St. Clair County’s Historic Bridges: A Disappearing Treasure

Presented By:
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The fate of the vast majority of historic metal truss bridges is demolition and replacement with a modern bridge.
The metal truss bridge features a network of metal beams arranged in a pattern based on triangles that work to support the bridge.
Cantilever truss bridges are a complex, continuous structure type that feature truss “arms” that extend from a pier to normally hold a structurally independent suspended span at one end, and balance the weight out at the other end extending from the pier.
Cantilever Truss Bridges

Suspended spans may not always be readily apparent. Look for pin connections or look for a change in truss member size and configuration.

Blue Water Bridge

Suspended Span  Cantilever Arm  Anchor Arm

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Blue Water Bridge’s Historic Significance

- 1938 Construction date
- One of the oldest examples in North America of a rare variation of cantilever truss often called an arched cantilever truss.
• Design was a solution to increase aesthetics by eliminating traditional “towers” normally found on a cantilever truss and also hiding the suspended span.

• An earlier Blue Water Bridge proposal with an unusual 90 degree angle turn on the approach, shows the more traditional tower design.
Blue Water Bridge’s Historic Significance

- Designed by Modjeski and Masters.
- Ralph Modjeski was one of the greatest bridge engineers in the history of the United States. He was involved with the Ambassador Bridge and the Quebec Bridge. He immigrated from Poland.
- Frank Masters played the larger role in designing the Blue Water Bridge. Modjeski was in his final years at this time.

**Side Note:**
Modjeski and Masters remains in business today. They helped design the new Blue Water Bridge and the rehabilitation of the historic bridge.

Above: Ralph Modjeski
Blue Water Bridge’s Historic Significance

The construction of the Blue Water Bridge was extensively photographed.
Port Huron’s Pere Marquette Railroad Bridge

• Built 1931 by American Bridge Company

• Bascule type of movable bridge, with a seesaw motion. All of Port Huron’s movable bridges are bascule bridges.

Port Huron’s Pere Marquette Railroad Bridge

• Employs an exceedingly rare design of bascule bridge patented by Hugo A.F. Abt and called an Abt bascule bridge.

• About a handful of known examples remain nationwide.

Diagram From Patent

Abt Bascule Bridge

Adapted From Original Canadian Patent By HistoricBridges.org
• Design keeps the counterweight high enough above the tracks so that the bridge could be erected in raised position while trains continued running on a former bridge during construction.
Port Huron’s Pere Marquette Railroad Bridge

• The bridge appears to be one of the largest surviving Abt bascule spans.

• It retains excellent historic and physical integrity. Surface rust only.

• One of the most important historic bridges in the Thumb.

• Very little public awareness of the significance of the bridge.
Controversial Demolition Plans

• Land and bridge recently purchased by Port Huron Yacht Club.

• PHYC proposes to demolish the bridge.

• Citizens are divided regarding the demolition proposal.
  
  • Few are aware of why the bridge has historic value.
  
  • Most support for the bridge is sentimental (memories).
  
  • Some view as an “eyesore”
Controversial Demolition Plans

• Although privately owned, the bridge has an intimate relationship with a federally managed public resource: Black River.

• PHYC will require a permit from the Army Corps of Engineers to demolish.

• Citizens will have the right, under Section 106 Historic Review, to comment on the proposed plan and possible alternatives to avoid harming the historic bridge.
Railroad Bridge Preservation Suggestions

• Have bridge inspected for structural integrity. Identify any areas of concern and make plans to address them.

• Provide public walk-up access to the bridge with interpretive signage.

• Restore bridge tender / control building, create a mini-museum.

• Provide artistic lighting on bridge. Rope lighting to outline the trusses or floodlights to make the bridge glow.

Abandoned Historic Bascule Bridge
Cleveland, Ohio
Colored Flood Lighting
Railroad Bridge Preservation Suggestions

Additional Lighting Options

Rope lighting on Blue Bridge, Grand Rapids, MI

Flood lights on Peace Bridge, Buffalo, NY and on another bascule bridge in Cleveland, OH can project any number of colors.
Black River CN Railroad Bridge

• Built 1929 By: Wisconsin Bridge and Iron Company of Milwaukee, Wisconsin

• A good contrast to the Pere Marquette Railroad bridge. This bridge’s counterweight is rigidly attached to the bascule and it blocks the tracks when raised.
Black River CN Railroad Bridge

Scherzer type rolling lift bascule bridge rolls back on a track.

Invented by William Scherzer who died soon after it was patented. Promoted by bother Albert, of President of Scherzer Rolling Lift Bridge Company.
7th Street Bridge, Port Huron

• A rare example of a single leaf highway bascule bridge. A “fixed trunnion” bascule, the entire leaf rotates around a giant trunnion (axle).

• Built in 1932
7th Street Bridge, Port Huron

- Original bridge tender house was altered at unknown date.
- Recently this was replaced with a new building that simulates the original.
7th Street Bridge, Port Huron

- Famous bridge engineer John Alexander Low Waddell designed the bridge.

- A late example of Waddell’s work.

- Plate girder and single leaf design may express Waddell’s interest in simplicity.
The construction of the 7th Street Bridge was extensively photographed by the city.
Truss Bridge Along Capac Road

Found in storage alongside Capac Road near Belle River in 2005.

History unknown.

May be old Terry Road Bridge over Belle River

Bridge type is a Warren pony truss with riveted connections. It follows a standard design used approx 1900-1910 in Michigan.
Frith Road Private Bridge: From Capac?

Relocated to a driveway by a private owner.

Owner was not sure of the exact location but said the bridge came from along Belle River Road near Capac.

Possible Locations: Berville Road or Miller Road over Belle River? Those bridges were replaced in the 1980s.
George Scott’s steam engine was wrecked December 1, 1909 breaking through the Locke Bridge over Belle River 3 ½ miles south of Capac on Capac Road.

“It was a miracle that Mr. Scot and Ed Summers were not killed, both going through and jumping into the river. A force of men and the Highway Commissioner with a stump machine and pulleys raised it Friday.” The members of the town board were looking into the cost of steel girders for the bridge and may outfit it with a concrete top. –Capac Journal December 17, 1909 (Capac Historical Society Museum)
Steam traction engines (threshers) presented a new, heavy load for bridges even before automobiles. Some bridges could handle it while many others could not. This thinned out weak bridges.
Masters Road Bridge

• Built 1935
• A Steel stringer “beam” bridge
• Contractor: J. H. Baker and Sons of Port Huron
• Railing design unique to St. Clair County.

• Replaced a metal pony truss bridge.
• Significant as a bridge produced by Depression era relief programs.
Speaker Road Bridge: A Unique Truss

- Over South Branch Mill Creek
- Built 1908, Replaced 2010.
- Bridge type: Pin-connected Parker pony truss.
- An unusual design of truss bridge.

Bridge is currently in storage awaiting restoration and reuse at a new location.
Michigan Leads The Way In Historic Truss Bridge Restoration

- Michigan has the only annual conference in the country dedicated to the restoration of historic metals and metal bridges.

- Michigan is home to the country’s first Historic Bridge Park.

- Michigan has led the way in the revival of the historical process of hot metal riveting in historic bridge restoration.

- A bridge was even brought to Michigan all the way from Iowa so that it could be restored by an expert Michigan fabricator.
Example Project: Frith Road Bridge, St. Clair County

- Bridge was replaced with a modern pre-stressed concrete bridge.
- Historic bridge was picked, dismantled, and stored.
- Bridge remains in storage awaiting reuse. St. Clair Community Foundation River Project Fishing Pier???
Bridges From St. Clair County In Storage

Indian Trail Bridge, 1936

Frith Road Bridge, Early 20th Century

Available For Reuse!

Speaker Road Bridge, Built 1908