringers. The metal railing and lattice is bent at the forward left end post from apparent vehicular impact. Corrosion exists within several diagonal member connection castings. There is a misaligned non-welded, upper-chord, I-beam compression splice at the 4th vertical of right truss. There are several bent diagonal rod members. The asphalt wearing surface is cracked and potholed and has disintegrated edges near the forward abutment.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
Built ca. 1875, this bridge is eligible for the National Register under Criterion C as a rare example of bridge fabricator David Morrison’s 1871 patented design for bowstring truss bridges, and is also significant as one of only 22 examples of bowstring truss bridges in Ohio dating to 1864-1880. This bridge was also fabricated by the Columbia Bridge Works, which was founded in 1867 in Dayton by David Morrison; the company continued building bridges until going out of business ca. 1890. Morrison was one of Ohio’s most influential early bridge builders and his 1871 bowstring truss design anticipated some structural features that would become standard for Pratt trusses built after 1890.

IV. SUMMARY OF PRESERVATION POTENTIAL

Summary of Preservation Potential:
This truss bridge has been well maintained and is currently being preserved. However, there are several routine maintenance and rehabilitation actions that could be performed that might improve the preservation of this structure.

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This truss bridge has been well maintained and is currently being preserved. However, there are several routine maintenance and rehabilitation actions that could be performed that might improve the preservation of this structure.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This structure is currently posted for a weight limit of 5 tons based on a 1979 working stress load rating. This bridge could be rehabilitated and maintained for preservation without additional strengthening efforts to maintain its current load restricted use without adverse effect on its historical significance. Such rehabilitation might include the installation of rear left and right approach guardrail to better protect the end posts from vehicular impact, the patching of spalled abutment concrete, the installation of rock channel protection at the corners of the wingwalls where erosion has occurred, the cleaning and painting of corroded areas of floorbeams, stringers, and diagonal casting connections, the repair of the damaged metal railing and lattice at the forward left end post, the realignment of the non-welded, upper-chord, I-beam compression splice at the 4th vertical of right truss (to ensure that the full I-beam section is contributing to the resistance of the compression forces), the straightening of any bent diagonal rod members, and the removal and replacement of the asphalt wearing surface. Since an asphalt wearing surface on top of a timber deck tends to promote the retention of moisture within the timber, it is recommended that a waterproofing membrane be installed prior to the replacement of the asphalt wearing surface. Currently, the forward approach is located within a tight horizontal curve. This poor alignment is the cause of the current vehicular impact damage at the forward left corner. Rehabilitation might also include a realignment of the roadway to either eliminate this sharp curve or shift this curve further away from this historic bridge. Routine maintenance might include the routine cleaning of debris from the abutment bearing seats and lower chord connections to minimize the exposure of the truss and floor system elements to moisture and the removal of debris from the underside of the bridge following each high water event.

Ohio Legal Loading:
It is unlikely that this structure could be strengthened to support full Ohio Legal live loading. However, several modifications could be performed that would likely increase the live load capacity. These modifications, the effects of which would need to be confirmed through analysis, might include: the installation of additional stringers or the installation of post-tensioning rods anchored at the bearings and installed parallel to the lower chord.

HS20 Loading:
Refer to Ohio Legal Loading for recommendations.
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 7033915  Owner: COUNTY

Municipality: MONROE TWP  County: RICHLAND  District: 03

Feature Carried: CHEW ROAD  Feature Under: NORFOLK SOUTHERN RR (FORMER PENNSYLVANIA RR)

B. STRUCTURAL INFORMATION

Main Span Type: THRU GIRDER  Design: CAST-IN-PLACE CONCRETE


Total Number of Spans: 3  Overall Length: 128

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - Local Road - Rural  On National Highway System: NO

Direction of Traffic: 2  Number of Lanes On: 2

ADT /Date: 364  / 1991  Waterway Adequacy: N - Bridge not over a waterway

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 20 ft  Deck Width, Out to Out: 21.5 ft

Approach Travelway Width: 24 ft  Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?  NOT AS WIDE

Sidewalk Width Left/Right: 0 ft  / 0 ft

Crash Data:

1 crash

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E. STRUCTURAL EVALUATION

Physical Description:

128-foot, 3-span (34’-60’-34’), reinforced concrete, thru-girder bridge with an integral reinforced concrete deck and floorbeams supported by integral, reinforced concrete, wall-type piers and abutments with turned-back wingwalls on spread footings. The deck has an additional asphalt wearing surface.

Summary of Structural Deficiencies:

Hairline cracks and minor spalls exist along the face of the abutment breastwalls. Groundline erosion is evident at the corners of the bridge adjacent to the turned-back wingwalls as well as in front of the abutment breastwalls. Significant spalls exist along the bottom and sides of the concrete floorbeams, thru-girders, and deck with corroded reinforcing steel exposed. The top surface concrete of the parapets/thru-girders is spalled and severely deteriorated. Vegetation growth exists along the curblines.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:
*(Posted for 5T)*

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: High

Summary of Significance:
This structure is a reinforced concrete through girder bridge built in 1910 by the Pennsylvania Railroad, and now crosses over double railroad tracks operated by the Norfolk Southern Railroad. This structure is significant under National Register Criterion C as a fairly large example of an early reinforced-concrete girder bridge in Ohio. As of 2008, Ohio retained about 64 reinforced concrete bridges built between 1905 and 1938. The oldest example of a reinforced concrete bridge in the state dates to 1905, but as an example from 1910, the Chew Road Bridge definitely qualifies as one of the state’s earlier examples. The bridge also represents the early experimentation with reinforced concrete bridge construction that took place in Ohio from 1905 through the 1920s.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge is currently posted for a 5-ton weight limit based on engineering judgement. According to the Richland County Engineer’s office (RCEO), an analytical-based load rating is being completed, but is not yet complete. This updated load rating will dictate the current usage and weight limitations of this structure. Although this narrow and relatively low-volume bridge appears to be adequately serving the local traffic, the narrow lanes and extremely poor vertical sight distance likely contributed to the documented vehicular accident. Although this bridge requires rehabilitation and routine maintenance in order to preserve it for its current usage, such rehabilitation is feasible and likely prudent. This bridge can be preserved through rehabilitation and routine maintenance.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge is currently supporting vehicular traffic with a maximum 5 ton limit. Although this weight restriction is currently being verified through an analytical-based load rating, it is likely that this bridge can be preserved for its current usage through rehabilitation and routine maintenance. A rehabilitation might include the epoxy injection of hairline cracks and patching of spalls in the abutment breastwalls, the addition of rock channel protection in front of the wall-type abutments and adjacent to the turned-back wingwalls, cleaning of exposed and corroded reinforcing steel, the patching of spalled deck, floorbeams, and thru-girders, and the installation of approach guardrail to protect the end corners of the parapets/thru-girders. The use of an electrochemical, cathodic, or galvanic protection system may also be appropriate for this site in order to mitigate future reinforcing steel corrosion. Concrete sounding, sample coring, and chloride-ion testing may be required to fully determine the extent and method of repair needed. Routine maintenance might include the removal of vegetation growth and debris along the curblines. Although this structure could benefit from a deck widening, the existing parapets serve as the main load carrying girders. Therefore, a bridge widening is not possible without adversely effecting the historical significance of this structure.

Ohio Legal Loading:
If the load rating analysis indicates that the supporting through-girders or floorbeams on this structure cannot support the current or Ohio Legal traffic loading, then relatively few options are available for rehabilitating this bridge without adversely affecting the historical importance. A possible solution for accomplishing this would be the use of near-surface, fiber reinforced polymer (FRP) reinforcing to strengthen the top or bottom fibers of the main through-girders. External post-tensioning or FRP wrapping of the thru-girders and floorbeams are other potential solutions for strengthening. However, these solutions may obscure some of the formed architectural relief on this structure.

HS20 Loading:
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:

If the load rating analysis indicates that the supporting through-girders or floorbeams on this structure cannot support HS20 traffic loading, then the solutions described above for Ohio Legal Load strengthening, with higher levels of FRP reinforcement, would also apply for HS20 strengthening.

Bypass/historic bridge left in place: This bridge could be a candidate for a new bypass bridge. However, in addition to the construction of a bypass bridge, rehabilitation and routine maintenance are recommended in order to preserve this bridge at its current location. The disposition of the current railroad property should be established prior to the design or construction of a bypass bridge.

Other: No other alternatives were considered.
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION

SFN Number: 7450192          Owner: COUNTY

Municipality: THOMPSON TWP    County: SENECA    District: 02

Feature Carried: TR 80
Feature Under: ROYER DITCH

B. STRUCTURAL INFORMATION

Main Span Type: SLAB          Design: REINFORCED CONCRETE SLAB

Material: REINFORCED CONCRETE

Year Built: 1909              Altered/Rehabbed: N/A

Total Number of Spans: 1      Overall Length: 38

C. CLASSIFICATION OF SERVICE

Functional Classification: 09 - LOCAL ROAD - RURAL  On National Highway System: NO

Direction of Traffic: 3

Number of Lanes On: 1

ADT /Date: 50 / 2004

Waterway Adequacy: 8 - Bridge deck above roadway approaches

D. GEOMETRIC INFORMATION

Bridge Travelway Width: 14.1 ft

Deck Width, Out to Out: 16.1 ft

Approach Travelway Width: 21 ft

Vertical Clearance on Bridge: 0 ft.

Is Bridge Roadway as Wide or Wider Than Approaches?

NOT AS WIDE

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data:

N/A
E. STRUCTURAL EVALUATION

Physical Description:

39-foot, single-span, reinforced concrete slab bridge with scored-panel reinforced concrete parapets and asphalt concrete wearing surface. This structure is supported on reinforced concrete abutments with flared wingwalls.

Summary of Structural Deficiencies:

The asphalt wearing surface has a fairly large pot-hole at the forward right end of bridge with ponding water. Vegetation is growing between the toe-of-parapets and the edge of the asphalt wearing surface. The concrete at the bottom of deck along fascia edges is cracked and spalled. There are cracks in the underside of deck concrete.

II. CONFORMANCE WITH STANDARDS

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Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: HIGH

Summary of Significance:
This structure is an early concrete slab bridge and is eligible for the National Register under Criterion C. The concrete slab bridge is one of the most common bridge types in Ohio and examples were built up through the 1960s. However, the Township Road 80 Bridge is one of the earlier examples of the type, dating to 1909. An inscription on top of one of the bridge railings also gives the date of construction and the names of the builders’ Mocher and Hohenstein of Tiffin, Ohio. The bridge is significant as a very early example of the reinforced concrete slab type, which was used in the early twentieth century mainly for crossing that required a span of 35’ or less.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? Yes
Does the bridge have any preservation potential, including alternate use? Yes

Summary of Preservation Potential:
This bridge can be preserved in place and for its current usage with relatively minimal rehabilitation and routine maintenance.

No build: The no-build option does not address the deterioration that is affecting the structural integrity of the bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This bridge is currently being utilized as a load-restricted vehicular bridge. Preservation for this current use is recommended and can be accomplished without adversely affecting its historical significance through rehabilitation and routine maintenance. Prior to rehabilitation of this bridge, it is recommended that a concrete compressive strength test be performed on a sample of concrete from the bridge deck. It is also recommended that an analysis based load rating be conducted to more accurately determine the live load capacity of this structure based on the results of the concrete testing. Rehabilitation of this structure to maintain this bridge for its current load restricted usage could include the following: epoxy injection repair of bottom of deck cracks, patching of spalled edge of deck concrete, replacement of current asphalt wearing surface. Routine maintenance of this structure could include the removal and control of vegetation growth between the asphalt wearing surface and the top of concrete deck.

Ohio Legal Loading:
Although this bridge was likely not originally designed for current Ohio Legal loading, it is possible that a preservation and rehabilitation could strengthen this bridge for such a load without adversely affecting its historical significance. Prior to any rehabilitation or strengthening of this bridge, it is recommended that a concrete compressive strength test be performed on a sample of concrete from the bridge deck. It is also recommended that an analysis based load rating be conducted to more accurately determine the live load capacity of this structure based on the results of the concrete testing and to determine if strengthening for Ohio Legal loading is feasible. In addition to the rehabilitation and preservation that is recommended to maintain current use, strengthening could include the use of near-surface, fiber reinforced polymer (FRP) reinforcing to strengthen the top or bottom fibers of the deck.

HS20 Loading:
The recommendations for Ohio Legal Loading also apply to HS20 Loading.

Bypass/historic bridge left in place: This historic bridge can be preserved in place. While a bypass bridge could be constructed, considering the low-volume of traffic that utilizes this bridge and the relatively short detour route, the construction of a bypass bridge for this location is not prudent.

Other: No other options were considered
V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 76XXXX2 Owner: CITY PARKS DEPT
Municipality: MASSILLON County: STARK District: 04
Feature Carried: PEDESTRIAN TRAIL Feature Under: DRY RUN

B. STRUCTURAL INFORMATION
Main Span Type: PONY TRUSS Design: HOWE
Material: METAL
Year Built: 1859 Altered/Rehabbed: 1899 and 2010
Total Number of Spans: 1 Overall Length: 27

C. CLASSIFICATION OF SERVICE
Functional Classification: 00 - Park or other public reservation On National Highway System: NO
Direction of Traffic: Number of Lanes On: 0
ADT /Date: / Waterway Adequacy: 8 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 7.3 ft Deck Width, Out to Out: 7.3 ft
Approach Travelway Width: 6 ft Vertical Clearance on Bridge: ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
WIDER
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

27-foot, single-span cast and wrought-iron Howe truss with flat plate upper and lower chords, and rod diagonals with flattened ends connected to the rod-shaped verticals. A wrought-iron plate railing with vertical rod supports is attached to the upper chord of the truss. The floor system consists of longitudinal timber deck planks supported by transverse timber floor boards. Lower lateral cross bracing consists of diagonal wrought-iron rods. The bridge is supported on stone abutments with turned-back stone wingwalls. Timber bollards have appropriately been installed at the approaches to ensure that vehicular traffic is incapable of accessing this structure.

Summary of Structural Deficiencies:

This structure was rehabilitated in 2010 and has been well maintained with minimal structural deficiencies. However, poor surface drainage has led to approach embankment erosion and detached stonework from the turned-back wingwalls. The recessed pockets established for the bearing seats have collected dirt and debris that retain moisture against the bearing blocks. No deterioration of the bearing blocks was noted in 2012.

II. CONFORMANCE WITH STANDARDS

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</tr>
<tr>
<td>Geometric Adequacy</td>
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</table>

Conformance Comments:

Status Notes:

Alignment/Sight Distance: N - Not applicable
III. HISTORICAL SIGNIFICANCE

Historical Rank: Exceptional

Summary of Significance:
Built in 1859, this small Howe truss bridge is significant under National Register Criterion C as the oldest known cast and wrought iron bridge in Ohio. Originally located in Alliance, Ohio, the bridge was relocated to the current site in Massillon in 1899. The bridge currently crosses over a small asphalt pedestrian path, and was restored in 2010. Although not in its original setting, the structure is still very significant as Ohio’s oldest surviving iron bridge. The bridge is also associated with a technologically significant patented truss design by Joseph Davenport, and is one of only six examples dating to 1859-1870 of this truss design that survive in Ohio.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? YES

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This structure should continue to be preserved in its current setting. Although several details that were a part of the 2010 rehabilitation might be slightly revised to minimize the potential for deterioration, this relatively minimal work can be completed without adversely affecting its historical significance.

No build: Although no immediate work is required for this bridge, minor detail adjustments and or routine maintenance might improve its long-term preservation.

Rehab without adverse effect: Maintain Current Use:
This structure currently supports minimal pedestrian loading in a park setting. Although pedestrians can access this bridge, it is apparent from the amount of deflection experienced when one pedestrian crosses this bridge that it is not designed to accommodate the full American Association of State Highway Officials (AASHTO) 90 pounds per square foot pedestrian live loading. As a result, it might be prudent to analyze this structure to assess its safe live load potential and post a sign to limit the number of pedestrians allowed at one time. It is recommended that the failed turned-back stone wingwalls be rebuilt and the backfill behind the walls be protected with either a reinforced concrete drainage flume or rock erosion protection. Current detailing at the corners allows drainage and debris to collect at the abutment bearings. To eliminate this problem, these exposed areas could be shielded with either timber or a painted cast iron plate.

Ohio Legal Loading: This bridge does not and will not support Ohio Legal loading.

HS20 Loading: This bridge does not and will not support HS20 vehicular loading.

Bypass/historic bridge left in place: A bypass structure is not applicable for this bridge site.

Other: No other alternates were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:
I. GENERAL INFORMATION

A. LOCATION/IDENTIFICATION
SFN Number: 8741018  Owner: COUNTY
Municipality: GRAND RAPIDS TWP  County: WOOD  District: 02
Feature Carried: MILTON ROAD  Feature Under: DITCH 2389

B. STRUCTURAL INFORMATION
Main Span Type: STRINGER  Design: CONCRETE ENCASED
Material: STEEL
Year Built: 1910CA  Altered/Rehabbed: N/A
Total Number of Spans: 1  Overall Length: 27

C. CLASSIFICATION OF SERVICE
Functional Classification: 09 - LOCAL ROAD - RURAL  On National Highway System: NO
Direction of Traffic: 2  Number of Lanes On: 1
ADT /Date: 50 / 1992  Waterway Adequacy: 5 - Bridge deck above roadway approach

D. GEOMETRIC INFORMATION
Bridge Travelway Width: 15.2 ft  Deck Width, Out to Out: 17.6 ft
Approach Travelway Width: 19 ft  Vertical Clearance on Bridge: 0 ft.
Is Bridge Roadway as Wide or Wider Than Approaches?
NOT AS WIDE
Sidewalk Width Left/Right: 0 ft / 0 ft
Crash Data:
N/A
E. STRUCTURAL EVALUATION

Physical Description:

27-foot, single-span, concrete-encased, rolled steel stringer bridge supported on ashlar stone abutments with concrete toe walls. The parapets consist of concrete-encased lattice railings or girders that were likely salvaged from a different bridge. The concrete-encased, steel stringer bearings are cast into the abutments. The parapets are finished with an inset diamond panel.

Summary of Structural Deficiencies:

The ends of each concrete parapet and the bottom of the concrete deck near the abutments are cracked and spalled, revealing the corroded ends of the lattice railing and the bottom flange of the steel stringers that were once encased in the concrete, but are now exposed and corroded. The inside fascia of the concrete parapets are slightly eroded and pitted. Several joints along the face of the ashlar stone abutments are missing mortar. Poor drainage control at the forward right corner has caused erosion of the embankment at that location.

II. CONFORMANCE WITH STANDARDS

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</table>

Conformance Comments:

Status Notes:
III. HISTORICAL SIGNIFICANCE

Historical Rank: Moderate

Summary of Significance:
This structure is a stringer bridge, featuring rolled steel beams and steel lattice railings encased in poured concrete. As a representative of this distinctive and experimental bridge type of the early 1900s, the bridge is eligible for engineering significance under National Register Criterion C. This type of bridge was an idiosyncratic design that was built and refined by the Wood County Engineer from ca. 1910-1918. The combination of rolled steel and poured concrete illustrates the technological experiments that were going on during the early twentieth century as reinforced concrete came into heavier use for bridges. As of 2008, Ohio retained about 64 reinforced concrete bridges built between 1905 and 1938, but this bridge is an early and technologically experimental example.

IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? NOT RECOMMENDED

Does the bridge have any preservation potential, including alternate use?

Summary of Preservation Potential:
This bridge can be preserved through rehabilitation. An analysis-based load rating would determine the acceptable live load capacity and/or the magnitude of any required strengthening. Widening of this structure is not possible without adversely effecting the historical significance through removal of the existing parapets. A bypass bridge is recommended if preservation is desired as well as remediation of the current width constraint.

No build: The no-build option does not address the deterioration that is affecting the integrity of this historical bridge and is not prudent.

Rehab without adverse effect: Maintain Current Use:
This structure can be preserved through rehabilitation to maintain its current use. However, an analysis-based load rating is recommended to more accurately confirm its current live load capacity. Chloride ion sampling and testing is also recommended to assist in assessing the magnitude of required concrete removal and replacement and/or the need for a galvanic protection system to halt future steel corrosion. Rehabilitation could include: cleaning and painting exposed structural steel, patching or replacement of deteriorated and spalled concrete, epoxy-injecting cracked concrete, re-pointing areas of abutments with missing mortar, sealing with epoxy-urethane the portions of parapets exposed to de-icing salts, and the improvement of surface drainage at the forward end of the bridge through the installation of either rip-rap or a cast-in-place concrete flume.

Ohio Legal Loading:
This bridge is currently inventoried to support 100-percent Ohio Legal loading based on “engineering judgement”. Although it supports a low volume of traffic, numerous heavy truck loads were observed utilizing this bridge for the nearby businesses. It is recommended that an analysis based load rating be conducted for this structure to more accurately confirm its live load carrying capacity. Based on the results of this analysis, the bridge should be load posted or rehabilitated accordingly. In addition to the suggestions to “maintain current use”, a rehabilitation may require additional strengthening. Strengthening could be accomplished through the installation of concrete-encased post tensioned rods or near-surface, fiber reinforced polymer (FRP) reinforcing to strengthen the bottom fibers of the deck.

HS20 Loading:
This bridge is currently inventoried to support H15 live loading based on “engineering judgement”. Refer to “Ohio Legal Loading” for additional recommendations regarding strengthening and rehabilitation.

Bypass/historic bridge left in place: A bypass bridge could be constructed adjacent to the current bridge as a means of preserving the current bridge while improving the current width constraint. Although the approaches are straight, the rear approach intersects at 90-degrees with an adjacent roadway and has a fairly...
steep vertical curve. Consequently, a bypass bridge would also require significant approach and intersection improvements.

Other: No other alternates were considered.

V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee: