

Delhi Bridge Historic District



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Historic District Study Committee Preliminary Report February 20, 2007

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Historic District Study Committee Report

Delhi Bridge

This report establishes the legal basis for the creation of a local historic district. We have collected, analyzed, and summarized historical and other data that support historic district designation for Delhi Bridge. Details are provided in the following sections pursuant with section 399.203 of Public Act 169 of 1970 (PA 169), as amended in 1992, *Michigan Historic Districts Act*.

Charge of the Committee

On May 18, 2005, the Washtenaw County Board of Commissioners passed a resolution to appoint an Historic District Study Committee to evaluate the Delhi Bridge located on East Delhi Road at the Huron River, and determine if it meets the criteria to be included in an historic district. The May 18, 2005 resolution was signed and sealed by the County Clerk/Register, Lawrence Kestenbaum.

Committee Membership

Each of the Delhi Bridge Historic District Study Committee members as established by the Washington County Board of Commissioners is listed below, along with their historic preservation interests and related capabilities:

- Richard Cook – has been a resident of the historic village of Delhi Mills since 1990 and is an Environmental Scientist.
- Scott Hedberg – is a landscape architect, builder, historical researcher, and a resident of Scio Township.
- Robert Kyes – is a Delhi Mills resident and Professor Emeritus of the University of Michigan Department of German Languages.
- George Miller – is an industrial engineer who lives with his wife, Deborah Webster, on East Delhi Road just south of the bridge.
- Betty Lou Monticelli – has been a county employee for more than 17 years, 13 of which were spent in the Treasurer’s office researching ownership and property history; she has a BA in Communications from the University of Michigan.
- Gary Robinson – is a Dexter resident, archaeologist, and consulting historic preservationist.
- Kathleen Timberlake – owns the William Burnett cobblestone house (1830s) and holds a PhD in education.
- Charles Unbehaun – is a resident north of the Huron River near Delhi Mills, and an engineer with an avid interest in historic bridges.
- Deborah Webster – is an administrator with a local software development firm and, together with George Miller, owns the historic Edgar A. Kahn log cabin just south of the bridge on East Delhi Road.

- Jean Ledwith King (Washtenaw County Historic District Commissioner, Scio Township Trustee, and advisor).
- Nancy Snyder (Washtenaw County Historic District Commissioner and advisor).
- Melissa Milton-Pung (Washtenaw County Planning & Environment).
- Ken Reiter (Washtenaw County Road Commission representative and advisor).¹

The committee also thanks Mary Mosher and Sarah Nooden for their many valuable contributions.

Historic District Studied

The proposed name for the historic district, if approved, is the “Delhi Bridge Historic District”.

Boundaries of the Historic District

The Delhi Bridge Historic District consists solely of the Pratt through truss iron bridge that crosses the Huron River as an extension of East Delhi Road just south of Huron River Drive. It should be noted that the proposed historic district does *not* include the bridge abutments, approaches, adjacent land or other resources; the bridge itself is the sole resource in the proposed historic district.

The proposed Delhi Bridge Historic District is bounded by the following legal parcels:

- The northwest corner of the bridge is on the corner of parcel number H-08-02-400-003.
- The northeast corner of the bridge is on the corner of parcel number H-08-02-400-009.
- The southeast corner of the bridge is on the corner of parcel number H-08-02-400-004.
- The southwest corner of the bridge is sitting on land formerly under water and north of parcel number H-08-02-310-001.

The total area encompassed by the proposed historic district is approximately 2,000 square feet, or about 0.05 acres. This area is derived from the bridge’s length of 105’ 7” and width of 19’ 1” center to center of trusses. The roadway width is 17’ 4”.² The UTM (Universal Transverse Mercator) coordinates of the bridge are UTM 17 268552 E 4690419 N. These coordinates are for an NAD 27 USGS (United States Geological Survey) Topographic Quadrangle map. A topographic map illustrating the bridge’s location is shown below as Figure 1.

¹ Mr. Reiter left the WCRC but the Board of Commissioners did not formally replace him on the study committee.

² Lichtenstein Consulting Engineers, Preliminary Engineering Report for the Washtenaw County Road Commission for East Delhi Road Bridge Over the Huron River, March 21, 2006.

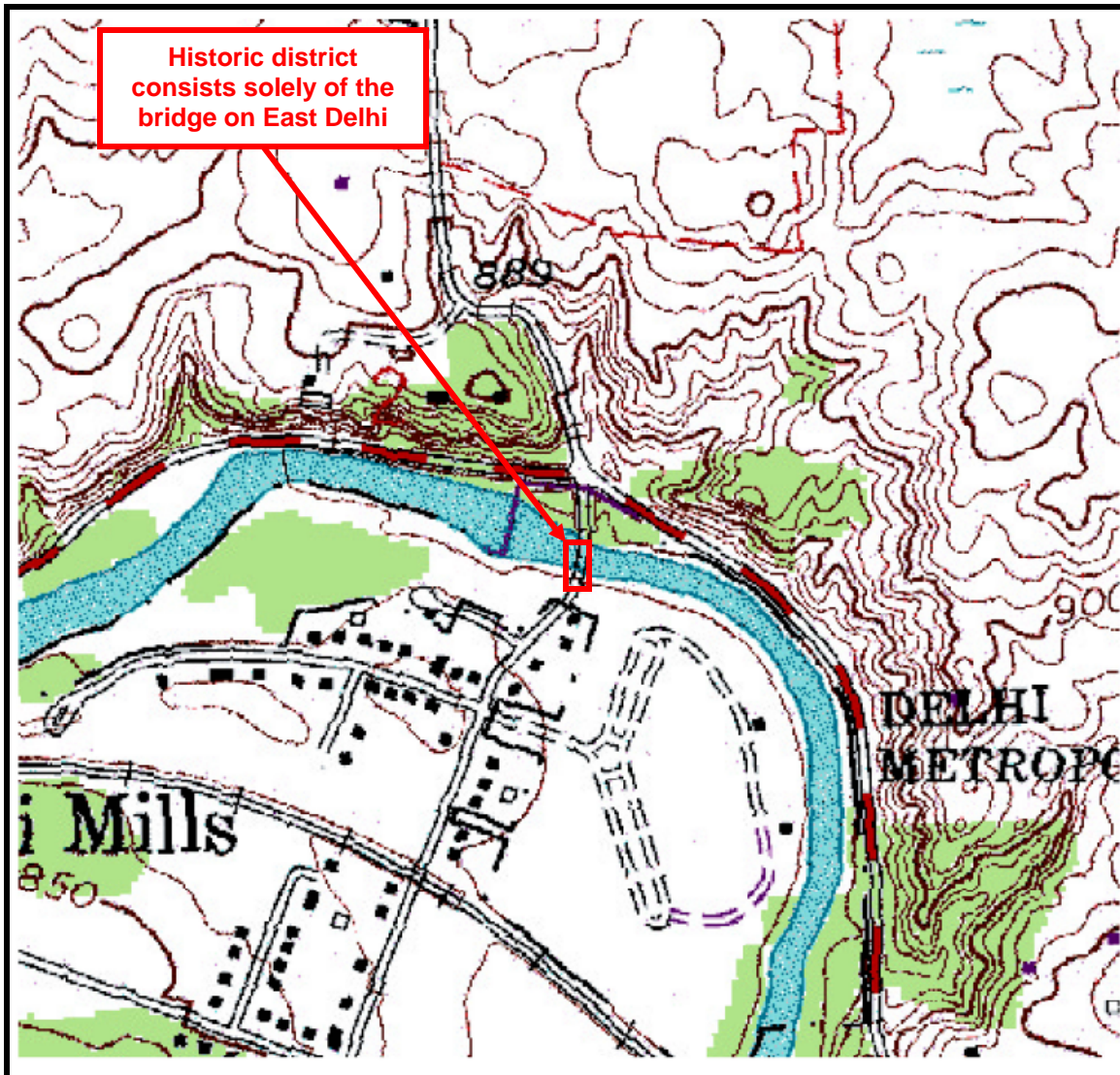
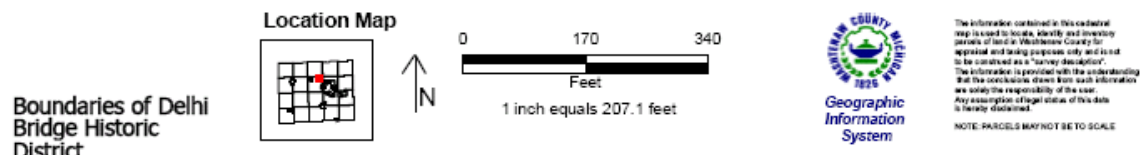
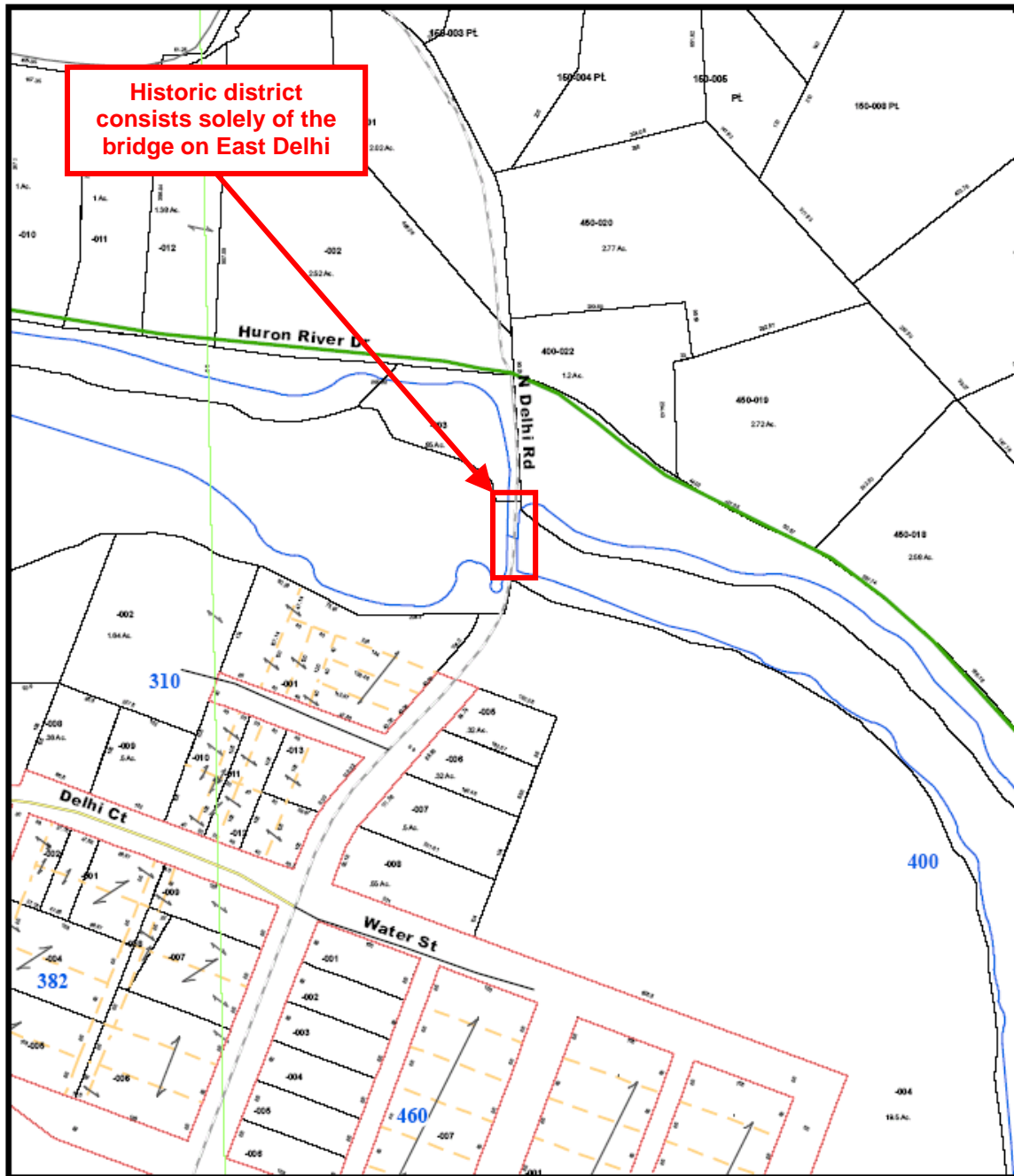


Figure 1: Topographic Map Showing Delhi Bridge Location

All adjacent property is owned by the Huron Clinton Metropolitan Authority. A map depicting the proposed historic district's (i.e., the bridge's) boundaries and adjacent property boundaries is shown below as Figure 2. Figure 3 is a more detailed aerial photograph of the site depicting the proposed historic district and showing the parcel numbers of the adjacent land more clearly.



Boundaries of Delhi Bridge Historic District

THIS MAP REPRESENTS PARCELS AT THE TIME OF PRINTING. THE OFFICIAL PARCEL TAX MAPS ARE MAINTAINED SOLELY BY THE WASHTENAW COUNTY EQUALIZATION DEPARTMENT AND CAN BE OBTAINED BY CONTACTING THAT OFFICE AT 734-222-6662.

Date Printed: 05/30/2006

Figure 2: Plat Map Showing Delhi Bridge and Boundaries of Adjacent Property



Photo Credits: Washtenaw County, 2005

Figure 3: Aerial Photograph Showing Bridge and Boundaries of Adjacent Property

Justification for Boundaries

The Delhi Bridge Historic District Study Committee believes the historic district should be a single resource property consisting solely of the Delhi Bridge (and therefore excluding abutments, approaches, adjacent land, and other resources). Because the surrounding property is owned by the Huron Clinton Metropolitan Authority, the Committee believes that property is adequately protected by its ownership.

History of the Proposed District and Vicinity

Delhi Bridge

Figure 4 shows a remarkably clear picture of the wrought iron Delhi Bridge. History indicates the wrought iron bridge was built 1888-1890. The wrought iron bridge had replaced the original 1851 wooden bridge.³



Photo Credits:
Mosher/ Poppenger Family Collection
Digital Work / Research: Scott Hedberg

Figure 4: Delhi Mill and the Delhi Bridge in the 1890s

The Delhi Bridge has spanned this section of the Huron River for well over 100 years. Other than the repairs performed after the 1917 tornado, little about the bridge has changed over the years. A different color of paint is the most noticeable alteration. There are a number of significant dates in the history of Delhi Bridge. A few of the dates and associated events are as follows:

- 1888-1890: Delhi Bridge is built over the Huron River

³ Marsh, Nicholas, *Remembering Delhi Mills*, Braun and Broomfield, Ann Arbor, Michigan, 1984.

- 1917: Tornado damages or destroys every house in the village of Delhi Mills and puts bridge in the Huron River
- 1918: Delhi Bridge is repaired and restored to its former location over the Huron River
- 1929: The beginning of the mill/bridge property as parkland: The Washtenaw County Road Commission develops and maintains two parks at Delhi under a lease from the Detroit Edison Company – Delhi Woods Park and the Island Park. It places playground equipment there⁴
- 1933: The park project for which the Road commission had applied from the National Forest and Park Service receives federal funds from the Civil Works Administration to develop property “between Dexter and Delhi Woods park along the Huron River”⁵
- 1940s: Henry Ford purchases most of the property at and around Delhi Bridge. Ford authorizes the Road Commission to continue to “use the property, which you developed as a parkway from Delhi to Dexter...”⁶
- 1942: Repair work performed on floor beams and connections
- 1947: Ford property holdings are sold to the Huron Clinton Metropolitan Authority around the time of Henry Ford’s death
- 1969: Iron planks are installed as part of repairs to the deck of the bridge
- Various dates 1970 to present: minor maintenance performed on bridge with no alteration to its original design
- 2005: Delhi Bridge is closed to vehicular traffic

Village of Delhi Mills

Located five miles northwest of Ann Arbor, the Delhi Mills area at Delhi Bridge is an excellent example of early Washtenaw County agricultural and economic history. The village had 101 platted lots, a small depot, schoolhouse, and grocery – but no bridge across the river at first, just small wooden bridges across each of the two millraces that channeled water from the millpond into the mills. Farmers and residents usually could ford the main channel in their horse-drawn vehicles. Later came a wooden bridge and then an iron one to make the crossing easier.⁷

For about a hundred years, this site was the interchange of four important roads: Scio Road (running to the west), Osborne Road (running to the east), Webster Road (now called North Delhi Road, running to the north), and Doremus Street (now called East Delhi Road and running to the south). Scio Road and Osborne Road ran along the north side of the river where Huron River Drive is now, but Scio Road ran west only as far as Scio “Village” at what is now Zeeb Road. Osborne Road ran east only as far as what is now known as Wagner Road. Huron River Drive, which was once an Indian trail, is the

⁴ Washtenaw County Road Commission minutes, June 7, 1929.

⁵ Washtenaw County Road Commission minutes, 1933.

⁶ Letter from Henry Ford dated December 11, 1940, Washtenaw County Road Commission minutes, December 13, 1940.

⁷ Marsh, Nicholas, *Remembering Delhi Mills*, Braun and Broomfield, Ann Arbor, Michigan, pages 22, 52-54, 1984

result of extending Scio Road to Dexter and Osborne Road to Ann Arbor. The extension to Ann Arbor was not completed until 1929 or 1930.⁸

By the mid to late 1800s, Delhi was a thriving mill village with two flour mills, a woolen mill, a saw mill, and a plaster mill. In addition, Delhi had cooper shops, a lumberyard, a stockyard, and a grocery store all functioning at peak capacity. It was a self-sufficient rural agricultural village. The mills allowed the village to produce its own goods and services. The river, the bridge, and the railroad running through the village all facilitated transportation of goods to other parts of the county. In the book, *Remembering Delhi Mills*, Nicholas Marsh⁹ states that, at one time, the vibrant milling community of Delhi Mills helped make the state of Michigan the largest grain producer in the U.S. at the time. Unfortunately, with the downturn of the 1870s, the ownership of the mills left local hands, and the prosperity of the area and Washtenaw County as a whole diminished.

Figure 5 is a pen and ink illustration that shows five operating mills on the river around the peak of Delhi Mills' development: Delhi Mill, Ithaca Mill, McColl Woolen Mill, the saw mill, and the plaster mill.

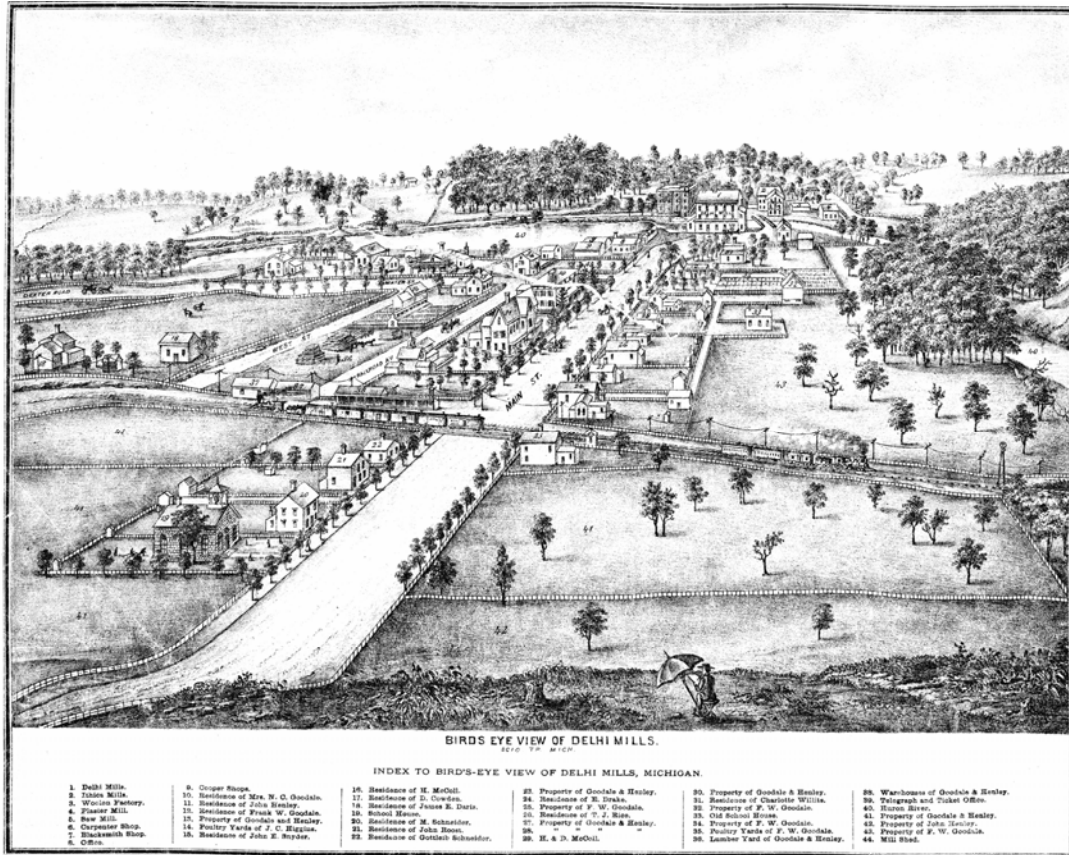
The view is looking down East Delhi Road, which at this time was known as Main Street. Jacob Doremus of Romulus, New York purchased 437 acres in July 1831 and built the first saw mill in that year. On July 29, 1836, he recorded the village in the County records as Doremusville. The name "Delhi" was adopted around 1846 when the local women complained about that name and came up with the change. The name, Delhi, is said to come from the dells and hills that surround the valley. Jacob Doremus died on February 25, 1847.¹⁰

Figure 6 shows the view looking to the east over a springtime flood of the millpond. Delhi Court, which was called Water Road, is in the foreground and at the time continued south over the train tracks to connect with what is known today as West Delhi Road. About ten of the homes shown in Figure 6 still exist in Delhi Mills today.

⁸ Washtenaw County Road Commission minutes and Bentley Historical Library, John H. Morrison papers.

⁹ Ibid.

¹⁰ Ibid.



Digital Photo / Research: Scott Hedberg

Figure 5: Delhi Mills in 1874¹¹



Photo Credits:
 Mosher/ Poppenger Family Collection
 Digital Work / Research: Scott Hedberg

Figure 6: Delhi Mills in the Early 1890s (Looking Northeast)

¹¹ From Everts' and Stewart's 1874 atlas, *Illustrated Atlas of Washtenaw County*.

Figure 7 shows another view of Delhi Mills in the 1890s. This is the view to the west during early winter. It appears that a steam engine train has just passed the village heading west to Chicago. The wrought iron bridge is visible through the trees. The woolen mill appears to be vacant.



Photo Credits:
Mosher/ Poppenger Family Collection
Digital Work / Research: Scott Hedberg

Figure 7: Delhi Mills in the Early 1890s (Looking West)

Figure 8 shows the fall harvest and numerous wagons of wheat waiting to be threshed. After threshing, the wheat berries then would be transported to the mill (shown previously in this report in Figure 4) to be ground into flour. Local agriculture supported the village for many years.

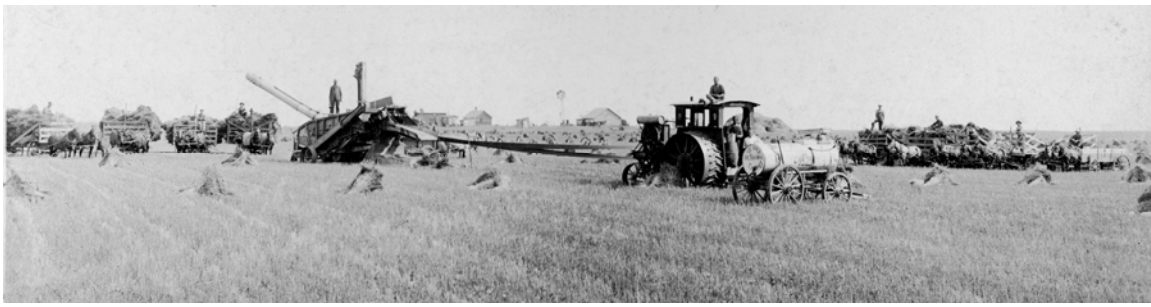


Photo Credits:
Mosher/ Poppenger Family Collection
Digital Work / Research: Scott Hedberg

Figure 8: Threshing Wheat in Scio Township in the Early 1890s

Figure 9 shows a detailed view (enlarged from Figure 8) of the threshing machine during the harvest. This machine was manufactured by the Minneapolis Threshing Machine Company (MTM Company).



Photo Credits:
Mosher/ Poppenger Family Collection
Digital Work / Research: Scott Hedberg

Figure 9: Detail of Threshing Machine in Early 1890s Wheat Harvest

In 1848, Norman Goodale built the Delhi Mill (Figure 4) at this location in the Greek revival architectural style. This mill was unusual because the waterwheel was inside the building. The stone foundation of arches allowed the water to race under the northeast corner of the mill and turn the hidden wheel. This arrangement was used in colder regions since it kept the wheel from icing.

It is interesting to note that, in 1861, this mill supplied the Union forces with flour during the Civil War. The mill continued to produce flour until its closure in 1903.

Today, Delhi Mills boasts several dozen residential dwellings and a canoe livery. Since the early twentieth century, this village has gained local renown for its captivating river rapids and historic wrought iron bridge. In recent years, the 45-acre Delhi Metropark (established in the 1950s) has increased the popularity of Delhi Bridge (as evidenced by the many photographs taken of it in all seasons and over a period of many years).

1917 Tornado

The day of June 6, 1917 is a significant date in the history of Delhi Bridge and Delhi Mills. On that date, a **tornado** swept through Delhi Mills, twisting the iron truss bridge, lifting it off its abutments, and causing it to land in the river. According to the *Dexter Leader*:

“Reports place heavy damage at Delhi – the brick school house was blown down, highway bridge into the river, and nearly every dwelling house more or less seriously damaged...reports are necessarily meager but sufficient to establish the storm as the greatest calamity this section has ever suffered.”¹²

According to most accounts, the bridge was resurrected and reused; most of the original 1800s structure was incorporated into the rebuilt bridge.

Figure 10 shows the view to the south following the tornado. The tornado came from the west-southwest as indicated by trees downed. When the wrought iron bridge was installed, it was designed to carry substantial weight, such as steam engines and horses pulling fully loaded wagons. Although the engineers of the day designed the bridge to support things such as a fully loaded wagon pulled by two draft horses (2-3 tons) and a ten-horsepower steam traction engine (roughly ten tons when empty), they did not design to consider the results of uplift. Consequently, the decking of the bridge apparently allowed the winds to lift it off its fieldstone abutments and lay the bridge on its side in the river. The wooden decking floated down river and the trusses lay one on the other.



Photo Credits:
Moore Family Collection
Photo taken by Eli Gallup, 1917
Digital Work / Research: Scott Hedberg

Figure 10: Delhi Mills after the Tornado of June 6, 1917

¹² *The Dexter Leader*, June 7, 1917, “Scio Township Hit by Cyclone.”

Figure 11 shows another view of the site following the tornado of 1917. Notice that the fieldstone abutments of the bridge are undamaged, which indicates that the bridge was not tied down to them. The stonework matches that of the Delhi Mill foundation, which was built in 1848 with the exception of the flat rectangular bearing stones at each corner. East of the bridge abutments to the right side of Figure 11 are what appear to be the ruins of the Ithaca Flour Mill.



Photo Credits:
Moore Family Collection Photo taken by Eli Gallup, 1917
Digital Work / Research: Scott Hedberg

Figure 11: Delhi Bridge Abutments after the Tornado of June 6, 1917

We know that Edward Olney Outwater and Eli Albert Gallup pulled the iron trusses out of the river and Ms. Vera Strehle Derck stated in an oral history to Nick Marsh that the bridge was “rebuilt.”¹³

The iron bridge was probably designed to fit the overall span of the wooden bridge it replaced. The wooden bridge would have required multiple posts set in the riverbed to support it, whereas the iron bridge that replaced it did not. The abutments were rebuilt in 1918 when the bridge was returned to its home over the river. As discussed in detail later in this report, the bridge portal webbing was destroyed and replaced; however, the sign is original as are the brackets that attach the sign.

¹³ Marsh, Nicholas, *Remembering Delhi Mills*, Braun and Broomfield, Ann Arbor, Michigan, 1984.

From Nicholas Marsh's book, we also cite the following regarding the significance of the tornado:

“Regarded as the worst storm to hit Washtenaw County in half a century, the tornado cut a twisting path one-half mile wide and 25 miles long through seven townships. It started at the northeast corner of Manchester Township and whipped through Sharon, Freedom, Scio, Lima, Northfield, and Salem townships. The villages of Delhi Mills and Worden were believed to have been hit the hardest.”

The Old Zion Parsonage, located at 2905 South Fletcher Road in Freedom Township and itself a Washtenaw County Historic District, incurred “major damage”, as did the adjacent church and school as a result of the tornado.¹⁴

Another association that the Delhi Bridge and surrounding area has with a significant event is with the founding of the Washtenaw County Chapter of the **American Red Cross**. The **Washtenaw County Red Cross** was founded in June 1917 as a direct response to the June 6th tornado. Providing assistance to victims of the tornado was the first significant disaster relief effort of the Washtenaw County Red Cross.

Association with Significant Historical Figures

The bridge and the mill properties surrounding it have been associated with several significant people throughout the past 125 years. The deed that conveys these properties to the “Directors of First National Bank Ann Arbor” in 1891¹⁵ lists the names of nine directors. The first director listed on the deed was **Alpheus Felch**, who was Governor of Michigan from 1846 to 1847 and US Senator from 1847 to 1853. He was subsequently appointed by President Franklin Pierce to preside over a commission “to settle Spanish and Mexican land claims in California.”¹⁶ He later returned to Ann Arbor to practice law and served as Tappan Professor of Law at the University of Michigan from 1879 to 1883. He is honored with a Michigan Historical Marker located in the Ann Arbor park that bears his name.¹⁷ Felch Street in Ann Arbor and Felch Township are also both named for him. Another of the directors named on the deed was **Philip Bach**, who served as Mayor of Ann Arbor from 1858 to 1859.¹⁸

Judge **Noah W. Cheever** (1839-1905) was an accomplished intellectual and judge. He came to Ann Arbor in 1859 and lived much of his life in Ann Arbor. He served from 1872 to 1876 as a Washtenaw County Probate Court judge. He also was a Prohibition candidate for Governor of Michigan (1898) and Prohibition candidate for justice of the Michigan Supreme Court (1902).¹⁹ He took a great many walks and drives in and around

¹⁴ Old Zion Parsonage Historic District Study Committee Preliminary Report dated December 31, 2002.

¹⁵ Liber 119, pages 573-5, dated October 14, 1891.

¹⁶ http://en.Wikipedia.org/wiki/Alpheus_Felch

¹⁷ <http://www.michmarkers.com>

¹⁸ www.ci.ann-arbor.mi.us/Mayor/mayors.html

¹⁹ Introduction to Cheever, Noah W., *Pleasant Walks and Drives about Ann Arbor*, 1899 (republished by Bentley Historical Library, University of Michigan, edited by John Knott and Alicia Lavalle, 1999).

the city and later wrote about them in the hope that he might induce others to enjoy the beauty of their community and surrounding areas. He wrote about a lengthy drive that included his recommendation to take in the Delhi Bridge and surrounding natural area. This excerpt is from his full description of a 15-mile scenic drive to the north and west of Ann Arbor:

“... Go about a half mile and take the first road to the right and go about a mile to Delhi Mills. Cross the bridge at Delhi Mills for the purpose of seeing the dam, which, especially in the winter time, with its small islands below and ice formations is very beautiful. But do not take that road back to Ann Arbor. After you have crossed the bridge and have seen the dam, return again to the north side of the river and take the first road near the old flour mill going down the river. This is a beautiful river road. ...”²⁰

Figure 10, presented earlier, showed a photograph of Delhi Mills following the tornado of 1917. It is noteworthy that the Model T Ford at the lower right in Figure 10 belonged to **Eli Albert Gallup**.²¹ Eli at the time was a tenant apple farmer living up the road near Edward Olney Outwater’s farm. The photo also shows Outwater present with his team of horses clearing the debris off the roadway. He later used those horses to pull the iron bridge trusses out of the river. The photographer, Eli Gallup, was dating Blanche Healy at that time and they were later married. Blanche Gallup told Ellie Moore, who lives on the old Outwater farm property, that she and Eli collected his family’s dining silverware after the tornado and had found a fork driven into a tree by the force of the tornado’s winds. The tornado had also damaged the apple crop, which put Eli Gallup out of a job. He moved into Ann Arbor and took a job with the city where he worked for the remainder of his career. Gallup Park in Ann Arbor is named after him, and he is responsible for putting the “Rock” at Hill and Washtenaw in tribute to George Washington’s 200th birthday in 1932.

As previously mentioned, the bridge and surrounding area are also associated with a prominent group of citizens who founded the local branch of the American Red Cross and for whom the tornado was that local branch’s first significant disaster relief effort. According to a 1957 history of the first 40 years of the Red Cross in the county, a five-person committee was set up to provide relief to victims of the tornado that impacted the Delhi Bridge, Delhi Mills, and other parts of Scio Township.²² The history mentions two committee members by name, **Dan Quirk** of Ypsilanti, and **Henry Douglas** of Ann Arbor. Henry Douglas was also the first chairman of the Washtenaw County Red Cross. According to the minutes of the first annual meeting of the Washtenaw County Red Cross,²³ on October 20, 1917, relief for tornado victims was organized by a Mr. **H. J.**

²⁰ Cheever, Noah W., *Pleasant Walks and Drives about Ann Arbor*, 1899 (republished by Bentley Historical Library, University of Michigan, edited by John Knott and Alicia Lavalley, 1999).

²¹ Oral history from Blanche Gallup, his wife.

²² Washtenaw County Chapter American Red Cross, *1917-1957: 40 Years of Service in Washtenaw County*.

²³ Ann Arbor Red Cross Annual Meeting Minutes, October 20, 1917, on file at Bentley Historical Library, University of Michigan, Ann Arbor, Michigan.

Abbott, and many Ann Arbor townspeople each donated roughly ten hours of their time on Sundays for several weeks to assist residents of the township. The H. J. Abbott referred to in the minutes was almost certainly Horatio Johnson Abbott, who had been publisher of the Ann Arbor Record from 1900 to 1902 and who had a prominent real estate business in Ann Arbor at the time. Mr. Abbott, who lived from 1876 to 1948, was later a Democratic Party National Committee member, a delegate to the 1932 Democratic Convention, and in 1932 a leading local supporter of Franklin Roosevelt for President in 1932.²⁴

Between 1918 and 1944, the automobile magnate, **Henry Ford**, took an avid and active interest in establishing village industries in southern Michigan. In 1940, Ford purchased the bridge and mill property,²⁵ as well as much of the surrounding area, in anticipation of building one of these rural water-powered factories at the site of Delhi Rapids. Delhi appears on a 1942 map of the village industries as a “plant site proposed.”²⁶ Although never completed, it was one of nine sites that was purchased and developed sufficiently to be included in the data describing the “small plants.”²⁷

According to Ralph Card, a retired automotive industry executive, Henry and Clara Ford visited his Delhi area properties each spring. Acres of land south of the village were the site of the former Huron Farms peach orchards. Ford and his wife, chauffeured from Dearborn in an open roadster, were driven along the Huron River across the Delhi Bridge and then through the orchards. The car would be driven slowly under the trees so that Clara, a gardening enthusiast, could view the canopy of peach blossoms overhead. At the same time, Ford would visit his property manager who resided in the 1830s cobblestone house on West Delhi Road. The structure was built by William Burnett, an early resident and businessman of Delhi Mills.²⁸

In 1940, pioneering neurosurgeon **Edgar Kahn** acquired six acres of land near the property Ford was to buy²⁹ and built a log cabin there that was designed by his father, well-known architect **Albert Kahn**.³⁰ Albert Kahn designed a number of factories for Henry Ford, including the Rouge complex and some of the village industry buildings. He also designed many other prominent buildings in southeast Michigan, including the Fisher Building and the General Motors Building in Detroit, and Hill Auditorium, Burton Memorial Tower, Angell Hall, the Clements Library, and other buildings on the Univer-

²⁴ Abbott, Horatio Johnson papers, on file at Bentley Historical Library, University of Michigan, Ann Arbor, Michigan.

²⁵ Deed from Huron Farms Company to Ford Motor Company recorded on March 6, 1940, Liber 341 of Deeds, pages 230 through 236.

²⁶ Segal, Howard P., *Henry Ford's Village Industries. Recasting the Machine Age*, Amherst and Boston: University of Massachusetts Press, 2005.

²⁷ Tobin, John, *Henry Ford and His Village Industries in Southeastern Michigan*, Thesis Submitted to the Department of History and Philosophy, Eastern Michigan University, October 17, 1985.

²⁸ Interview with Ralph Card by Kathleen Timberlake, September 2005. Mr. Card was acquainted with Henry Farland, who purchased the William Burnett house from Ford Motor Company in 1947.

²⁹ Liber 340, pages 603, dated February 19, 1940.

³⁰ Kahn, Rose H. Parker (widow of Edgar A. Kahn), statement of fact dated June 3, 1997, documented in Carol Mull's researched history of the Kahn cabin commissioned and owned by George Miller and Deborah Webster.

sity of Michigan campus. Edgar Kahn's memoirs describe flying over the cabin and surrounding area with **Charles Lindbergh**.³¹ The cabin still stands approximately one-half mile downstream from the bridge.

Statement of Significance

The Michigan State Historic Preservation Office (SHPO) concluded in 2005 that the Delhi Bridge appears to meet criteria for listing on the National Register of Historic Places under Criterion C (Design/Construction Significance) as one of only a few surviving late nineteenth century Pratt through truss highway bridges of wrought iron construction in Michigan.³² In a later letter to Washtenaw County, SHPO also indicated that the Delhi Bridge has strong significance under Criterion C for its design and construction.³³ The Historic District Study Committee agrees, and recommends that the Delhi Bridge be designated an historic district under Criterion C.

A classic Pratt iron truss bridge built in 1888-1890, Delhi Bridge is one of only six remaining bridges of this type in Michigan, and one of only two presently able to carry vehicular traffic. The Historic District Study Committee recommends preservation of the aesthetics of the historic Delhi Bridge by maintaining its original one-lane design, retaining its classic Pratt truss design and designating it as an historic district.

The metal truss bridge was by far the most common type of bridge built in the last quarter of the nineteenth and first quarter of the twentieth century.³⁴ The main characteristic of a metal truss bridge is the arrangement of its smaller steel or iron components into a series of triangles.³⁵ It consists of two kinds of members, providing compression and tension. The pattern of compression and tension members determines the truss type.

The Delhi Bridge was built using the Pratt truss design. This was the most popular truss bridge design.³⁶ The National Research Council considers nineteenth century Pratt truss bridges, such as the Delhi Bridge, to be of greatest significance for this bridge type, because of the limited number of extant examples.³⁷

³¹ Kahn, Edgar A., *Journal of a Neurosurgeon*, Springfield, Illinois: Charles C. Thomas, 1972.

³² Michigan State Historic Preservation Office, letter from Brian D. Conway, State Historic Preservation Officer, to Christina Slattery, Mead and Hunt, Inc., September 21, 2005.

³³ Michigan State Historic Preservation Office, letter from Brian D. Conway, State Historic Preservation Officer, to Melissa Milton-Pung, Senior Preservation Planner, Washtenaw County Department of Planning and Environment, December 22, 2006.

³⁴ Simmons, David, "Engineering and Enterprise: Early Metal-Truss Bridges in Ohio," *Timeline*, Ohio Historical Society, February-March 1985, pages 14-29.

³⁵ Simmons, David, "Bridge Preservation in Ohio," *Ohio Cities and Villages*, pages 13-18, August 1978.

³⁶ Calvert, J.D., *Early Evolution of Trusses*, <http://www.du.edu/~jcalvert/tech/truss.htm>, accessed April 23, 2006.

³⁷ National Research Council, *A Context For Common Historic Bridge Types*, prepared for the National Cooperative Highway Research Program, Transportation Research Council, National Research Council, by Parsons Brinckerhoff and Engineering and Industrial Heritage. NCHRP Project 25-25, Task 15, 2006.

The Pratt truss design was patented by Caleb and Thomas Pratt in 1844. As shown in Figure 12, it consists of an upper chord, in compression, and a lower chord, in tension, connected by vertical and diagonal members. The loads “W” are applied to the truss at the panel joints, and the reactions “R” are applied at the ends. The principal job of the vertical posts is to keep the chords apart and brace them. The end posts carry only tension, but the others are designed as compression members. The diagonal members resist the shearing forces between the chords that arise when the loads tend to cause the center of the span to sink. In the center panel, there are diagonals in each direction, although only one direction is in tension at any one time, the other being slack. The reason is that a moving load is not applied evenly across the bridge, and, as it moves, one set or the other of the diagonals will find itself in tension. These counters are generally used in one or more of the central panels.

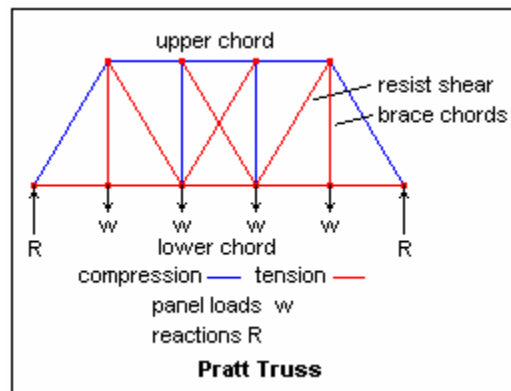


Figure 12: Design Elements of Pratt Truss Bridges

The Delhi Bridge was built by the Wrought Iron Bridge Company of Canton, Ohio. This company built wrought iron and steel bridges that were sold across the U.S. It became one of the leading manufacturers of iron truss bridges in the United States, making thousands of bridges. By 1881, it was the third largest company in Canton³⁸ and employed over 270 men. By that date, it had erected over 3,300 bridges in 25 States and in Canada.³⁹

The company was founded in 1866 by David Hammond,^{40,41} who later formed another large bridge company, the Canton Bridge Company. Vice President and Chief Engineer of the Company until 1889 was Job Abbott, who designed a number of famous bridges, including the 2,440-foot Canadian Pacific Railroad Bridge at Sault Ste. Marie, the 3,660-foot Lachine Bridge over the St. Lawrence Seaway, and the second cantilever bridge built

³⁸ Heald, Edward T., *The Stark County Story*, Volume 1, Chapter 76: “Bridge Builders of Canton and Massillon,” pages 628-630, 1949.

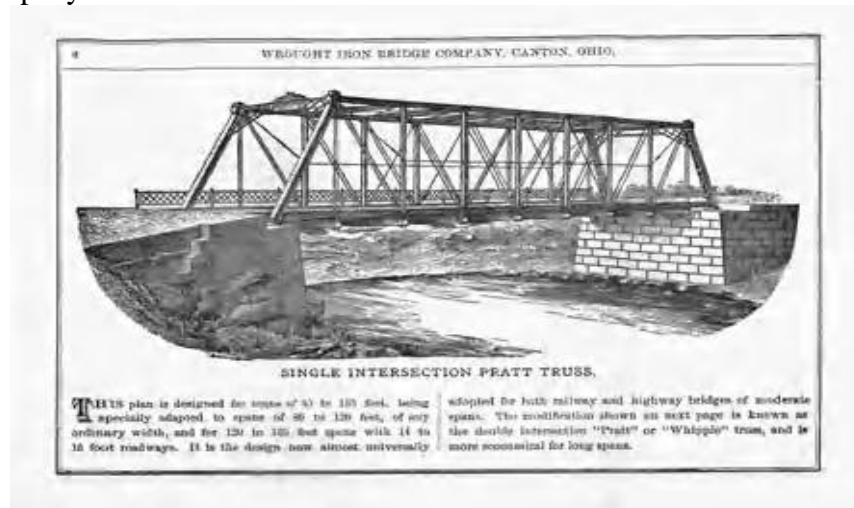
³⁹ Perrin, William Henry, ed., *History of Stark County, Ohio*, Chicago: Baskin and Batley, 1881.

⁴⁰ Janberg, Nicolas, “Structurae: International Database and Gallery of Structures,” data sheet on Wrought Iron Bridge Company, updated February 12, 2004, on the web at <http://en.structurae.de/firms/data/index.cfm?ID=f000652>.

⁴¹ Danner, John, ed., *Old Landmarks of Canton and Stark County, Ohio*, Logansport, Indiana: B. F. Bowen, 1904.

in North America, a 460-foot bridge over the St. John's River in New Brunswick, Canada.^{42,43,44} The Wrought Iron Bridge Company ceased to exist after 1899, when the company was bought by J. P. Morgan's American Bridge Company.⁴⁵

The Wrought Iron Bridge Company, like many other midwestern companies that built iron truss bridges, sold their bridge designs through catalogs or pamphlets. Figure 13 is an illustration of a single intersection Pratt truss from a sales pamphlet produced by the Wrought Iron Bridge Company.⁴⁶ It is similar to the Delhi Bridge. The pamphlet actually lists the sale of a bridge to the city of Ann Arbor. Road Commission records from the nineteenth century indicated that nearly every bridge spanning the Huron River from Portage Lake to Ann Arbor between 1876 and 1899 was built by the Wrought Iron Bridge Company.



Digital Photo / Research: Scott Hedberg

Figure 13: Pratt Truss Bridge Illustration from 1884 Wrought Iron Bridge Company Sales Pamphlet

After the company received an order for a bridge, the engineers prepared detailed plans and instructions for fabrication and erection.⁴⁷ Since each bridge was fabricated for a specific site, no two were exactly alike. Fabricators undertook as much assembly as possible before transporting the bridges to the sites where they were erected. The bridge fabricator then prepared each shipment, which was sent by rail. At its site, each bridge

⁴² *Transactions of the American Society of Civil Engineers*, memoir of Job Abbott, Vol. 36: 538-539, 1896.

⁴³ *The Engineering Record*, obituary of Job Abbott, Vol. 34: 253. September 5, 1896.

⁴⁴ *The Railroad Gazette*. August 28, 1896. Obituary of Job Abbott. Vol. 28: 610.

⁴⁵ Heald, Edward T., *The Stark County Story*, Volume 1, Chapter 76: Bridge Builders of Canton and Massillon, pages 628-630, 1949.

⁴⁶ Wrought Iron Bridge Company, *Illustrated Pamphlet of Wrought Iron Bridges*, Canton, Ohio, 1884.

⁴⁷ National Research Council, *A Context For Common Historic Bridge Types*, prepared for the National Cooperative Highway Research Program, Transportation Research Council, National Research Council, by Parsons Brinckerhoff and Engineering and Industrial Heritage. NCHRP Project 25-25, Task 15, 2006.

was assembled and placed on its abutments. The Delhi Bridge was put together using pin connectors rather than rivets. Pin connecting technology was not used after 1910.

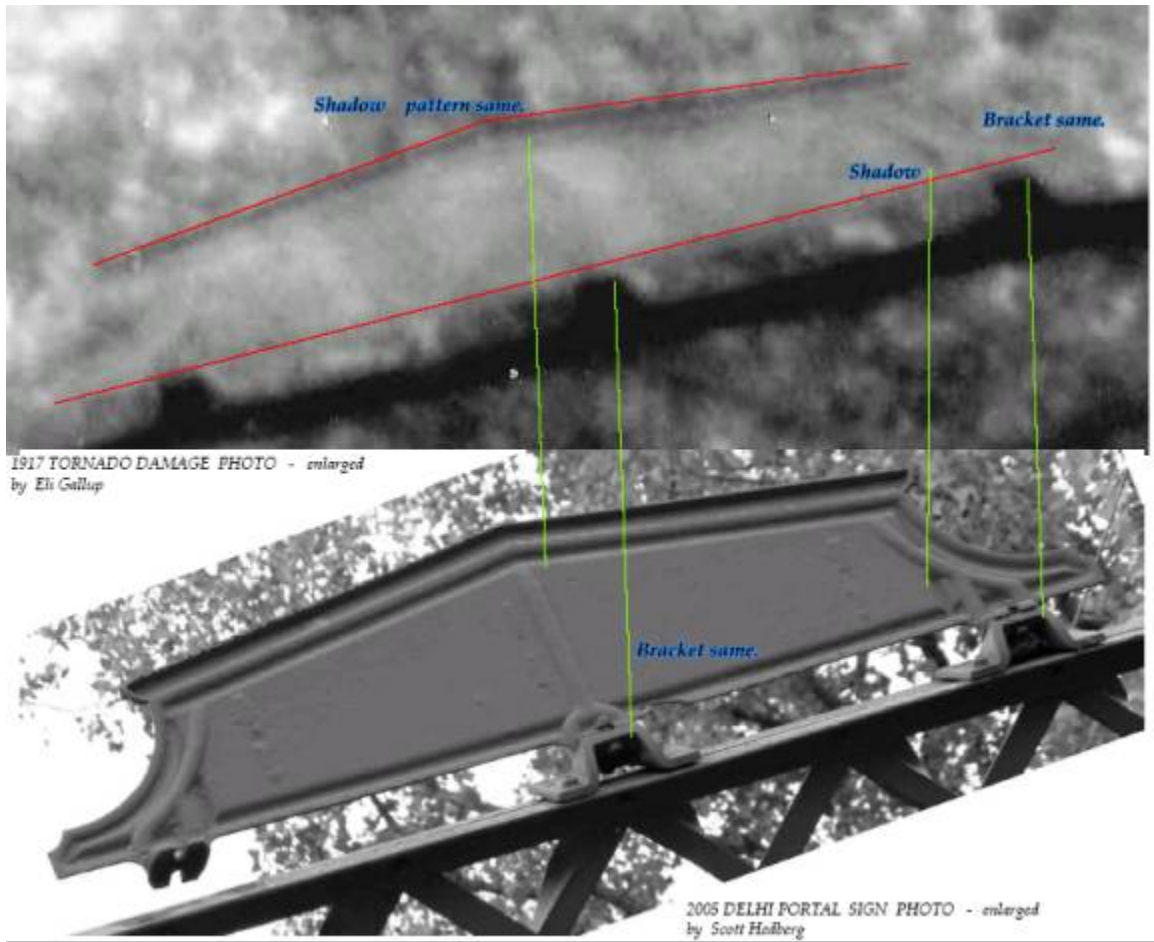
The steel members of the Delhi Bridge bear the stampings of the Trenton Iron Company. It was founded by Peter Cooper in 1847 and was purchased by the American Steel and Wire Company, a subsidiary of U. S. Steel, in 1912.⁴⁸ The abutment on the south side of the bridge is cut fieldstone and is likely the original abutment. The north end abutment, however, was covered or replaced with concrete at some point in the past.

An inspection performed by an historic bridge expert, Vern Messler, hired by the Washtenaw County Road Commission, concluded that Delhi Bridge was complete and not part of several bridges.⁴⁹ Mr. Messler also concluded that eyebars, pins, riveted floor beams and bearing end pad rollers all seemed to have been constructed for this particular bridge. Because of the built-to-order nature of Pratt truss bridges described earlier in this report, the committee concluded that it was extremely unlikely the township had an extra nineteenth century iron truss bridge available in 1917 of almost exactly the same size as the one there before the tornado from which they could secure parts for repair.

Members of the committee also compared archive photographs of the bridge taken in the 1890s prior to the tornado with an archive photograph of the bridge off its foundation following the tornado of 1917 and with current day photographs. Using computer enhancements to analyze the photographs in detail, we obtained a perfect match on the portal on the bridge (see Figure 14 below).

⁴⁸ Messler, Vern, "Delhi Bridge On-Site Report," prepared for Washtenaw County Road Commission, March 28, 2005.

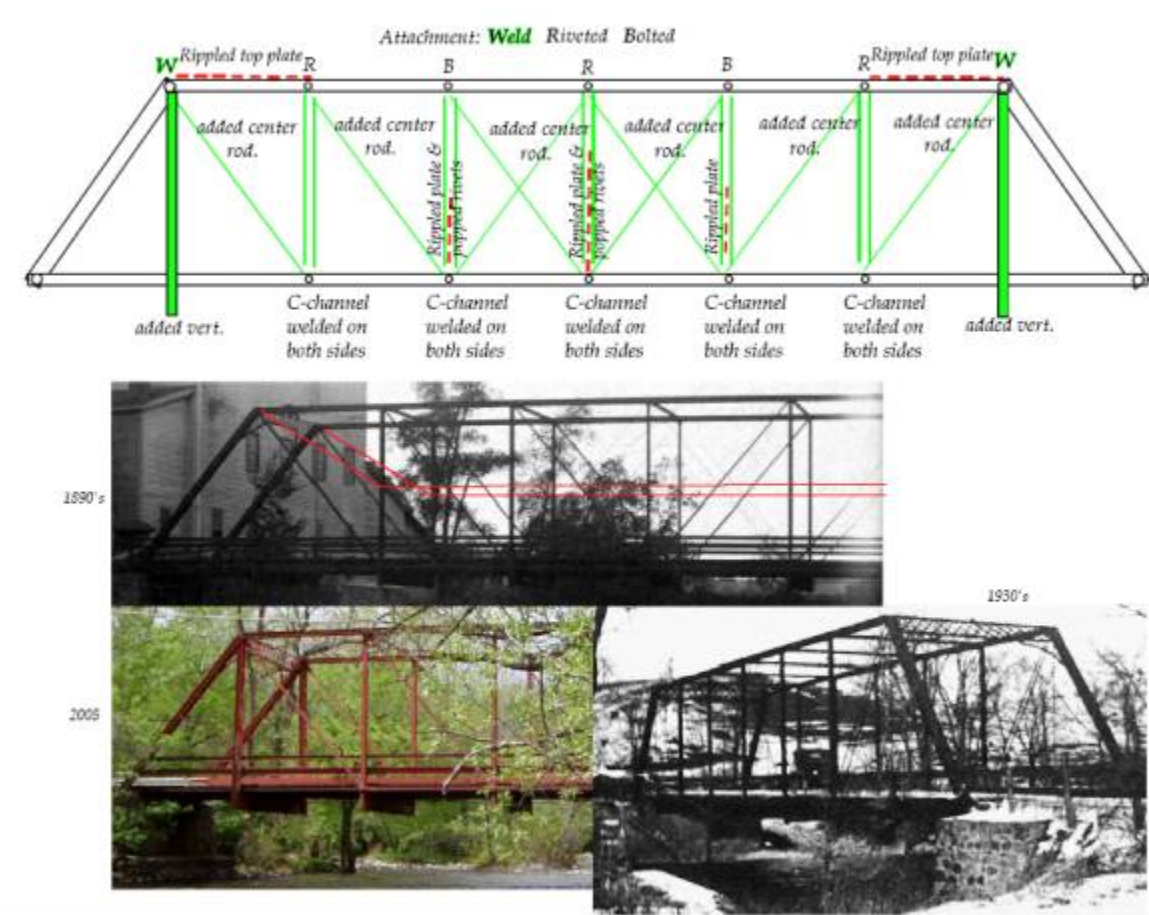
⁴⁹ Mead and Hunt, Inc., East Delhi Road over the Huron River: Draft Preliminary Project Findings Report, prepared for Washtenaw County Road Commission, April 2005.



Digital Work / Research: Scott Hedberg

Figure 14: Photographs Showing Match of Bridge Portal in River after 1917 Tornado and Current Portal on Bridge

We compared and matched rivet patterns as well. In addition, a comparison of vertical members, horizontal members, and bracing show no differences, except for several components added at a later date. There were vertical members welded at the hip joints, reinforcement of diagonal members in the center panels, and the addition of side rails (see Figure 15 below).



Digital Work / Research: Scott Hedberg

Figure 15: Comparison of Bridge Elements from 1890s Photographs with Elements in Current Photograph

Figure 16 (below) is a photograph taken in 2006 that shows evidence of flange deformation. In some locations, hot formed steel rivets popped out. It is likely that the tornado caused this damage. The trusses of the current bridge appear to be reused components of the original bridge, since the wrought iron has the Trenton foundry stampings, and the rivets were hot formed at a foundry when the trusses were fabricated. Stress damage is visible on the existing iron flanges.



Digital Photo / Research: Scott Hedberg

Figure 16: Flange Deformation on Bridge Truss and Trenton Iron Works Stamp

Figure 17 (below) is a photograph taken after the tornado that shows that the portals and other bracing members were badly twisted.



Digital Photo / Research: Scott Hedberg

Figure 17: North End of Delhi Bridge after 1917 Tornado

Photographs

There are many photographs taken over a period of many years that show the Delhi Bridge in its natural setting. In addition to the photographs displayed elsewhere in this report, this section (see below) includes one recent example (Figure 18) and two historical examples (Figures 19 and 20, dated May 12, 1936) of the hundreds, probably thousands, of images of the bridge captured by people over the last century or more.



Photo credits:

Photo by Steve Maggio

Used with permission (Glenda Bullock, Director of Marketing, Edward Surovell Realtors)

Figure 18: Wintertime Photograph of Delhi Bridge



Photo credits:
The Bentley Historical Library, University of Michigan, William Edward Beach photograph collection
Used with permission

Figure 19: Early Spring Photograph of Delhi Bridge



Photo credits:

The Bentley Historical Library, University of Michigan, William Edward Beach photograph collection
Used with permission

Figure 20: Photograph of Delhi Bridge with Rapids in Foreground

Resource Count and Percentage

This section provides an inventory of historic items within and around the proposed Delhi Bridge Historic District. Based on the criteria provided, we have determined that 100% of the inventory of the district (the bridge alone) is historic and there are no non-historic items.

Delhi Bridge

The bridge is located over the Huron River at the north end of East Delhi Road. The bridge was clearly built before 1900 since the Wrought Iron Bridge Company went out of business in 1899. The State of Michigan's Historic Bridge Inventory gives the date of construction as 1888. Dates of construction for the nearby Tubbs Road Bridge and Zeeb Road bridges were 1888 and 1890, respectively. This likely date of construction is also supported by circumstantial information regarding the sale prices for the Delhi flour mill. After failure of the business in 1885,⁵⁰ the mill was bought by two merchants (Richmond

⁵⁰ New York Times, April 10, 1885.

and Wheeler) in 1888 from the sheriff for \$3,000. In 1891, the First National Bank of Ann Arbor acquired the property for \$20,000. It is likely the construction of the bridge greatly enhanced the value of the property.

Natural Setting

The Huron River and the Class II rapids adjacent to Delhi Bridge are under the protection of the Michigan Legislature's Natural Rivers Act (MCL 324.30501-30515), now Part 305, of NREPA (P.A. 451 of 1994), authorizing a system of designated and protected natural rivers.

Since 1957, the bridge has been surrounded by Delhi Metropark, providing a quiet, pastoral setting used for many recreational activities: 20,000 canoe rentals per year, fishing, canoeing, kayaking, bicycling, wildflower viewing, and photography. The bridge is the focal point for many park visitors, who often stroll on and around the bridge to view the adjacent rapids. The natural setting is described on the web site *Historic Bridges of Michigan and Elsewhere*:

“This is one of those truss bridges that is not only historic, but it also has a very positive influence on its surrounding environment. This bridge is located in a very picturesque setting. There is a metro park right by this bridge, which offers some good views of the bridge. Ruins of the Delhi Mills are still visible in the area, with some pretty rapids in the river in that area now also. The area is wooded, and the bridge seems to fit right in with its rural turn of the 20th century appearance.”⁵¹

Another reference to the pristine beauty of the bridge and its atmospheric setting as well as the adjacent beauty of the Huron River follows in this excerpt from a University of Michigan publication:

“... Soon after this, things narrow once more as we approach the old iron Delhi bridge that crosses the river over a section of pretty rapids, really a series of riffles just steep enough to whiten the water. At their head, a flock of Canada geese often congregates, and on these cool mornings of earliest spring, when the water holds more warmth than the air, threads of steam, backlit by the new sunlight, rise from the surface. ...

“... As we ride in our morning silence, I sometimes think to myself, ‘Imagine this: you are commuting.’ Commuting! I watch the sunlight dappled ripples or the geese or the deer, or I lean into a banked climbing curve, or I look up through the dense trees or at the old iron trestle bridge at Delhi ...”⁵²

⁵¹ <http://www.historicbridges.org/index.htm>

⁵² Holden, Craig, “*The Huron River: Voices from the Watershed*,” pages 104 and 106, The University of Michigan, 2000.

Much of the village of Delhi that was originally adjacent to the bridge is still in place. The village now consists of 49 houses (including some homes that are older than the bridge), an old one-room schoolhouse, and a population of approximately 123.⁵³ The character of the village remains much as it was when the bridge was new.

Environmental Overview

The soils of Washtenaw County were deposited by glaciers or by melt water from the glaciers. Some of these materials have been reworked or redeposited by subsequent actions of water and wind. These glaciers covered the county from about 10,000 to 12,000 years ago. The dominant parent soil materials in Washtenaw County were deposited as glacial till, outwash deposits, lacustrine deposits, alluvium, and organic material. The vegetation in Washtenaw County was mainly deciduous forest. Differences in natural soil drainage and minor changes in parent soils affected the composition of the forest species. In general, the well-drained soils were mainly covered with sugar maple and hickory, with some occurrence of scrub oak. The wet soils were covered mainly by soft maple, elm and ash.⁵⁴

The historic district project area occurs within the Ann Arbor subdistrict⁵⁵ classification of the regional landscape ecosystems in Michigan. This region is typified by large end moraines separated by broad stretches of rolling ground moraine and/or narrow outwash deposits. The primary glacial outwash channels are up to three miles wide and are occupied by the Saline and Huron Rivers, the River Raisin, and Fleming and Mill creeks.

The end moraines are moderately sloped ridges or series of ridges. Moderately well drained loamy and clayey soils have formed on these ridges. More poorly drained soils occur in low-lying depressions and within the floodplains and small streams. Prior to the advent of historic cultivation, oak-hickory forests would have been found in association with the loamy soils and beech-maple forests would have occurred on the clayey soils.⁵⁶ The intervening areas of ground moraine are more gently sloped and have thinner and/or more poorly drained soils. Deciduous swamps occur on poorly drained locales. Vegetation on the loamy and clayey soils would have been the same as specified for the end moraines.⁵⁷

The historic district project area is drained by the Huron River, which eventually flows into western Lake Erie.

Prehistoric mammals known to have been present are the mammoth, mastodon, musk ox, barren-ground caribou, giant beaver, peccary, giant moose, mountain lion, bison, and

⁵³ Shackman, Grace, "Delhi Village," *Ann Arbor Observer*, September 2004.

⁵⁴ Engel, R.J., *Soil Survey of Washtenaw County, Michigan*, pages 101-102, U. S. Department of Agriculture, Washington, D.C., 1977.

⁵⁵ Albert, D.A., Denton, S. R., and Barnes, B.V., *Regional Landscape Ecosystems of Michigan*, page 14, School of Natural Resources, University of Michigan, Ann Arbor, 1986.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*, pages 14-15.

numerous smaller mammals; however, prehistoric mammalian distributions are difficult to determine because of the lack of data.⁵⁸ Pre-settlement vegetation has been radically altered by modern agricultural practices. Most of the proposed historic district project area was intensively cultivated from circa 1840 to the present day. Forested areas are still present but not numerous. Today much of the project area has been impacted by residential, commercial, and road construction activities.

List of Historic and Non-Historic Properties

Historic Items

The Historic District Study Committee recommends identifying Delhi Bridge as the only resource or historic item in the proposed historic district.

Historic Items Near the District

Although the committee is not proposing to extend the boundaries of the historic district beyond the bridge itself, it is important to note the many historic items in the vicinity of the proposed district. To the west of the bridge, the stone foundations of the Delhi flour mill can still be found. Stones still outline two rooms of the mill.⁵⁹ Remains of other mill foundations are also visible on the west side of the bridge.

In addition, many of the homes in the vicinity of the bridge date from the nineteenth century. According to families who have lived in the village for over 100 years, at least three of these homes are 140 years old or older (3938 East Delhi Road, 3825 Delhi Court and 3850 Delhi Court) and another is about 120 years old (3795 Delhi Court).

Conclusions and Recommendations

Delhi Bridge is clearly historically important as one of only six remaining Pratt truss bridges in the state and one of only two such bridges presently capable of carrying vehicular traffic. Therefore, the Historic District Study Committee recommends preservation of the aesthetics of Delhi Bridge by maintaining its original one-lane design, retaining its classic Pratt truss design and designating it as an historic district. The bridge should be rehabilitated to support vehicular traffic again and then maintained in its current configuration as a reminder of our unique local history and as an important element in one of the most scenic settings in the region.

⁵⁸ Fitting, J.E., *The Archaeology of Michigan: A Guide to the Prehistory of the Great Lakes*, Bulletin 56, page 29, Cranbrook Institute of Science, Bloomfield Hills, Michigan, 1975.

⁵⁹ Ann Arbor News, "Ruins by the River," June 24, 2003.

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APPENDIX

Copy of resolution from Washtenaw County Board of Commissioners appointing an Historic District Study Committee for the purpose of evaluating Delhi Bridge for historic district designation

A RESOLUTION APPOINTING A HISTORIC DISTRICT STUDY COMMITTEE AS RECOMMENDED BY THE WASHTENAW COUNTY HISTORIC DISTRICT COMMISSION FOR THE PURPOSE OF EVALUATING THE E. DELHI BRIDGE FOR HISTORIC DISTRICT DESIGNATION

WASHTENAW COUNTY BOARD OF COMMISSIONERS

May 18, 2005

WHEREAS, the structure located at E. Delhi Road over the Huron River in Scio Township has potential to be nominated as a historic district; and

WHEREAS, interested citizens approached Scio Township to have the property listed as a historic district. Scio Township has asked the Washtenaw County Board of Commissioners through the Washtenaw County Historic District Commission to conduct this work on their behalf; and

WHEREAS, under Michigan's Historic Districts Act (P.A. 169 of 1970, as amended in 1992), a historic district study committee must be established to evaluate the property and determine if it meets criteria to be included in a historic district; and

WHEREAS, under P.A. 169, the County Board of Commissioners has the authority to establish such a historic district committee; and

WHEREAS, as dictated by the law, the Washtenaw County Historic District Commission is presenting a list of nominees to serve on this Historic District Committee; and

WHEREAS, the Washtenaw County Historic District Commission recommends that the following individuals be appointed to the Historic District Study Committee, as follows: Kathleen Timberlake, Robert Kyes, Scott Hedberg, Betty Lou Monticelli, Charles Unbehaun, Deb Webster, George Miller, Gary Robinson and Rich Cook;

WHEREAS, the Washtenaw County Historic District Commission recommends that WCHDC Commissioner Nancy Snyder, Scio Township Trustee Jean King and WCRC Representative Ken Reiter will serve as advisors

NOW THEREFORE BE IT RESOLVED that the Washtenaw County Board of Commissioners hereby appoints individuals to the Historic District Study Committee, as follows: Kathleen Timberlake, Robert Kyes, Scott Hedberg, Betty Lou Monticelli, Charles Unbehaun, Deb Webster, George Miller, Gary Robinson and Rich Cook;

BE IT FURTHER RESOLVED that the Board of Commissioners hereby acknowledges that Nancy Snyder, Jean King and Ken Reiter will serve as advisors, and Planning and Environment will serve as staff.

COMMISSIONER	Y	N	A	COMMISSIONER	Y	N	A	COMMISSIONER	Y	N	A
Bergman	X			Kern	X			Sizemore	X		
Brackenbury	X			Ouimet	X			Smith	X		
Gunn			X	Peterson	X			Solowczuk	X		
Irwin	X			Prater	X						

CLERK/REGISTER'S CERTIFICATE - CERTIFIED COPY ROLL CALL VOTE: TOTALS 10 0 1

STATE OF MICHIGAN)

I, Lawrence Kestenbaum, Clerk/Register of said County of Washtenaw and Clerk of Circuit Court for said County, do hereby certify that the foregoing is a true and accurate copy of a resolution adopted by the Washtenaw County Board of Commissioners at a session held at the County Administration Building in the City of Ann Arbor, Michigan, on May 18, 2005, as it appears of record in my office.

COUNTY OF WASHTENAW⁸⁸

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court at Ann Arbor, this 19th day of May, 2005.

LAWRENCE KESTENBAUM, Clerk/Register

BY:



Deputy Clerk



Res. No. 05-0094