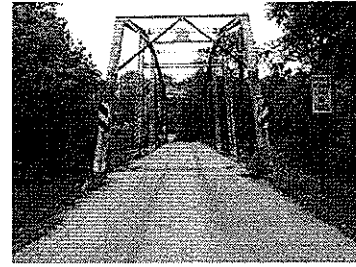
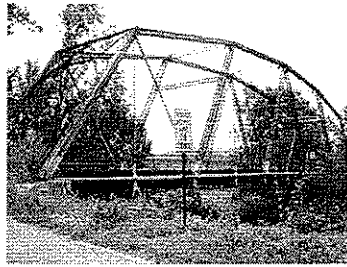


# DRAFT

Ohio Department of Transportation Historic Bridge Management Plan 1/9/2012

SFN # 6831826



Section I A - D

## 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 - X

Direction of Traffic: 3

Number of Lanes On: 1

ADT /Date: 70 / 1969

Waterway Adequacy: 7 - Slight chance of overtopping bridge deck and roadway approaches

### 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: 0 ft- 11'-10"

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

Sidewalk Width Left/Right: 0 ft / 0 ft

Crash Data: N/A

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**E. STRUCTURAL EVALUATION**

Physical Description: SEE ATTACHED DOCUMENT

Summary of Structural Deficiencies: SEE ATTACHED DOCUMENT

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**II. CONFORMANCE WITH STANDARDS**

	<b>Actual</b>	<b>Required</b>	<b>Adequate (Y/N)</b>
Load Rating Inventory (Operating)	16 tons (22 tons) (2008) (8 ton posting in 2011)	36 tons	N
Bridge Roadway Width	15.7 ft	20 ft	N
Number of Lanes	1	2	N
Alignment/Sight Distance	-	-	4
Geometric Adequacy	-	-	N/A

Conformance Comments:

Status Notes:

According to Ron Smith (Preble County), this bridge is slated to be rehabilitated in the next couple of years.

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Ohio Department of Transportation  
Historic Bridge Management Plan

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1/9/2012

Sections III, IV, and V

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### III. HISTORICAL SIGNIFICANCE

Historical Rank: Exceptional

Summary of Significance: SEE ATTACHED DOCUMENT

### IV. SUMMARY OF PRESERVATION POTENTIAL

Is it prudent and feasible to preserve bridge for its current usage? SEE ATTACHED DOCUMENT

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

Summary of Preservation Potential: SEE ATTACHED DOCUMENT

No build: SEE ATTACHED DOCUMENT

Rehab without  
adverse effect: SEE ATTACHED DOCUMENT

Bypass/historic  
bridge left in place: SEE ATTACHED DOCUMENT

Other: SEE ATTACHED DOCUMENT

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### V. PRESERVATION RECOMMENDATION

Committee Recommendation:

Date/Committee:

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## ODOT HISTORIC BRIDGE MANAGEMENT PLAN SUPPLEMENT

SFN: 6831826

### **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.

### **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.

### **SUMMARY OF PRESERVATION POTENTIAL:**

#### **IS IT PRUDENT AND FEASIBLE TO PRESERVE BRIDGE FOR ITS CURRENT USAGE?:**

Yes. It is prudent and feasible to preserve this bridge for its current usage. Based on conversation with Ronald Smith from the Preble County Engineer's office, this bridge is currently slated for rehabilitation with a consultant already selected. Therefore, the prudence and feasibility of the preservation of this bridge has already been confirmed.

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## **DOES THE BRIDGE HAVE ANY PRESERVATION POTENTIAL, INCLUDING ALTERNATE USE?:**

Although this bridge could be relocated for vehicular or pedestrian traffic at a different site, it is recommended that this bridge be rehabilitated (as planned) and continue to serve as a vehicular bridge at its current location. Although this site has poor alignment and sight distance, considering that there have been no recent accidents, there is a low volume of vehicular traffic, and there is a lack of pedestrian traffic at the current site, it is not recommended that this bridge be altered to better accommodate other forms of traffic in its current location.

## **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:**

### Maintain Current Use:

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

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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 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.

## **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.