

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Harmony Way Bridge
other names/site number New Harmony Bridge

2. Location See continuation sheet

street & number Indiana State Road 66/Illinois State Road 14 not for publication
City or town New Harmony vicinity
state Indiana code IN County Posey code 129 zip code 47631

3. State/Federal Agency Certification See continuation sheet

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be consider significant nationally statewide locally. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date

Indiana Department of Natural Resources
State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

<input type="checkbox"/> entered in the National Register.	Signature of the Keeper	Date of Action
<input type="checkbox"/> See continuation sheet	_____	_____
<input type="checkbox"/> determined eligible for the National Register.	_____	_____
<input type="checkbox"/> See continuation sheet	_____	_____
<input type="checkbox"/> determined not eligible for the National Register.	_____	_____
<input type="checkbox"/> removed from the National Register.	_____	_____
<input type="checkbox"/> other, (explain:)	_____	_____

Harmony Way Bridge
Name of Property

Posey County, IN/ White County, IL
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply)

Category of Property
(Check only one box)

Number of Resources within Property
(Do not include previously listed resources in the count.)

- Private
- public-local
- public-state
- public-Federal

- building(s)
- District
- Site
- Structure
- Object

Contributing	Noncontributing	
	0	buildings
	0	sites
1		structures
	0	objects
1	0	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

Number of contributing resources previously listed in the National Register

N/A

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

Current Functions
(Enter categories from instructions)

Transportation: Bridge

Transportation: Bridge

7. Description

Architectural Classification
(Enter categories from instructions)

Materials
(Enter categories from instructions)

Pratt Through Truss
Warren Deck Truss

foundation Concrete; Steel
walls _____
roof _____
other Structural Members:
Trusses: Steel
Deck: Concrete

Narrative Description
(Describe the historic and current condition of the property on one or more sheets.)

Harmony Way Bridge
Name of Property

Posey County, IN/ White County, IL
County and State

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for the National Register listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period, method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object, or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significant within the past 50 years.

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

Areas of significance

(Enter categories from instructions)

Transportation
Engineering

Period of Significance

1930

Significant Dates

1930

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Parsons, Klapp, Brinckerhoff & Douglas

9. Major Bibliographical References

Bibliography

(Cite the books articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- preliminary determination if individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey
- # _____
- recorded by Historic American Engineering Record
- # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- X University

XOther

Name of repository:

White County Bridge Commission

Harmony Way Bridge
Name of Property

Posey County, IN/ White County, IL
County and State

10. Geographical Data

Acreage of Property 3 acres

UTM References

(Place additional UTM references on a continuation sheet.)

1

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Zone Easting Northing

3

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Zone Easting Northing

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4

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See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Richard A. Gantz, James L. Cooper

organization _____ date _____

street & number 1128 Darby Lane telephone (317) 257-6334

city or town Indianapolis state IN zip code 46260

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name White County Bridge Commission

street & number P. O. Box 383 telephone (618) 966-2194

city or town New Harmony state Indiana zip code 47631

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend listings. Response to this request is required to obtain a benefit in accordance to the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.)

Estimated Burden Statement: Public reporting burden for this is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

2. Location

street & number Illinois State Road 14/ Indiana State Road 66 not for publication
city or town Phillipstown vicinity
state Illinois code IL county White code 193 zip code

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be consider significant nationally statewide locally. (See continuation sheet for additional comments.)

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Structural Description and Analysis

Spanning almost half a mile and placed well above the Wabash River, the Harmony Way Toll Bridge connects Indiana State Route #66 to Illinois State Route #14, providing an important continuing link for the residents of White County, Illinois, with both the cultural assets and amenities of New Harmony and the health and economic services of Evansville, Indiana. When in 1929 the federal government authorized the erection of a substantial steel structure across the lower Wabash River, it placed a national seal on a regional transportation and communication route that had already flourished for nearly a century.¹

As originally designed, the Harmony Way Bridge consisted, from East to West, of 2,579 feet (.49 of a mile) of forty-seven spans—ten simple I-beam approach spans, two deck-truss spans, four through-truss spans, and thirty-one simple beam approach spans, all with a 20-foot wide concrete roadway (See appended, Sverdrup & Parcel, “General Plan and Elevation” of 1960).² Concrete abutments bounded the superstructure, the trussed spans are raised on timber-piled concrete piers, and the approach spans supported upon variously designed steel bents seated on concrete “pedestals” with spread footings.³

Beam Approaches

The ten I-beam approach spans on the East are all on a 5% grade up to help attain the federally-mandated waterway clearance for the through-truss spans over a navigable river. Seven are 40-foot long seated on braced steel bents upon concrete pedestals. The general pattern designed for the approaches was to insert a “tower bent” carrying a 20-foot beam span after every two regular 40-foot beam spans on simple steel bents.⁴ These tower bents comprise a pair of simple bents X-braced to one another, adding some rigidity to the approach. The taller second and third tower bents carry three rather than two horizontal struts between the bents, allowing for a second, strengthening set of X-braces.

The western approach is longer, on level grade, and joins the through river trusses with an 81-foot span of five runs of riveted, laterally-braced, plate-girder beams, each with a 4-foot depth. That the plans for this span seem to have been drawn in 1930 rather than in 1929 suggests that these built-up beams may have been somewhat belatedly added to the initial bridge design.⁵ The multi-girder does allow for more waterway clearance than would the addition of, for example, a near-equivalent deck-truss structure at this location to one on the east.

The remainder of the western approach originally consisted of thirty I-beam spans in a regular pattern—a pair at 40-feet each on simple bents, spaced by a tower bent carrying a 20-foot beam span. The tower bents on the West were low enough to allow for a single set of X-braces along each side.

The superstructure of each I-beam eastern and western approach span carries five runs of wide-flange rolled beams. Those on the 40-foot spans are 24-inches deep “CB”; on the 20-foot spans, 18-inches deep “CB.”⁶ The “CB” sections specified in the plans are for an early form of wide-flange Carnegie Beam.⁷

Warren Deck Trusses

Two 12-feet deep, all-riveted, Warren deck trusses with verticals extend the upward rise of the bridge on concrete piers with piling from the last eastern tower bent and over the normal high bank of the Wabash River.⁸

The first carries a span of 60 feet; the second extends 100 feet.⁹ Verticals divide the shorter Warren into four panels; the longer carries seven panels, and its diagonals cross in the center one. The end-posts and chords of the longer span are naturally heavier than in the shorter one.¹⁰

Parker Through-truss Spans

The river spans consist of four, all-riveted, through-truss spans, one at the eastern end of 300-foot span on grade followed by two at 233 feet, and one at 232 feet on 3.5% grade down. They are all among the longest simple Parker highway spans extant in Indiana and include the very longest one.

All of the four “curved truss” or Parker through spans rely on the same web pattern, member format, number of panels, and polygonation of the upper chord. To sustain their carrying capacity for such long spans with economy, the through-trusses must attain considerable truss depth. The 232/3-foot trusses are 25-feet deep at the portals and 37.5-feet deep at mid-span.¹¹ The truss depth of the 300-foot span is 29-feet at the portals and 45-feet at mid-span.¹² Beyond the inclined end-posts, the upper chord of each truss was fabricated in five segments, four of which transcribe two upward tangents—one over the outer panel; a second segment and tangent

over the next two panels—joined over the two central panels with a single segment parallel with the lower chord.¹³

The end-posts of all the through-truss spans were fabricated from a pair of built-up channels (a pair of angles riveted to a plate) then stiffened further with a second plate riveted to the web between the angle-flanges (photo 9). Riveted to the channels, a cover plate above and, originally, lattice bars below completed the box-like members. The top chord segments of all the river spans were also riveted together from built-up channels, cover plate, and latticed bars, but without the stiffening plate riveted over the web as in the end-posts. The lower chord segments of the longest river span were also formed from a pair of built-up channels, although riveted together with batten plates rather than lattice bars. The bottom chord on the shorter spans relied on rolled channels plus battens.

As is conventional with the Parker pattern, all ten panels carry Pratt-style vertical and diagonal webbing riveted at their ends into gussets (photos 13 & 14). The hangers at the end-posts were made from two pairs of angles placed back-to-back and riveted together with batten plates. The other verticals consisted of a pair of laced channels. Like the hangers, the diagonals were crafted from two pairs of angles and battens.

None of the through-truss spans carried any full-panel counter-bracing. The two center panels are unusually braced against some stress reversal with half-length counter-like “diagonals” riveted between the upper center panel point and the middle of the intersecting main diagonals. The main diagonals are then in turn braced outward with a horizontal member—also called a “diagonal” by the designers—anchored into the adjacent vertical.¹⁴ These bracing members were designed to be more akin to the compression-bearing interior verticals—a pair of channels laced together into a box-like member—than to tension-addressing diagonals (photo 20).

Raised well above the Wabash River where the quite deep trusses would be subject to high winds, the through spans required considerable bracing. Beyond the portals with their double set of heavily-laced struts, each pair of interior verticals carries strutted and X-braced “sway braces.”¹⁵ For the shorter through spans, the upper and lower lateral X-braces between the chords consist of a pair of angles laced together and riveted to gussets. For the longer span with its wider panels, the upper lateral X-braces and the outer-panel lower ones consist of a pair of angles latticed together. The other lower laterals follow the pattern used on the shorter spans.¹⁶

All the through spans were attached to the concrete piers with their fixed ends to the East on cast-steel shoes. The expansion ends of the trusses rest on cast-steel roller nests to the West.¹⁷

The Harmony Way Toll Bridge still has its original concrete roadway contained at span-end by “concrete dams” to allow for structural expansion. According to the structural plans, these steel dams were to be in part connected by a then rather new technique among steel fabricators, welding.¹⁸ The roadway also retains its original light and graceful railing with pipe columns and upper coping supporting panels bordered above and below by angles into which vertical steel bars are riveted.¹⁹

Structural Integrity

Relatively little has changed to the structure of the Harmony Way Toll Bridge since its construction in 1930. The roadway, railings, eastern approach, and trussed-spans remain quite intact. The end-posts of the through-truss spans have been stiffened by replacing the original lattice bars along the bottoms of the channels with a cover plate bolted into place.²⁰

Rehabilitation of the western approaches became necessary when the Wabash River began to encroach on the last river pier and the adjacent approach bents in the early 1940s. In April 1942, the Harmony Way Bridge President, Roy Clippinger, and U. S. Army Corps of Engineers surveyed the situation and concluded that some action needed to be taken “to protect the Illinois approach to the bridge. The river is fast eating away the bank on that side of the stream.” In early June, “engineers from the Louisville office were here again the other day looking over conditions relative to the local bridge. The recent high water has taken a big toll on the bank of the Illinois side which is threatening to cut around the last bridge pier on that side of the river.”²¹

As a part of their rather extensive program to stabilize the Wabash River in this district during the 1940s and the early 1950s, the Army Corps designed alterations to the substructure of the 31 western approach spans, leaving most but not all of original superstructures essentially intact.²²

Changes to the western approaches also led to the relocation of the toll house for the bridge. It originally sat astride the roadway close to the eastern entrance of the easternmost through-truss river span. In 1952, the old toll house was removed and a new one installed at the western entrance of the river through-truss spans.²³

Endnotes

1. U. S. 70th Congress, Act #340, “Authorizing Roy Clippinger [*et al.*]...to construct, maintain, and operate a bridge across the Wabash River...” (1 May 1928).
2. Two sets of construction plans for the Harmony Way Bridge are housed at the Workingmen’s Institute in New Harmony. One set of 15 sheets focuses on the substructure and provides some guidance concerning the erection of the superstructure [construction plans, E]. A second set of 71 sheets focuses largely on the assembly of superstructure members into trusses and then into spans [construction plans, B].
3. Waddell & Hardesty, “Report of Physical Condition and Estimated Earnings of Highway Bridge over Wabash River between White County, Illinois, and New Harmony, Indiana” (4 June 1941), drawing #2 and pages 1-2. The text and appended drawing shows the piers under the trussed spans and bent #12 as being supported on piles. The concrete “pedestals” under the bents of the other approach spans and the abutments are not shown as piled and are reported as being “carried on shallow spread footings.” See also on piling, Construction plans, E: 2.
4. Construction plans, E: 6, 13. The standard pattern was violated on the east by there being three rather than two regular beam spans on simple bents between the abutment and the first tower bent.
5. Construction plans, B: 71.
6. Construction plans, B: 1.
7. Given the weight specified for the 24-inch beams, the flanges would be 9.75-inches wide with webs of 0.405-inches deep. Carnegie Steel Company, *Carnegie Beam Sections* (1927), 11. Thanks to James E. Stewart, P.E., for this and other references on rolled wide-flange beams.
8. Construction plans, E: 7.
9. Unless otherwise identified, all lengths cited for trussed spans should be understood as being extreme length. The appended drawing shows lengths for center-to-center of bearings.
10. Construction plans, E: 14; B: 19-29.

11. Measurements courtesy of Professor Chris Gwaltney, P.E., and Cassandra Wade.
12. Construction plans, B: 54, 69.
13. For a simple elevation drawing, designed to assist in erection, for each length of through-truss, see Construction plans, E: 15-16.
14. Construction plans, B: 50, 63.
15. For portals, see Construction plans, B: 36, 65. On sway bracing, see Construction plans, B: 49, 68.
16. For the lateral bracing, see Construction plans, B: 35, 66-67. The shorter spans have 23-foot wide panels; the longer carries 29-foot and 10-inch wide panels. Construction plans, E: 15-16.
17. Construction plans, B: 46-47, 70.
18. Construction plans, B, 3.
19. Construction plans, 17-18, 72.
20. The replacement lower cover plates on the end-posts do have periodic opening cut into them to minimize the problems associated with closed columns.
21. CLC, "Commercial Club Notes," *New Harmony Times*, 17 April 1942, 5 June 1942.

22. The Corps replace the original, mostly unpiled, concrete “pedestals” with more-deeply set round concrete foundation columns on the western approach leading up to the western-most through-truss span. The Corps altered the 18 western-most beam spans by placing a steel beam across each pair of new foundation columns to support the original steel frames of the bents and the original superstructures above them (photos 11 & 15). The Corps made more extensive changes to the 13 approach spans just west of the western-most through-truss span. The Corps removed the complete substructure of bents #12 through #23 and replaced the twelve of them with four braced concrete pier bents, probably extending to bedrock if not piled. To improve support the original spans of beams on a third of the substructural elements, the engineers added three spans (approximately 360-foot) of partly-cantilevered welded girders just outside the original beam superstructures. The floor-beams mounted between the external girders carried the original superstructures, but no longer mostly as simple spans.

23. Order for “A Toll Booth...to be delivered on or before November 15, 1951,” in a letter of Roy Clippinger, manager, White County Bridge Commission, to The Electronic Signal Company of Williston Park, New York, 18 October 1951. An official of the New York company apologized by letter for “our long travelling toll booth, which must have made an odyssey half way round the World by this Time, before approaching the environs of New Harmony.” Ralph L. Thompson, The Electronic Signal Company, to Don Blair, White County Bridge Commission, 22 January 1952. Correspondence resides in the White County Bridge Commission files.

Statement of Significance

Through the industry and perseverance of these three men...Messrs. Roy Clippinger, Edgar Leathers and Ulys Pyle...ribbons of steel, upon towering pillars of stone, now bind together Southern Indiana and Southern Illinois.¹

Harmony Way Bridge meets National Register Criteria A and C in the areas of transportation and engineering. This is one of the most important crossings of the lower Wabash River from the days of Native American predominance, through nineteenth-century intentional-community experiments, to the advent of automotive transportation as addressed here in the last surviving private enterprise, toll bridge experiment to supplement the efforts of the Bureau of Public Roads and their state highway partners. The bridge that grew out of this experiment pressed against a number of the conventional limits of design to create unusually long Parker through-truss river spans as well as two somewhat rare deck-truss approaches in a nearly half-mile long ensemble. Finished in 1930 this is the earliest highway bridge erected across the lower Wabash River and the oldest remaining in use over the river's length in Illinois and half of Indiana.

Physical Setting and Early Transportation Development

Harmony Way Bridge maintains a historic transportation connection that has existed since at least the early 1800s. It is located on the Wabash River between Indiana and Illinois adjacent to the New Harmony National Historic Landmark District. The bridge is about twenty-five miles north of where the Wabash empties into the Ohio River. In 1814 George Rapp sent representatives to Indiana Territory to search for a place where he could relocate his Harmonie Society community. His agents selected the site that was to become New Harmony for several reasons. The land was relatively flat and deemed suitable for vineyards, a major source of revenue for the Harmonists. A second factor was that it was close to an existing ferry, indicating that there was already a developed route used by Native Americans and early settlers traveling between Illinois and Indiana Territories. Instructions from Rapp and his son Frederick directed the agents to buy not only land in Indiana but also acreage in Illinois so that they could control the river crossing.² The next year up to one thousand Harmonists traveled to Indiana Territory to establish their new settlement.

George Rapp was a savvy businessman who recognized the advantages of providing goods to settlers in both southern Indiana and Illinois. He petitioned to place his town on a mail route and supported the construction of wagon roads that would connect towns on the Indiana side. He also anticipated reaching settlements in Illinois; on November 19, 1815, he secured a license to operate a ferry across the Wabash River.³

The ferry was vital to early settlements in southeast Illinois. When Morris Birkbeck established Wanborough in 1817 and George Flower founded Albion in 1818 in what became Edwards County, the settlers initially depended upon the Harmonists for supplies of grain, flour, and vegetables. The contact continued and expanded over the next decade. Individuals from the settlements in Illinois frequently traveled to Harmony.⁴ Flower became interested in the Harmonists' communal life and their antislavery stance; he introduced some aspects of communal life at the English Settlement in Edwards County. English travelers who came to see the experimental settlements typically stopped at New Harmony before continuing on to Flower's settlement in Illinois. When Rapp decided to sell his settlement, he engaged George Flower's father, Richard, to market the property in England; the elder Flower approached industrialist Robert Owen of Scotland who then visited both Harmony and Flower's English Settlement in 1824.⁵

The importance of the ferry to both southwest Indiana and southeast Illinois continued after Owen purchased Rapp's settlement in 1824. His utopian experiment lasted only a few years, but the remarkable individuals whom he brought to the town would influence life and development of both New Harmony and the English Settlement in Illinois for many years. Individuals from Illinois would travel to New Harmony to attend lectures. George Flower attempted to add Owen's practices to his settlement. Frances Wright spent time at both New Harmony and at the English Settlement in Illinois prior to establishing her own utopian experiment.⁶

From Wagon to Automotive Highway Transport

The German Harmonists and the followers of Robert Owen who settled in New Harmony, like other whites in Indiana and Illinois, depended at first on the great rivers for their contacts with the wider "civilized" world. They dealt with the Wabash River as a feeder to the Ohio, connecting eastward to Louisville, Cincinnati, and Pittsburgh and southward to St. Louis and New Orleans.⁷ By the second half of the nineteenth century, they increasingly relied on the railroad, especially the Illinois Central.

For internal transportation, they depended on dirt and then on gravel-improved wagon roads within Posey County and, for White County, Illinois, a combination of ferry boats across the Wabash and dirt roads with multiple fords across the bayous thereafter. “When the ox team draw the lumbering wagon over the winding trail, the ‘Ford’ was a welcome milepost in the day’s journey, for the oxen could refresh himself as he slowly waded the stream. The teamster could look forward to a welcome rest for his weary team while he waited for the ferryman on the bank of the stream too deep to ford.”⁸ The ferry at New Harmony provided farmers in Illinois a link to ship their produce to distant markets and to reach local outlets to purchase goods and supplies that they needed.⁹

The expansion of the railroad reduced shipping on the river boats on both the Wabash and the Ohio, but the ferry at New Harmony remained a viable and vital link throughout the nineteenth century.¹⁰ Periodically there was talk about the desirability of a bridge across the Wabash River at New Harmony. People on both sides of the river discussed a bridge as early as 1870. Leaders of New Harmony saw a bridge as a way to bring economic prosperity by increasing shipping that would attract business from the hinterland on both sides of the river. The editor of the *New Harmony Times* launched a major effort in 1893 when he approached a number of prominent New Harmony businessmen with an idea proposed by William Ford. A civil engineer surveyed the area and recommended a 968 foot span to be located at the New Harmony ferry. The proposed steel bridge was to cost \$50,000; while some funds might come from the county, most of the money would come from private subscriptions. Annual tolls would pay for maintenance of the structure. A major selling point was a prediction that the bridge would double the business from Illinois. Although the New Harmony businessmen believed in the desirability of a bridge, they doubted that \$50,000 would cover the construction costs or that the tolls would bring in sufficient funds for future repairs.¹¹

The development of the automobile brought a demand for concrete highways and bridges to replace fords and ferries that had long been the accepted means of crossing streams and rivers. When the Harmony Way Bridge opened in 1930, the *New Harmony Times* author developed the theme of how the new span was, indeed, interwoven with automobility:

With the advent of the concrete highways came the public demand for the elimination of all obstacles to speedy transportation. The craze to annihilate distance seized the traveling public; and soon it seemed that everybody had become a part of the ‘Travelling public,’ for it appeared that everybody was going somewhere, and each one wanted to get there first. Delay was exasperating; unnecessary delay was unpardonable. To wait on the bank of a river for an slow-going, uncertain ferry was more than the motorist could bear. A clamor for bridges was heard as had never been heard before.¹²

The automobile had come to the United States well before the First World War, but it was the war itself that demonstrated the problems with relying entirely on the railroads for national defense shipments and the virtue of at least supplementing rails with interstate highways. This even began to wake up the sleepy U. S. Bureau of Public Roads (BPR) to the need for looking beyond farm-to-market roadways with transport less dependent on the railroads.¹³ Even the BPR’s federal-state highway alliance had not reached into Indiana by the beginning of the First World War. While an Illinois state highway department was up and active by the start of the second decade of the twentieth century, Indiana was the very last of the continental states to organize one. The Indiana State Highway Commission did not effectively start until 1919.¹⁴ As automobility swept through the public in the 1920s, the various governments’ highway professionals struggled to catch up.

Tolling in the Twenties

The demand for bridges “became so great and so persistent it was quite beyond the power of the States and other branches of the government to meet it, and as a result, private enterprise began to supply the demand; and toll bridges became the order of the day.”

– *New Harmony Times*¹⁵

By early 1927 the editors of *Engineering News-Record (ENR)* reported that “public highway bridge construction was as busy as ever, and private toll bridge construction was phenomenally active.” “There continues to be a definite demand for bridges over a considerable number of major streams, and it is likely that there will continue to be extensive work in constructing these crossings, mainly by private enterprise.”¹⁶ According to the BPR, there were already 233 highway toll bridges in operation in the nation, and 82% of them were privately owned. Another 29 toll structures were under construction.¹⁷

The BPR stood consistently and “almost single-handedly” against toll bridges, opposing “congressional authorizations of such toll bridges as would be essentially exploitations of federal-aid road investments, and has refused federal aid on roads which would serve principally as approaches to a private toll bridge.” As Paul Wooten noted, “Officials of the Bureau doubt if there is any instance where a private toll bridge is desirable, or where its construction is sound as a public policy.”¹⁸

The editors of the *ENR* asked Gustav Lindenthal on the basis of his “lifetime of distinguished service to the bridge-building art,” to offer his reflections on the contentious issue of toll bridges. In his essay, Lindenthal pointed to the rich history of toll bridges in the development of bridge design and promotion of the general welfare in Europe and North America in the nineteenth and twentieth centuries from Telford’s Menai Straits suspension bridge through Eads steel arches at St. Louis, to the Smithfield bridges in Pittsburgh.¹⁹

Recognizing the opposition of the BPR to tolling as a part the politics of his own era, Lindenthal argued for toll bridges that retire their cost of construction “out of earnings as rapidly as possible...so that a toll bridge shall not remain a profit-making investment of private capital indefinitely.” Lindenthal noted “another and more perplexing element” in toll bridge financing, one ultimately quite relevant to the Harmony Way Bridge. “This is the threatened or actual competition of free bridges built at public expense, paralleling a previously built toll bridge, which in this way has its revenues impaired, it may be to the extent of actual loss of invested capital. The risk of such competition may have the effect of stopping the building of some necessary structures by private capital—a result that obviously works to the economic injury of the locality.”²⁰

Tolling on the Lower Wabash

Not a single highway bridge crossed the Wabash River south of Vincennes in 1920 or in 1929, and neither of the relevant state highway departments announced any active planning for one in the 1920s despite growing demands from the automotive public in the two states. With the Mississippi River stretching along its entire western border, the Ohio along the south, and the Wabash along about a third of the eastern border, the Illinois state engineers had more pressing locations for building big bridges than across the Wabash where there were no large urban concentrations of population. Late-starting Indiana state engineers faced the Ohio on the south and the Wabash and the White across the whole state.

Private enterprise responded first to public demand for a bridge across the lower Wabash. In early 1927, the *ENR* reported that “if it is impossible to secure adequate bridge construction in Indiana out of public funds, it begins to appear that bridges will be built anyway. Eight toll bridges are projected by private parties,” two of which were identified for crossings of the Wabash; neither, however, at New Harmony or points further south. The two toll bridges proposed for the Wabash north of New Harmony were never built.²¹

The successful drive to construct a bridge across the Wabash came from Illinois. The 235 bills which the federal Congress passed in 1928 to create privately-owned toll bridges included one “across the Wabash River at or near McGregors Ferry in White County, Illinois.”²² Thomas S. Williams of the 24th congressional district of Illinois introduced the bill in the House of Representatives, and Charles S. Deneen of Illinois successfully shepherded it through the Senate.

Roy Clippinger, Ulys Pyle, and Edgar Leathers of Carmi, Illinois, and Groves K. and Carmen Flescher of Mt. Vernon, Indiana, organized the Big Wabash Bridge Company of Carmi, Illinois. Clippinger published the *Carmi Times*, Pyle was a banker, Leathers a contractor, and the Fleschers owned and operated McGregors Ferry. The Carmi company promptly hired Parsons, Klapp, Brinckerhoff & Douglas, nationally-recognized engineers from New York City, to assess the proposed bridge site and to consult concerning construction. Parsons-Brinckerhoff determined that the ferry site would not be a fit location for the proposed bridge. Instead, they recommended a bridge crossing at New Harmony. Acceptance of the engineer’s report had several consequences: First, the Carmi promoters called on their congressional backers to get their federal grant amended; mission accomplished by late February 1929. Second, no longer

needing the ferry owners as a part of their activities, they dropped the Fleschers from the bridge company. And, third, they reorganized as the Harmony Way Bridge Company.²³

Federal law required that the construction of a bridge had to begin within a year after the grant of a franchise. The War Department which had oversight of bridge-building on navigable waters took the position that the clock started ticking when the franchise was awarded in May 1928, allowing the Carmi crew only sixty-one days to get construction underway after the amendment on location passed Congress. There were just two months to prepare plans and file them with the War Department at Louisville, give public notice and hold a public hearing on the proposed plans, secure approval from War Department offices in Louisville, Cincinnati, and Washington, D. C., and start construction. With the able assistance of Col. George R. Spaulding of the Louisville office, the Carmi company started construction on April 25, 1929, with five days to spare of the allotted time. In all likelihood, a considerable number of the approximately 235 private toll-bridge franchises awarded by Congress in 1928 must have collided with the one-year frame for the start of construction.

The Harmony Way Bridge Company let the general construction contract to the Nashville Bridge Company of Nashville, Tennessee. Nashville Bridge drew up the structural plans and fabricated most of the steel members and sections required. It sublet the multitude of rolled stringers, floor-beams, and some elements in the steel bents especially for the I-beam approach spans to the American Bridge Company. Koss Construction Company of Des Moines, Iowa, won the subcontract for the substructure's piling and concrete (abutments, piers, pedestals) and the concrete roadway. For the erection and field-riveting of the steel, Nashville turned to the W. C. Gormley Company of Evansville, Indiana. The Leathers Brothers of Carmi, Illinois, built the earth approaches at each end of the bridge.²⁴

By the early fall of 1929, the concrete work on the substructure was complete, too late in the season, however, to begin the raising of the steel. The first railroad carload of steel sections and members arrived in New Harmony on March 18, 1930, and fifty-eight more carloads—including one of rivets—followed. Ghormley reportedly pressed Nashville and the rail delivery of steel “owing to the precision and speed with which he put it in place.” The last concrete on the deck was poured on 13 December and the bridge was opened for traffic on the 21st.²⁵

Harmony Way Bridge Structure

The Nashville Bridge Company had to design a bridge that was appropriate for expected vehicular traffic, structurally and economically efficient for its clients, and within the requirements of the War Department for navigability and flood control.²⁶ The final design was both aggressive and simple.

The greatest demands fell on the river spans. Here the company's design engineers took what was becoming an increasingly standard highway pattern—the Parker through-truss—and stretched the envelope to 300-foot spans, well beyond anything that, for example, the Indiana State Highway Commission (ISHC) would ever design with this, its favored, through-truss pattern. Even at 232/3 feet, the shorter river Parker through-truss spans are longer than the Indiana state design engineers preferred.²⁷ No extant Parker through-truss span on a local or state Indiana highway comes within 50 feet of the length of the main Harmony Way river span.

To get the extended length on its river spans, the Nashville engineers did not resort to elaborate and novel additions to the Parker pattern. They so efficiently supplemented the steel within standard members that the casual viewer of the structure might not even notice most of the ways in which members were carefully and unobtrusively built up and stiffened.²⁸

The one clearly observable amendment in standard pattern came in the way Nashville braced the most central truss panels. The state engineers of Illinois and Indiana typically used full panel-length counter-braces towards mid-span of Parker through-trusses. Nashville used none, instead supplementing only the two most central panels with half-length reverse “diagonals” inserted between the upper center panel point and the middle of the intersecting main diagonals which are then braced by a horizontal member anchored into the adjacent vertical.

Importance of the Harmony Way Bridge

The scope of the formal dedication held on December 30, 1930 indicated the importance of the bridge. A special train swelled the attendance to 10,000. Officials from both Indiana and Illinois hailed the bridge as an important achievement that would bring prosperity to the region. Coverage by a radio station in Louisville and a delegation from Henderson, Kentucky, underscored the regional interest in the project. Competition of the bridge spurred commitments

by both Indiana and Illinois to pave remaining gravel sections of connecting roadways so that there was soon a paved road between Louisville and St. Louis which became U.S. Highway 460.²⁹

The bridge did not mean an immediate end to the ferry at New Harmony. At the time of the bridge dedication, the ferry advertised rates that were half of the toll bridge.³⁰ The ferry would continue to operate next to the bridge for another eleven years.

Between 1939 and 1956 Congress chartered five joint bridge commissions in the nation; a federal law in 1941 authorized the White County Bridge Commission (created December 6, 1941) to issue bonds to purchase the Harmony Way Bridge Company and New Harmony ferry. The White County Bridge Commission remains as the only joint state bridge commission chartered by Congress. Harmony Way Bridge with its unusual joint commission, private ownership is a reminder of a transition period in the evolution of the nation's highway system when private interests could build bridges and alter the direction of road development.³¹

The Harmony Way Bridge was the first highway bridge to be built over the lower Wabash south of Vincennes. An earlier metal truss bridge at Vincennes was replaced with a concrete span in 1932. Metal truss railroad bridges spanned the Wabash, but the Harmony Way Bridge remains as the oldest highway metal truss bridge over the length of the Wabash between Illinois and Indiana south of Terre Haute.

Even with the advent of Interstate Highway Route I-64 in 1969, the importance of the Harmony Way Bridge continued. Trucks would continue to use the route until a bypass was constructed around New Harmony and opened in 1999. While most trucks have now moved to the interstate, traffic remains from agricultural operations, fire and medical services, the White County oil and gas industry, commuters, and tourists.³² In 1965 the Department of the Interior designated New Harmony as a National Historic Landmark; restoration activities in the 1970s helped to make New Harmony a multi-state destination for tourists. The new retail and tourist-related operations have increased the importance of the bridge not only for visitors but also for employees who live in Illinois and work in New Harmony. Despite the passage of years, the span remains a vital transportation link that unites southwestern Indiana and southeastern Illinois.

Endnotes

1. “Detailed History of Labor and Obstacles in Erection,” *New Harmony Times*, 30 December 1930: p5c2.
2. Karl J. R. Arndt, ed, *A Documentary History of the Indiana Decade of the Harmony Society, 1814-1824* (Indianapolis, 1975), *Volume I, 1814-1819*, xi; John L. Baker to George Rapp, Vincennes, July 29, 1814, 21-22; Frederick Rapp to Nathaniel Ewing & John Baddlet, Harmony [PA], August 8, 1815, 25; [Frederick Rapp] to John L. Baker, Harmony [PA], August 11, 1814, 27; George Rapp to Frederick Rapp, Harmony [Indiana Territory], November 8, 1814, 71
3. *Ibid.*, 22; [Frederick Rapp] to David Robb, Nov. 22, [1815], 155-56; Frederick Rapp to John Woods, Dec. 23, 1815, 170; 215.
4. Jane Rodman, “The English Settlement in Southern Illinois as Viewed by English Travelers, 1815-1825,” *Indiana Magazine of History*, XLIV (Mar. 1948), 37, 48.
5. Arthur Bestor, *Backwoods Utopias: The Sectarian and Owenite Phases of Communitarian Socialism in America: 1663-1829* (Philadelphia, 1950), 49; Everett Webber, *Escape to Utopia: The Communal Movement in America* (New York, 1959), 106, 219-20; Rodman, “English Settlement in Southern Illinois,” 37; Karl J. R. Arndt, *George Rapp’s Harmony Society, 1785-1847* (Philadelphia, 1965), 285.
6. Rodman, “English Settlement in Southern Illinois,” 37; Webber, *Escape to Utopia*, 219-20.
7. John C. Leffel, *History of Posey County, Indiana* (Chicago, 1913), 61, 280, 281, 317-18; *History of White County Illinois* (Chicago, 1883), 252.
8. “Detailed History,” *New Harmony Times*, 30 December 1930: p1c1.
9. *History of Posey County Indiana* (Chicago, 1886), 547-48.
10. Warner & Beers, *Official Railroad Map of Illinois* (Chicago, 1876), 7.

11. "New Harmony Bridge Puts States Closer Together for Trade," *Evansville Courier*, 21 December 1930: p13c1. "Bridge Plans of Years Ago," *New Harmony Times*, 26 December 1930: p14c3.
12. "Detailed History," *New Harmony Times*, 26 December: p1c1.
13. Bruce E. Seely, *Building the American Highway System: Engineers as Policy Makers* (Philadelphia, 1987); James L. Cooper, *Artistry and Ingenuity in Artificial Stone: Indiana's Concrete Bridges, 1900-1942* (Greencastle, 1997), 82-90, 97.
14. Seely, *American Highway System*, 57, 107; Cooper, *Artistry and Ingenuity in Artificial Stone*, 109-129.
15. "Detailed History," *New Harmony Times*, 30 December 1930: p1c1.
16. "In Review and Prospect," *Engineering News-Record*, 13 January 1927: 51.
17. Paul Wooton, "Washington Notes," *ENR*, 5 July 1928: 33.
18. "Toll Bridge Reform," *ENR*, 2 December 1926: 897; Wooton, "Washington Notes," *ENR*, 5 July 1928: 33.
19. Gustav Lindenthal, "Some Thoughts on Toll Bridges," *ENR*, 12 January 1928: 70-72.
20. *Ibid.*
21. "Eight Toll Bridges Projected in Indiana," *ENR*, 6 January 1927: 36. The two Wabash River crossings: Mt. Carmel-Princeton Bridge Company and the Wabash Bridge Company of Vincennes. The other six were slated for the Ohio River.
22. Act of May 1, 1928, Public Law #70-340, 45 Stat. 480; Wooton, "Washington Notes," *ENR*, 5 July 1928: 33.
23. "Detailed History," *New Harmony Times*, 30 December 1930: p1c2-3, p5,c2.

24. Waddell & Hardesty, "Report of Physical Condition and Estimated Earnings of Highway Bridge over Wabash River Between White County, Illinois, and New Harmony, Indiana," (June 4, 1941), 3; "Detailed History," *New Harmony Times*, 30 December 1930: p5,c2. For references to the subcontract with American Bridge, see Construction Plans, B, 1-2, 5-9.
25. "Detailed History," *New Harmony Times*, 30 December 1930: p5,c2.
26. According to the *Times* reporter, at the April 1929 public hearing on the proposed bridge, "River men and steamboat pilots, though they had not plied a boat in the Wabash at or past New Harmony for years, and probably never will again, were there in protest. They urged that no plan for a bridge be approved which would interfere with navigation, though no navigation in fact existed." *Idem*, p1c5.
27. Only one ISHC-designed structure with longer Parker through-truss spans exists, and it is now under review for replacement. Designed to cross a major rail yard, structure #152-45-1031 contains three spans at 245-feet and 6-inches in length.
28. For detailing, see Section 7.
29. "Bridge Dedication A Huge Success," *New Harmony Times*, 2 January 1931: p2c3. "10,000 Attend New Harmony Bridge Dedication," *Evansville Courier*, 31 December 1930: p1c1 .
30. "To the Public," *New Harmony Times*, 30 December 1930: p 23c3.
31. "Five Bridge Commissions Created from 1939-1956 by Congress," undated; "Traffic Count Impact," December 14, 2004, White County Bridge Commission Records.
32. "Traffic Count Impact," "Statements of Support," December 2001; "The New Harmony Bridge Must be Kept Open for the Health, Safety, Workforce Mobility and Economic Vitality of the Area," January 2001, White County Bridge Commission Records.

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Verbal Boundary Description:

The historic boundary is defined on the east by a line running across the east bridge approach 550 feet east of the east portal of the through-truss span on the east side of the bridge. The boundary is defined on the north by a line running 25 feet north of and parallel to the center line of the bridge. The boundary on the west side is defined by a line running across the west bridge approach 1,100 feet west of the west portal of the through-truss span on the west side of the bridge. The historic boundary is defined on the south by a line running 25 feet south of and parallel to the center line of the bridge.

Boundary Justification:

The historic area is limited to the bridge, the immediate approaches on the east and west roadways, and the bridge's support piers. The north and south boundaries extend from the bridge superstructure to include the support piers.

Other Documentation: Photo Log

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: South elevation, looking north from east river bank
Photograph Number: 1

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: South elevation 300 ft. thru-truss and approach trusses, looking northwest from
east river bank
Photograph Number: 2

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: North elevation of 230 ft thru-truss span, looking southwest from east river bank
Photograph Number: 3

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Close up of north elevation of 300 ft span center panel, looking southwest from east river bank
Photograph Number: 4

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: East abutement, looking northwest from east river bank
Photograph Number: 5

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: North elevation of east approach, looking south from east river bank
Photograph Number: 6

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: North elevation of east approach tower pier 1, looking south from east river bank
Photograph Number: 7

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: North elevation of east approach tower pier 2, looking south from east river bank
Photograph Number: 8

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Detail of east approach tower pier 3, looking south from east river bank
Photograph Number: 9

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: South elevation of west approach, looking east from west river bank
Photograph Number: 10

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: South elevation of west approach tower pier, looking north on the west river bank
Photograph Number: 11

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Underneath side of deck beams of east approach, looking west from east river bank
Photograph Number: 12

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: East approach, looking west from east river bank
Photograph Number: 13

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: East portal of thru-truss span, looking west from east approach
Photograph Number: 14

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: West approach, looking east from west river bank
Photograph Number: 15

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: West portal of thru-truss span, looking east from west river bank
Photograph Number: 16

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Built-up end post (typical at portals) on east portal, looking west from east river bank
Photograph Number: 17

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: East abutment bearing, looking west from east river bank
Photograph Number: 18

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: West abutement bearing, looking east from west river bank
Photograph Number: 19

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: West portal upper panel point, from west river bank
Photograph Number: 20

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Midspan upper panel point
Photograph Number: 21

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Midspan lower panel point
Photograph Number: 22

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Interior of the thru-truss, from deck of bridge at mid river
Photograph Number: 23

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: Interior thru-truss bracing, from deck of bridge
Photograph Number: 24

Property: Harmony Way Bridge
Posey County, Indiana/White County, Illinois
Photographer: Chris A. Gwaltney
Date: October 2006
Location of CD: University of Evansville, Evansville, IN
View: North railing of east approach, looking northwest from east river bank
Photograph Number: 25



Photo 1



Photo 12



Photo 13



Photo 20



Photo 25