

ADDRESS: FALLS BRIDGE OVER THE SCHUYLKILL RIVER

Name of Resource: Falls Bridge

Proposed Action: Designation

Property Owner: Streets Department

Nominator: East Falls Historical Society

Staff Contact: Megan Cross Schmitt, megan.schmitt@phila.gov

OVERVIEW: This nomination proposes to designate the Falls Bridge spanning the Schuylkill River and connecting Kelly Drive and Martin Luther King, Jr. Drive, and list it on the Philadelphia Register of Historic Places. The nomination contends that the bridge, constructed in 1894 and 1895 and rehabilitated in 1986, satisfies Criteria for Designation D and H. Under Criterion D, the nomination argues that the Falls Bridge is an example of “a variant of the Pratt truss form known as the Baltimore (Petit) truss...a stronger [truss] able to span distances almost two and a half times greater than the original Pratt truss form.” Under Criterion H, the nomination contends that the Falls Bridge is central to the evolution of the East Falls neighborhood, which is inextricably connected to the Schuylkill River.

While the Historical Commission may designate the bridge as historic, the Historical Commission may not be able to exert plenary jurisdiction over proposed work to the bridge. The City’s historic preservation ordinance empowers the Historical Commission to review building permit applications to ensure that the work proposed in those applications satisfies preservation standards. The Streets Department, the City agency that oversees Philadelphia’s roads and bridges, is not required to obtain building permits for its work to bridges and therefore may not be subject the Historical Commission’s review. However, the Historical Commission may serve in an advisory capacity and provide guidance regarding preservation standards to the Streets Department. And, in fact, that is already occurring. Members of the Historical Commission’s staff met with engineers at the Streets Department to discuss the Falls Bridge renovation project, which is in the planning stages. During that meeting, the engineers shared plans and showed that the historic character of the bridge will be retained and restored as the bridge is brought up to current safety and transportation standards over the next few years.

STAFF RECOMMENDATION: The staff recommends that the nomination demonstrates that the Falls Bridge satisfies Criteria for Designation D and H.



Image courtesy of nominator.

NOMINATION OF HISTORIC BUILDING, STRUCTURE, SITE, OR OBJECT

PHILADELPHIA REGISTER OF HISTORIC PLACES

PHILADELPHIA HISTORICAL COMMISSION

SUBMIT ALL ATTACHED MATERIALS ON PAPER AND IN ELECTRONIC FORM (CD, EMAIL, FLASH DRIVE)
ELECTRONIC FILES MUST BE WORD OR WORD COMPATIBLE

1. ADDRESS OF HISTORIC RESOURCE *(must comply with an Office of Property Assessment address)*

Street address: Falls Road, connecting Kelly Drive and Martin Luther King Drive over the Schuylkill River

Postal code: 19129

2. NAME OF HISTORIC RESOURCE

Historic Name: Falls Bridge

Current/Common Name: Falls Bridge

3. TYPE OF HISTORIC RESOURCE

☐ Building

☒ Structure

☐ Site

☐ Object

4. PROPERTY INFORMATION

Condition: ☐ excellent ☐ good ☐ fair ☒ poor ☐ ruins

Occupancy: ☒ occupied ☐ vacant ☐ under construction ☐ unknown

Current use: Vehicular and pedestrian traffic

5. BOUNDARY DESCRIPTION

Please attach a narrative description and site/plot plan of the resource's boundaries.

6. DESCRIPTION

Please attach a narrative description and photographs of the resource's physical appearance, site, setting, and surroundings.

7. SIGNIFICANCE

Please attach a narrative Statement of Significance citing the Criteria for Designation the resource satisfies.

Period of Significance (from year to year): from 1895 to 2021

Date(s) of construction and/or alteration: Constructed 1894-1895, rehabilitated in 1986

Architect, engineer, and/or designer: George S. Webster, Philadelphia Dept. of Public Works and Bureau of Surveys

Builder, contractor, and/or artisan: Filbert, Porter and Company, Edge Moor Iron Company

Original owner: City of Philadelphia

Other significant persons: _____

CRITERIA FOR DESIGNATION:

The historic resource satisfies the following criteria for designation (check all that apply):

- ☐ (a) Has significant character, interest or value as part of the development, heritage or cultural characteristics of the City, Commonwealth or Nation or is associated with the life of a person significant in the past; or,
- ☐ (b) Is associated with an event of importance to the history of the City, Commonwealth or Nation; or,
- ☐ (c) Reflects the environment in an era characterized by a distinctive architectural style; or,
- ☒ (d) Embodies distinguishing characteristics of an architectural style or engineering specimen; or,
- ☐ (e) Is the work of a designer, architect, landscape architect or designer, or engineer whose work has significantly influenced the historical, architectural, economic, social, or cultural development of the City, Commonwealth or Nation; or,
- ☐ (f) Contains elements of design, detail, materials or craftsmanship which represent a significant innovation; or,
- ☐ (g) Is part of or related to a square, park or other distinctive area which should be preserved according to an historic, cultural or architectural motif; or,
- ☒ (h) Owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or City; or,
- ☐ (i) Has yielded, or may be likely to yield, information important in pre-history or history; or
- ☐ (j) Exemplifies the cultural, political, economic, social or historical heritage of the community.

8. MAJOR BIBLIOGRAPHICAL REFERENCES

Please attach a bibliography.

9. NOMINATOR

Organization East Falls Historical Society Date June, 2021

Name with Title Dorothy Fitzgerald, independent contractor Email eastfallshistory@gmail.com

Street Address 3232 Henry Avenue, Office 200-2 Telephone (215) 435-2865

City, State, and Postal Code Philadelphia, PA 19129

Nominator ☐ is ☒ is not the property owner.

PHC USE ONLY

Date of Receipt: 7/26/2021

☒ Correct-Complete ☐ Incorrect-Incomplete Date: 10/28/2021

Date of Notice Issuance: 10/28/2021

Property Owner at Time of Notice:

Name: City of Philadelphia

Address: Streets Department Municipal Services Building Room 730

1401 JFK BLVD

City: Philadelphia State: PA Postal Code: 19102

Date(s) Reviewed by the Committee on Historic Designation: _____

Date(s) Reviewed by the Historical Commission: _____

Date of Final Action: _____

☐ Designated ☐ Rejected

12/7/18

Description of Boundaries

Located in Ward 38 of Philadelphia, the Falls Bridge spans the Schuylkill River, joining Kelly Drive in East Falls and Martin Luther King Drive in West Fairmount Park. The bridge site encompasses the 556 foot and 4 inch length of the bridge itself as well as all its accompanying abutments, piers, foundations, and balustrades. In addition to these elements, the decorative balustrades extend beyond the length of the bridge and follow the curved wing walls which adjoin the abutments on each bank. Founded in the retaining soil of the same abutments are original lighting standard bases.

Description

The following description is taken from the Falls Bridge Historic American Engineering Record written in 1998 by Helen P. Ross, and revised and expanded in 2001 by Justin M. Spivey.¹ The accompanying footnotes in this section were pulled from the same document and represents the research which was conducted by the previously mentioned contributors. The photographs which are interspersed in the text have been added to give visual context and were not originally included within the text of the Historic American Engineering Record description.



Figure 1: View of Falls Bridge from Kelly Drive looking towards West Fairmount Park.

Source: Photograph taken by Dorothy Fitzgerald, June 8, 2021.

The Falls Bridge has details typical of late nineteenth-century Petit trusses, but executed on an unusually large and heavy scale. It consists of three through truss spans, each 180'-0" long, measured from center to center of the end bearings. Because of 7'-0" gaps between

¹ "Falls Bridge, Spanning Schuylkill River, connecting East & West River Drives, Philadelphia, Philadelphia County, PA." Survey (photographs, measured drawings, written historical and descriptive data), Historic American Engineering Record, National Park Service, U.S. Department of the Interior, 2001. From Prints and Photographs Division, Library of Congress (HAER PA,51-PHILA, 701-; <https://www.loc.gov/pictures/item/pa0840/>).

bearings on the piers, and because the end posts have the substantial width of 2'-4", the structure's overall length is 556'-4". The trusses are installed on a 1.5 percent grade, so the west end of each span is approximately 2'-8" higher than the east. Because the vertical members were installed perpendicular to the chords, they are tilted slightly from the vertical. The trusses are spaced 43'-0" on center transversely. With 30'-0" between the centers of upper and lower chords, the trusses are too deep for the Pratt pattern of diagonals to work efficiently. Each of the eight 22'-6" panels is therefore divided in half, with secondary members supporting intermediate panel points, a variant known as the Petit truss after its inventor. Because the bridge was designed to carry a roadway upon each of its upper and lower chords, the secondary members are a superposition of Petit through truss and Petit deck truss patterns.

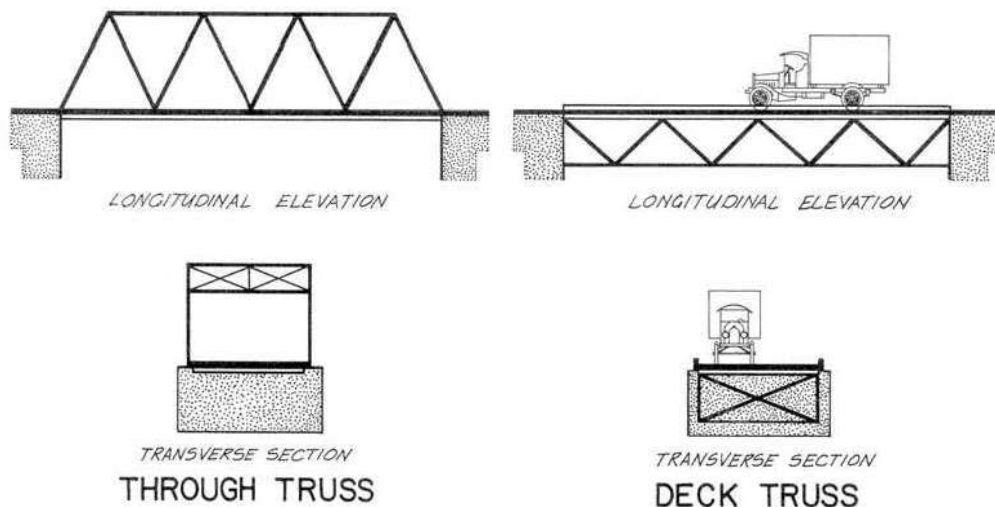
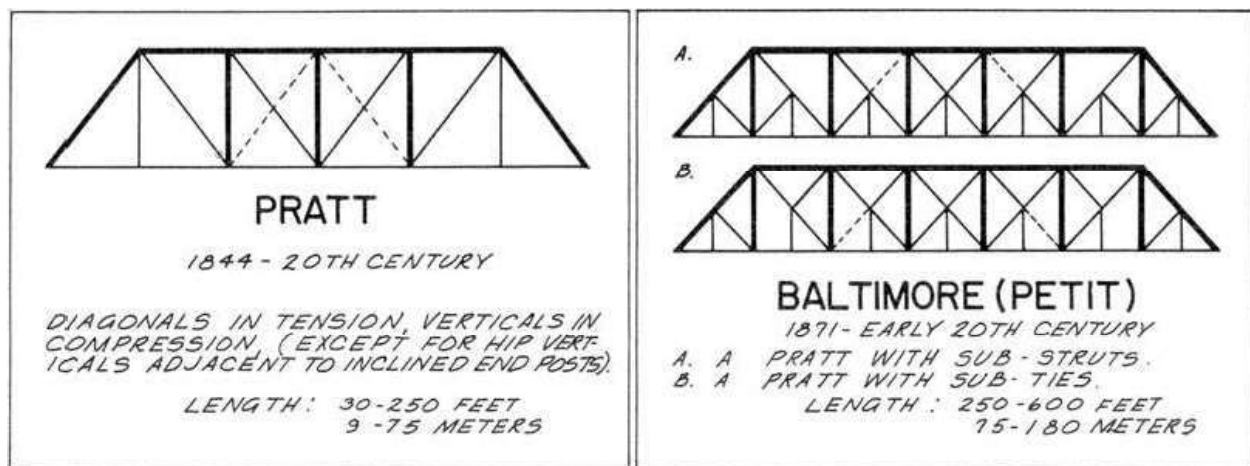


Figure 2, Above: Diagrams showing relationship between the Pratt and Baltimore (Petit) trusses.
 Figure 3, Below: Diagrams showing examples of the thru truss type and the deck truss type. Source: *Trusses, a Study by the Historic American Engineering Record, HAER TI-1.*

The members are mostly pin-connected, except for some riveted connections in the secondary members. Even by modern standards, the structure is over-built for carrying traffic on a single deck. There is no posted weight limit.²

The substructure consists of two masonry piers in the river and an abutment with curved wing walls on each bank. Foundations were carried either to rock or to firm footing in gravel. The piers consist of rough-pointed ashlar, and the abutments of rock-faced ashlar, in both cases backed with rubble masonry. Most of the stone is Port Deposit granite quarried by McClenahan Brothers, except for coping blocks supplied by a granite quarry in Pigeon Cove, Maine. Handwritten specifications prepared by the Department of Public Works and Bureau of Surveys even dictate the minimum size of certain blocks, 17'-0" wide by 2'-10" thick for bridge seats on the piers, and 9'-0" wide by 2'-0" thick for those on the abutments. The specifications also cover foundations for columns supporting the future upper deck approaches, with terra-cotta planters concealing the anchor bolts.³ These were either omitted or subsequently removed. A cornerstone in the top course of the south-east wing wall contains a time capsule with plans of the bridge, a guidebook to Fairmount Park, other miscellaneous documents, and coins.⁴

The lower deck carries two lanes of vehicular traffic on a 26'-0"-wide roadway, with 7'-0" sidewalks on either side, for a total width of 40'-0". Transverse floor beams are 5'-0-1/2" deep under the roadway, tapering to 2'-7-1/2" under the sidewalks.

² Bridge inspection cards, City of Philadelphia, Department of Streets, Highway Division, Bridge Maintenance Unit.

³ City of Philadelphia, Department of Public Works and Bureau of Surveys, construction drawings; *ibid.*, "Proposal for Falls Bridge," 31 Aug. 1894; both in Falls Bridge inspection file, Department of Streets, Bridge Section (hereinafter cited as Streets inspection file).

⁴ City of Philadelphia, Department of Public Works and Bureau of Surveys, Record of Bridges, 150, currently located in Department of Streets, Bridge Section; City of Philadelphia, First Annual Message of Charles F. Warwick, Mayor of the City of Philadelphia, with Annual Report of Thomas M. Thompson, Director of the Department of Public Works and of the Bureau of Surveys, for the Year Ending December 31, 1895 (Philadelphia: Dunlap Printing Co., 1896), 90.



Figure 4: Image showing the tapered transverse floor beams and one of the two masonry piers which supports the bridge. Source: Falls Bridge HAER PA, 51-PHILA, 701--18.

The floor beams, spaced 11'-3" on center longitudinally, are riveted to the main vertical members and to suspenders from the secondary panel points. A system of lateral cross-bracing is attached to the lower chord pins and riveted to the midpoints of the secondary floor beams. In the original configuration, there were no stringers. Steel Z-bars and plates were riveted below the top flanges of the floor beams, forming a series of trough sections resembling a modern orthotropic deck. The troughs were filled with a bituminous concrete base, which was then covered with an asphalt wearing surface. The sidewalks were of similar construction, except with the trough sections sitting above the top flanges of the floor beams. Cast-iron drain pipes pierced the steel curbs at intervals, draining the roadway into the river below. In 1986, the deck system was rehabilitated by installing new stringers and a reinforced concrete deck adjacent to the expansion joints. Four expansion rollers are found at the east side of each river pier and on the west abutment. Originally these were roller nest bearings forming part of Chicagoan George

S. Morison's patented expansion-joint system. The roller nests had rusted solid and were replaced with slide bearings in the 1986 rehabilitation.⁵

Webster designed the upper deck wider than the lower deck so that it could carry a double-track streetcar line down the middle of a 40'-0" roadway. Sidewalks, 10'-0" wide, would be cantilevered outside the trusses on either side. Webster's specifications directed that floor beams be installed on the upper chords, ready to receive the steel deck, curbs, and sidewalk brackets for the upper roadway. The floor beams occur at the same 11'-3" intervals as on the lower deck. Because of the heavier design load, the upper deck floor beams measure 6'-2-5/8" deep, notched to 3'-7-3/4" over the chords. Lateral bracing between the upper chords follows the same pattern as between the lower chords. In addition, each main panel point (22'-6" centers) has sway bracing in the form of a six-panel lattice truss 6'-3" deep, riveted to the main vertical members and to the underside of the upper deck floor beams. The end panels of the lattice truss have a solid web, pierced with a 26"-diameter hole to accommodate future pipes.⁶ Spandrel brackets, pierced with a decorative pattern, form knee braces beneath the sway bracing.

⁵ Bridge inspection cards; City of Philadelphia, Fourth Annual Message of Edwin S. Stuart, Mayor of the City of Philadelphia, with Annual Report of James H. Windrim, Director of the Department of Public Works and of the Bureau of Street Cleaning, for the Year Ending December 31', 1894 (Philadelphia: Dunlap Printing Co., 1895), 92.

⁶ Department of Public Works and Bureau of Surveys, "Proposal for Falls Bridge," 6d.



Figure 5: View from a sidewalk on the bridge which showcases the upper deck floor beams, sway bracing, and the spandrel brackets. Source: Photograph taken by Dorothy Fitzgerald, June 8, 2021.

The bridge's ornamental details include four bronze plaques (two pairs with the same wording). The present plaques are not original; inspection records refer to replacements installed in 1975. A plate with the construction date of 1895 is hung from the sway bracing in both portals.



Figure 6: Two signs featured on the sway bracing at the portals to the bridge, one reading "Falls Bridge," and the other "1895." Source: Photograph by Taryn Williams, November 14, 2020.

The bridge retains its original wrought-iron railing with cast-iron terminal posts on the approaches, although inspection records record numerous sections being damaged and replaced throughout the bridge's life.⁷ Fourteen lanterns once hung from the sway bracing; these were half gas and half electric, providing a measure of redundancy in keeping the bridge lighted. Webster also designed electric light standards, made of cast-iron bases with wrought-iron posts, to stand at each corner of the approaches. This detail has been scratched out in the drawings, and could not be seen in any of historic photographs viewed in researching this report.⁸ The metal work was originally decorated in a four-tone paint scheme (white, buff, brown, and red), following the late nineteenth-century tradition of demarcating structural functions by color.⁹ This scheme has been lost beneath subsequent re-painting; the Falls Bridge has been a light green tint throughout much of the twentieth century.

⁷ Bridge inspection cards.

⁸ Department of Public Works and Bureau of Surveys, "Proposal for Falls Bridge," 6d; *ibid.*, "Wrought Iron Railing for Falls Bridge over the Schuylkill River," July 1894, both in Streets inspection file.

⁹ Department of Public Works and Bureau of Surveys, *Record of Bridges*, 150.



Figure 7: Wrought-iron railing and cast-iron terminal posts which are featured on both approaches to the bridge. The “tree of life” design under the railing is repeated throughout the length of the bridge. Source: Photograph by Taryn Williams, November 14, 2020.

Statement of Significance

(d) Embodies distinguishing characteristics of an architectural style or engineering specimen

Falls Bridge is composed of a variant of the Pratt truss form known as the Baltimore (Petit) truss.¹ This particular Petit truss was developed in 1871 by engineers working for the Baltimore and Ohio and Pennsylvania Railroad and was more often used for railroad bridges than road bridges because of the greater stresses the railroad bridges required at the time.² After the Civil War, much of the innovation in bridge design was undertaken by railroad engineers who were able to take advantage of advances in iron and steel production.³ Thanks to “additional, auxiliary sub-struts or sub-ties linking the chords and the diagonal and vertical members,” the Petit truss is a stronger structure able to span distances almost two and a half times greater than the original Pratt truss form.⁴



Figure 8: Truss design with auxiliary sub-struts. Source: Photograph by Dorothy Fitzgerald, June 8, 2021.

¹ “Falls Bridge, Spanning Schuylkill River, connecting East & West River Drives, Philadelphia, Philadelphia County, PA,” Survey (photographs, measured drawings, written historical and descriptive data), Historic American Engineering Record, National Park Service, U.S. Department of the Interior, From Prints and Photographs Division, Library of Congress (HAER PA,51-PHILA, 701-), 2001, <https://www.loc.gov/pictures/item/pa0840/>.

² P.A.C Spero & Company and Louis Berger & Associates, “Historic Highway Bridges,” 72, 73.

³ Brinckerhoff and Engineering and Industrial Heritage, “Common Historic Bridge Types,” 2-13, 2-14.

⁴ “Trusses, a Study by the Historic American Engineering Record,” Historic American Engineering Record, National Parks Service, U.S. Department of the Interior, October 1976, <https://www.nps.gov/hdp/samples/HAER/truss.htm>.

Where the Pratt truss could span up to 250 feet, the Petit truss could span up to 600 feet. The three spans of the Falls Bridge are only 180 feet, making this bridge exceptionally muscular. There are a few reasons for this, one being that there had been six failed bridges at the same location in less than a century. The designer of the new bridge was George S. Webster, freshly appointed Chief Engineer of the Department of Public Works and Bureau of Surveys of the City of Philadelphia. Webster wanted to prove his abilities with this challenging yet promising project. It would have to withstand the battering storms, flood waters, and the high traffic loads of what he intended to be a double decker vehicular and pedestrian bridge. The upper deck was slated for use as a roadway and for an electric streetcar line, however, the upper deck was never completed.



Figure 9: Drawing of proposed Falls Bridge with upper deck and modified approaches, 1894.

Source: Falls Bridge HAER PA, 51-PHILA, 701--9.

At the time of construction, vehicular traffic was essentially horse-drawn carriages and carts. Modern gasoline automobiles were only just being prototyped in the early 1890's and were not manufactured until the end of the decade, and even then it was a niche market for

enthusiasts.⁵ As the upper deck was never completed, this meant that the truss configuration, calculated for two decks of roadways in 1895, was able to take the ever increasing loads which traffic through the 20th century and into the 21st century have demanded of the lower deck.

Falls Bridge is included in the PennDOT Historic Bridge Inventory and Evaluation as of 2017. In assessing the population of metal truss bridges since the first inventory was completed in 2001, it was found that there was considerable loss and that a new methodological approach must be taken for consideration of National Register eligibility. During the evaluation of Falls Bridge, it was found to answer several of the categories which contribute to National Register significance under Criterion C and which will be enumerated here. It was built before 1900, is of an uncommon type (Baltimore), is an early example of the type or design (regarding the Baltimore design, before 1915), is the earliest example of the type or design in district 6 (Baltimore design. District 6 includes Philadelphia, Montgomery, Delaware, and Bucks counties), is considered regionally rare, has exceptional bridge length, multiple spans, and is of high artistic value due to the decorative railing, highly ornamental and decorative portal, and portal bracing.⁶

While many railroad bridges in the Philadelphia area have survived from the 19th century, few road bridges have and Falls Bridge is the oldest surviving of two in the upper Schuylkill, the other being the Strawberry Mansion bridge built in 1897.⁷ The exceptional use of the Baltimore (Petit) truss for this application has ensured that this bridge would not only outperform its predecessors, but would meet and exceed the demands of modern transportation.

(h) Owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or City

Falls Bridge spans the Schuylkill River, connecting Kelly Drive in the village of East Falls and Martin Luther King Jr Drive (formerly West River Drive) in West Fairmount Park, and is the first metal truss bridge which was built across the Schuylkill, following several previous failed bridges at the same crossing site. While the waterfall which gave the name to the East Falls

⁵ "Charles E. Duryea and J. Frank Duryea | Biographies & Facts," Encyclopedia Britannica, accessed July 8, 2021, <https://www.britannica.com/biography/Charles-E-Duryea-and-J-Frank-Duryea>.

⁶ "Methodology for 2017 Metal Truss Bridge Reevaluation" (PennDOT), accessed July 8, 2021, <https://www.penndot.gov/ProjectAndPrograms/Cultural%20Resources/Documents/metal-truss-survey-update-methodology-12-21-17.pdf>.

⁷ Justin M. Spivey, "Falls Bridge: Structure and History," Lecture, East Falls Historical Society, East Falls, PA, December 9, 2020, <https://drive.google.com/file/d/155p67-jDJbiKbmQycu6GSPpsbCfoLTDC/view?t=3m58s>.

village is no more, at least while the Fairmount Dam is intact, the community of East Falls nevertheless is uniquely tied to the river and Falls Bridge. One reason for that is that Falls Bridge is the oldest crossing site above the Fairmount Dam as well as the oldest existing roadway bridge across the Schuylkill in Philadelphia.⁸ Within Philadelphia, much of the banks of the Schuylkill are now part of the Fairmount Parks system or are traced by the Schuylkill Expressway, blocking any but the drivers from a view of the river. The community of Manayunk which is just north of East Falls also borders the river, but is much more defined by the canal which runs parallel to the river and was so important to the industry of the area.

East Falls, however, has passed through several identities associated with the Schuylkill: as a picturesque fishing resort in the late seventeenth and eighteenth-centuries; then, in the nineteenth and early twentieth-centuries, as an industrial hub making use of tributaries; and finally, as an attractive residential community enhanced by proximity to the water – one of the few Philadelphia neighborhoods with easy access to a river. The bridge is central to the last of these. Furthermore, the Falls Bridge is a landmark and friend to countless walkers and cyclists from the entire area making the "loop" of riverside paths.⁹ The "tree of life" design from the Falls Bridge balustrade, for instance, has been adapted for the East Falls Historical Society's logo, and the East Falls Village program has adapted the truss design as their community's logo.



Figure 10: The East Falls Historical Society logo featuring the "tree of life" design from the balustrade. Source: East Falls Historical Society.

⁸ Spivey, "Falls Bridge: Structure and History."

⁹ Meg Frankowski, "Where, oh Where, Were the Falls of East Falls?" *WHYY*, September 6, 2012, <https://whyy.org/articles/where-oh-where-were-the-falls-of-east-falls/>.



Figure 11: The East Falls Village logo which incorporates the strut design from Falls Bridge. Source: East Falls Village website.

The part of the Schuylkill which this bridge occupies has been the site of many failed bridges. Starting in 1808, six bridges have been erected and summarily washed away, blown away, or collapsed in storms.¹⁰ Though this might well have deterred future development on such a difficult site, the need to connect the east and west banks had only grown in the time since the 1876 U. S. Centennial Exposition in Fairmount Park. Not only that, but Philadelphia's new Chief Engineer as of February 1st, 1893, George S. Webster, was eager to prove himself. Webster anticipated the need for growth of Philadelphia's transportation infrastructure as well as the great burdens that a bridge between East Falls and West Philadelphia would call for. As such, he designed a bridge which was so powerful, that "in addition to its own weight, it [was] devised to carry on each deck a load of 80 lbs per square foot and a concentrated moving load."¹¹ Since construction, the bridge has required new expansion bearings in 1986, but as was reported in 1995 by Lane Fike, the project manager for the Streets Department's Bridge Section, "the Falls Bridge is a workhorse. As far as we know, in almost a century of service, it's never been closed for an extended period of time."¹² The upper deck, intended for electric streetcar service and two lanes of vehicular traffic, was never constructed, though the floor beams for the upper deck were installed. The floor beams measure over six feet in height and extend more than three feet above the upper chord, contributing to the unique appearance of this bridge.

¹⁰ "Falls Bridge, Spanning Schuylkill River, connecting East & West River Drives, Philadelphia, Philadelphia County, PA," Survey (photographs, measured drawings, written historical and descriptive data), Historic American Engineering Record, National Park Service, U.S. Department of the Interior, 2001, From Prints and Photographs Division, Library of Congress (HAER PA,51-PHILA, 701-; <https://www.loc.gov/pictures/item/pa0840/>).

¹¹ The Inquirer Roadster, "Another Fairmount Park Ramble," *Philadelphia Inquirer*. May 21, 1899. 40.

¹² Frank Dougherty, "Celebrating Old Faithful Falls Bridge," *The Philadelphia Daily News*, February 17, 1995, sec. Neighborhoods, Newspapers.com.



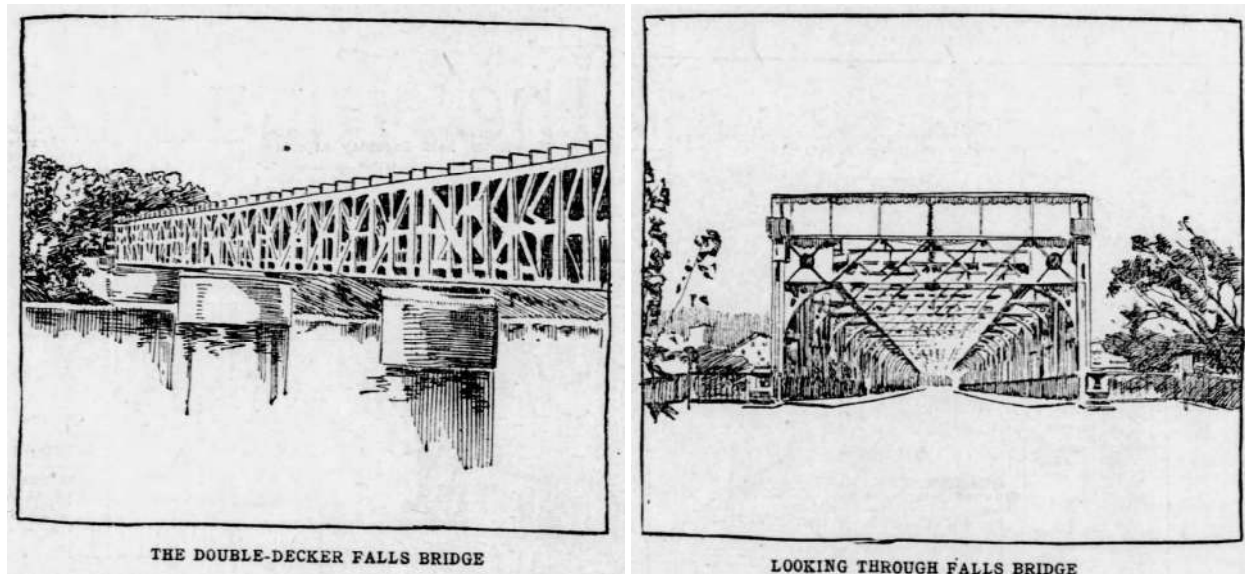
Figure 12: The floor beams for the upper deck, extending over three feet above the upper chord, seen on the left side of the image. Source: Photograph by Taryn Williams, November 14, 2020.

It is not only visually unique above the deck, but also below. The below deck assembly, which can be seen in Figure 12, is also intricately laced with a web of lateral bracing tied to tapered floor beams and presents a fascinating view to rowers of the Schuylkill River.



Figure 13: "Below Deck Assembly Detail, Looking South." Source: Falls Bridge HAER PA, 51-PHILA, 701--18.

The lower deck and the views therefrom have been enjoyed by bicyclists since the bridge's completion, and it was a featured path on the Philadelphia Inquirer's recurring segment, The Inquirer Roadster, as seen in figures 13 and 14, as early as 1899. The Inquirer Roadster was "a weekly supplement for road travelers, cyclists, horsemen and pedestrians" to the Philadelphia Inquirer, and the author detailed the many sites up down the Schuylkill River which one would encounter on a "ramble" through Fairmount Park, including "the noble Falls Bridge."¹³



Figures 14 and 15: Drawings of Falls Bridge featured in The Inquirer Roadster in 1899. Source: Philadelphia Inquirer May 21, 1899.

In 1995, at the centennial of the opening of Falls Bridge, a grand celebration was held on the East Falls side of the bridge, led by the Falls Bridge Centennial Committee.¹⁴ Every year hence, a similar party is held to celebrate the legacy of the bridge and its place in the East Falls community. Even when the bridge was given a new lighting scheme in 2008, Governor Rendell, U.S. Senator Arlen Specter, and Mayor Nutter, as well as 500 spectators came to view the lighting ceremony which was held on a January evening.¹⁵ In the welcome program for that evening's event was written:

The Falls Bridge is a landmark - an icon that harkens back to the heyday of industrial innovation and urban growth along the Schuylkill River. Built in 1895, it

¹³ The Inquirer Roadster, "Another Fairmount Park Ramble," *Philadelphia Inquirer*. May 21, 1899. 40.

¹⁴ Frank Dougherty, "Celebrating Old Faithful Falls Bridge," *The Philadelphia Daily News*, February 17, 1995, sec. Neighborhoods, Newspapers.com.

¹⁵ Anthony R. Wood, "A Shining Glory for Falls Bridge," *Philadelphia Inquirer*, January 13, 2008, East Falls Historical Society.

has stood nobly at the “Falls of Schuylkill” for over 100 years, an intricately articulated gateway to and from the city through beautiful Fairmount Park. The lighting of the Falls Bridge is a celebration of its elegant structure and a sign of renewal and rejuvenation along the Schuylkill River in Philadelphia and beyond. Thank you for joining East Falls on this special occasion, as we light the way to a new era of prosperity in Philadelphia.¹⁶

Falls Bridge is undoubtedly a local landmark, but its notoriety has gone beyond the bounds of Philadelphia. The bridge can be seen featured on a calendar made by the American Society of Civil Engineers published for the year 2000, alongside eleven other bridges including the Tower Bridge in London and the Gothic Arch in New York City.¹⁷

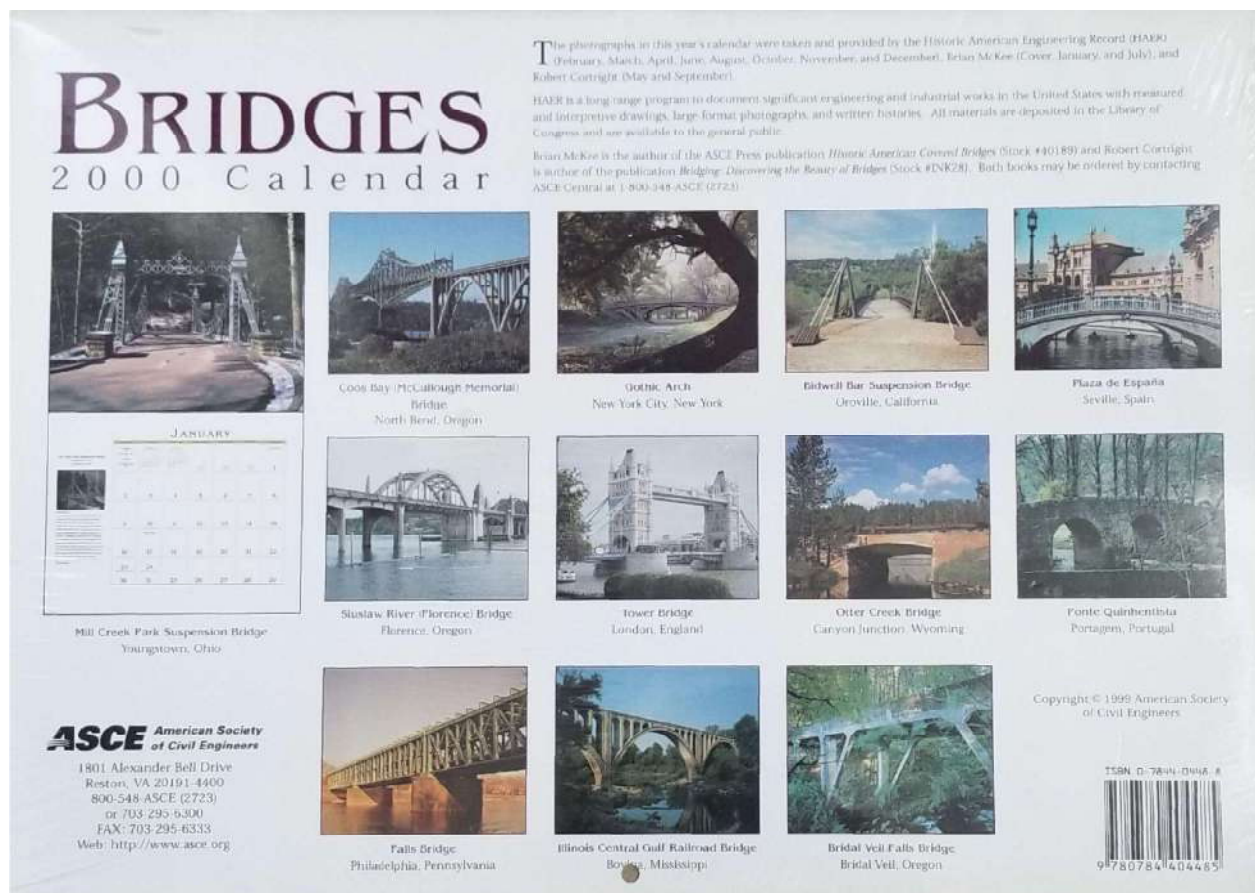


Figure 16: Back cover of the American Society of Civil Engineers calendar featuring Falls Bridge in the month of October. Source: East Falls Historical Society

¹⁶ “Lighting of the Falls Bridge” (East Falls Development Corporation, January 12, 2008), East Falls Historical Society.

¹⁷ American Society of Civil Engineers, *Bridges 2000 Calendar* (Reston, VA: American Society of Civil Engineers, 1999), <https://cedb.asce.org/CEDBsearch/record.jsp?dockey=0340448>.

This powerful and delicately ornamented bridge which handled traffic from horses, cars, bicyclists, and pedestrians for over 125 years has necessarily become part and parcel of the East Falls community. The views from the bridge are not blocked by high balusters, but offer a beautifully framed vista of the Schuylkill River through the fine iron “tree of life” railing. The powerful vertical members are themselves joined with a lattice of finer connections. Despite the tremendous effect that trains had on the landscape of Philadelphia and the country as a whole, it was a local bridge, meant to carry road traffic and electric streetcars, which has become the beloved effigy of East Falls.



Figure 17: The Schuylkill at sunset, framed by Falls Bridge. Source: Source: Photograph by Taryn Williams, November 14, 2020.

Bibliography

American Society of Civil Engineers. *Bridges 2000 Calendar*. Reston, VA: American Society of Civil Engineers, 1999. <https://cedb.asce.org/CEDBsearch/record.jsp?dockkey=0340448>.

Brinckerhoff, Parsons, and Engineering and Industrial Heritage. "A Context For Common Historic Bridge Types." American Association of State Highway and Transportation Officials, National Cooperative Highway Research Program, Transportation Research Board of the National Research Council, October 2005.
[http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25\(15\)_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25(15)_FR.pdf).

Bowie, John, ed. *Workshop of the World: A Selective Guide to the Industrial Archaeology of Philadelphia*. Wallingford, PA.: Oliver Evans Press, 1990.

Childs, Lois, ed. *East Falls: Three Hundred Years of History*. Philadelphia: Lithographic Publications, 1976.

City of Philadelphia. *Third Annual Message of Edwin S. Stuart, Mayor of the City of Philadelphia, with Annual Report of James H. Windrim, Director of the Department of Public Works and of the Bureau of Surveys, for the Year Ending December 31, 1893*. Philadelphia: Dunlap Printing Co., 1894.

City of Philadelphia. *Fourth Annual Message of Edwin S. Stuart, Mayor of the City of Philadelphia, with Annual Report of James H. Windrim, Director of the Department of Public Works and of the Bureau of Street Cleaning, for the Year Ending December 31, 1894*. Philadelphia: Dunlap Printing Co., 1895.

City of Philadelphia. *First Annual Message of Charles F. Warwick, Mayor of the City of Philadelphia, with Annual Report of Thomas M. Thompson, Director of the Department of Public Works and of the Bureau of Surveys, for the Year Ending December 31, 1895*. Philadelphia: Dunlap Printing Co., 1896.

City of Philadelphia, Department of Public Works and Bureau of Surveys. *Record of Bridges*.
Currently located in the Department of Streets, Bridge Section.

City of Philadelphia, Department of Streets, Bridge Section. Falls Bridge inspection file.

City of Philadelphia, Department of Streets, Highway Division, Bridge Maintenance Unit. Falls
Bridge maintenance records, inspection cards and reports, and construction
photographs.

Darnell, Victor C. *Directory of American Bridge-Building Companies, 1840-1900*. Occasional
Publication No. 4. Washington D.C.: Society for Industrial Archeology, 1984.

Dougherty, Frank. "Celebrating Old Faithful Falls Bridge." *The Philadelphia Daily News*,
February 17, 1995, sec. Neighborhoods. Newspapers.com.

East Falls Historical Society. "East Falls Historical Society." Accessed July 8, 2021.
<https://eastfallshistoricalsociety.org/>.

East Falls Village. "About Us - East Falls Village." Accessed July 8, 2021.
https://www.eastfallsvillage.org/content.aspx?page_id=22&club_id=534205&module_id=241594.

Encyclopedia Britannica. "Charles E. Duryea and J. Frank Duryea | Biographies & Facts."
Accessed July 8, 2021.
<https://www.britannica.com/biography/Charles-E-Duryea-and-J-Frank-Duryea>.

Evening Bulletin. Philadelphia, PA.

Fairmount Park Commission Archives, Philadelphia, PA. Falls Bridge file.

"Falls Bridge, Spanning Schuylkill River, connecting East & West River Drives, Philadelphia,
Philadelphia County, PA." Survey (photographs, measured drawings, written historical
and descriptive data). Historic American Engineering Record, National Park Service,

U.S. Department of the Interior. From Prints and Photographs Division, *Library of Congress* (HAER PA,51-PHILA, 701-). 2001. <https://www.loc.gov/pictures/item/pa0840/>.

Frankowski, Meg. "Where, oh Where, Were the Falls of East Falls?" *WHYY*. September 6, 2012. <https://whyy.org/articles/where-oh-where-were-the-falls-of-east-falls/>.

Hamersly, Lewis R., ed. *Who's Who in Pennsylvania*. 1st ed. New York :L. R. Hamersly, 1904.

Inquirer Roadster, The. "Another Fairmount Park Ramble." *Philadelphia Inquirer*. May 21, 1899.

"Lighting of the Falls Bridge." East Falls Development Corporation, January 12, 2008. East Falls Historical Society.

Mackaman, Thomas. "Coal." *Encyclopedia of Greater Philadelphia*. Accessed March 29, 2021. <https://philadelphiaencyclopedia.org/archive/coal/>.

"Methodology for 2017 Metal Truss Bridge Reevaluation." PennDOT. Accessed July 8, 2021. <https://www.penndot.gov/ProjectAndPrograms/Cultural%20Resources/Documents/metal-truss-survey-update-methodology-12-21-17.pdf>.

P.A.C Spero & Company, and Louis Berger & Associates. "Historic Highway Bridges in Maryland: 1631-1960, Historic Context Report." Maryland.gov, October 1995. <https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=196>.

Pennsylvania Department of Transportation, Engineering District 6-0, St. Davids, Pa. Bridge inspection file, BMS No. 67-7301-0040-0004.

Philadelphia Historical Commission, Philadelphia, PA. Falls Bridge file.

Spivey, Justin M. "Falls Bridge: Structure and History." Lecture. East Falls Historical Society. East Falls, PA. December 9, 2020. <https://drive.google.com/file/d/155p67-jDJbiKbmQycu6GSPpsbCfoLTDC/view?t=3m58s>.

"Trusses, a Study by the Historic American Engineering Record." Historic American Engineering Record, National Parks Service, U.S. Department of the Interior. October 1976.
<https://www.nps.gov/hdp/samples/HAER/truss.htm>.

Urban Archives, Paley Library, Temple University, Philadelphia, PA. Falls Bridge file.

Webster, Richard J. *Philadelphia Preserved: Catalog of the Historic American Buildings Survey*. Philadelphia: Temple Univ. Press, 1976.

Wood, Anthony R. "A Shining Glory for Falls Bridge." Philadelphia Inquirer, January 13, 2008.
East Falls Historical Society.

Appendix



Image 1: Map of Philadelphia showing waterways and location of Falls Bridge. Created using ArcGIS and data from the City of Philadelphia.



Image 2: Topographic map showing location of Falls Bridge over the Schuylkill River. Created using ArcGIS.

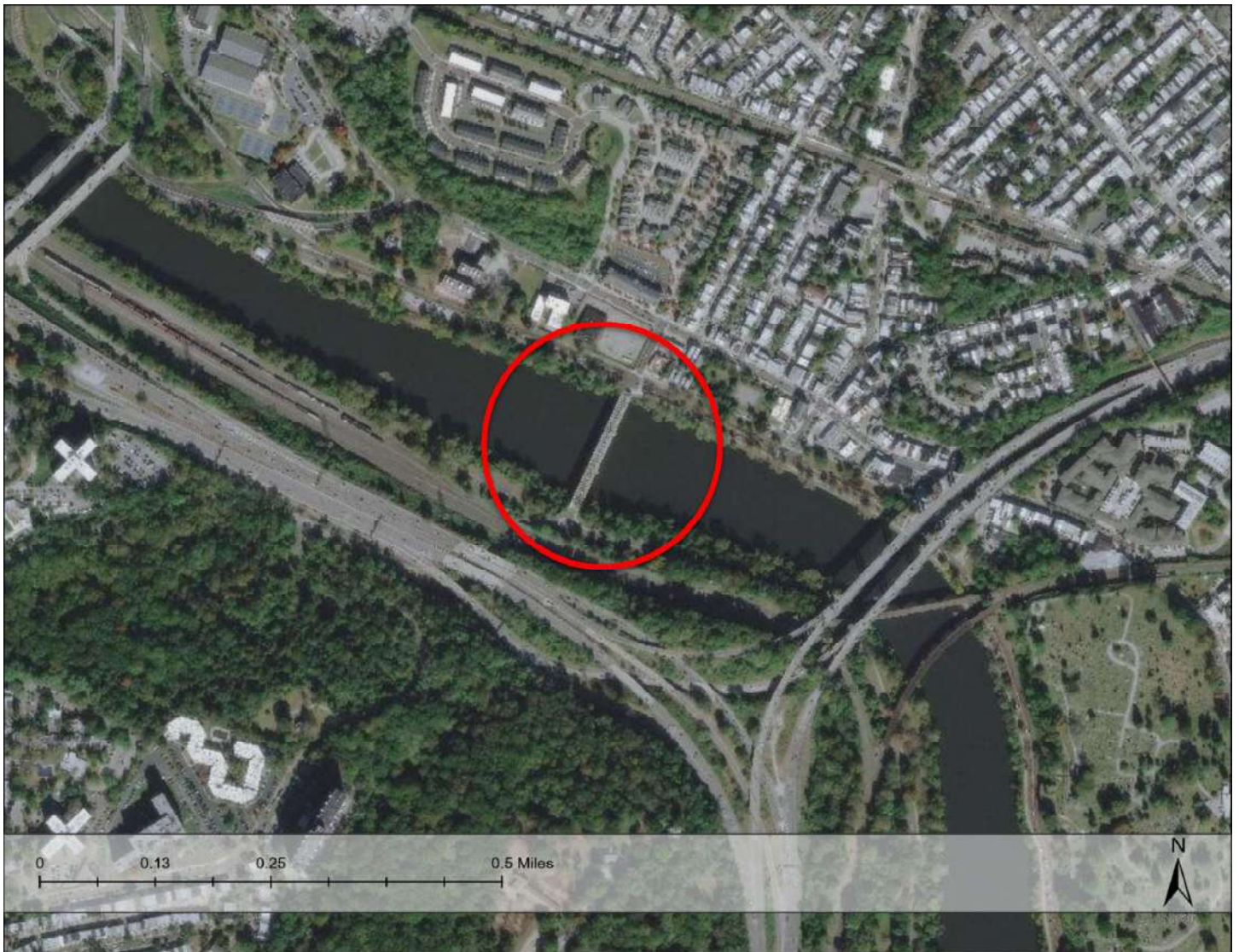


Image 3: Map with imagery showing location of Falls Bridge over the Schuylkill River. Created using ArcGIS.

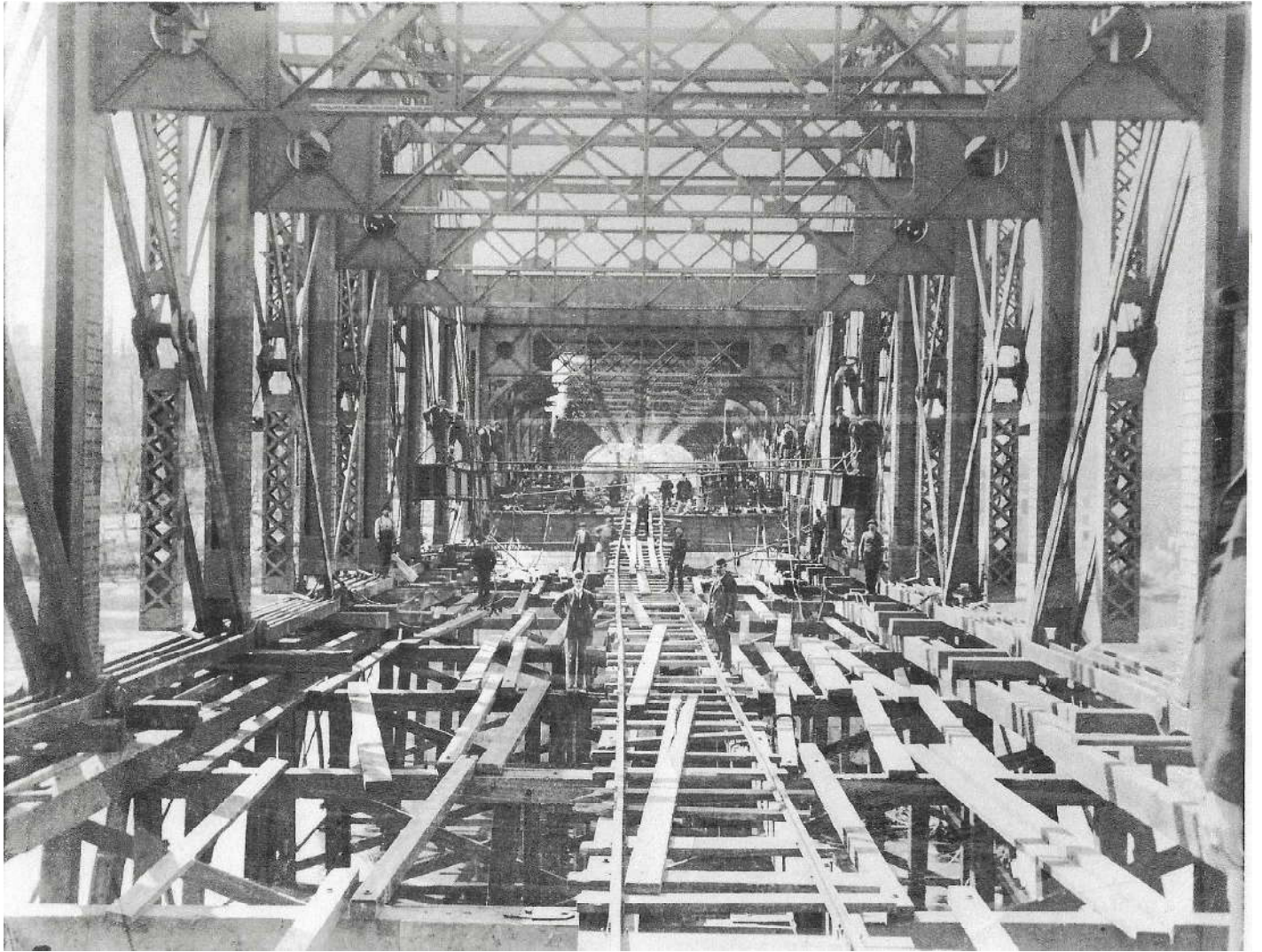


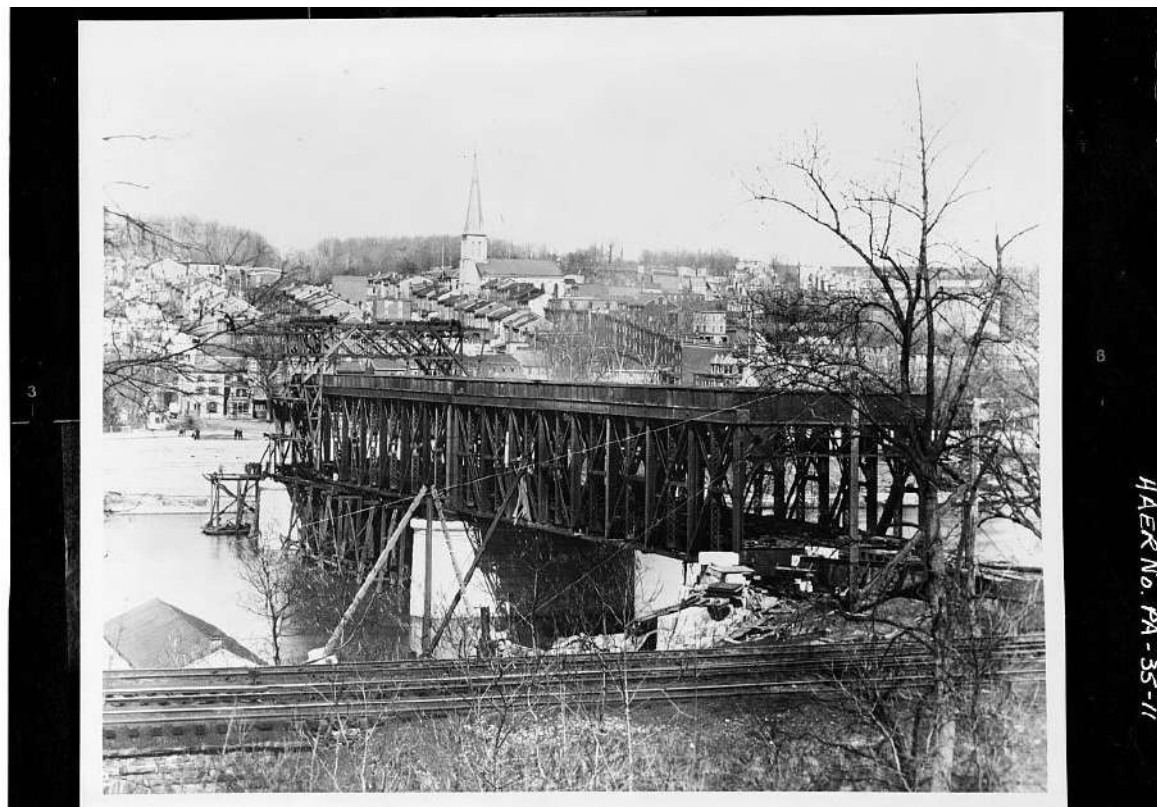
Image 4: Falls Bridge Under Construction. Source: East Falls Historical Society.



8

HAER PA-35-10

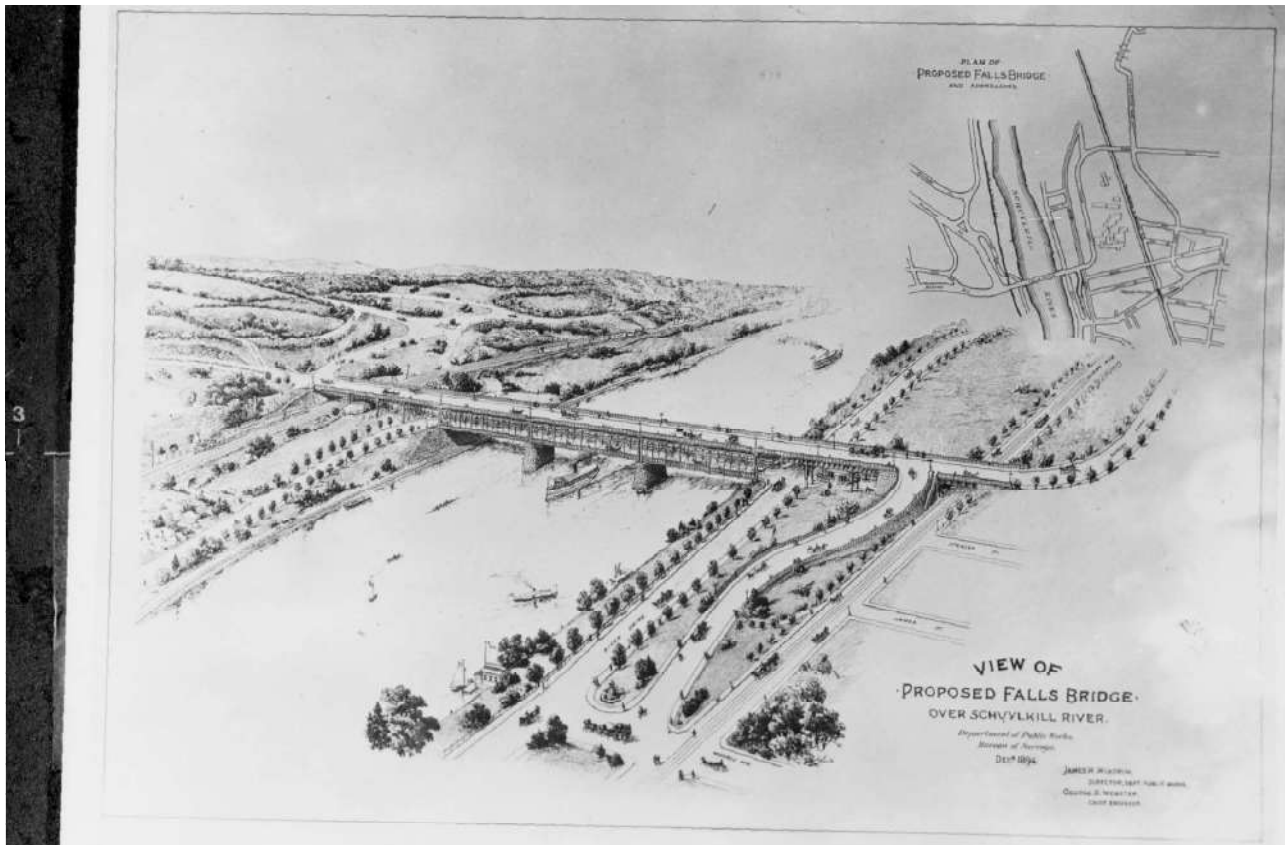
Image 5: "Construction of Falls Bridge, East across the Schuylkill, Photocopy of historic photograph (photographer unknown, January 11, 1895)." Source: Falls Bridge HAER PA, 51-PHILA, 701--10, Prints and Photographs Division, Library of Congress.



8

HAER No. PA-35-11

Image 6: "Construction of Falls Bridge, East across the Schuylkill, Photocopy of historic photograph (photographer unknown, 1896)." Source: Falls Bridge HAER PA, 51-PHILA, 701--11, Prints and Photographs Division, Library of Congress.

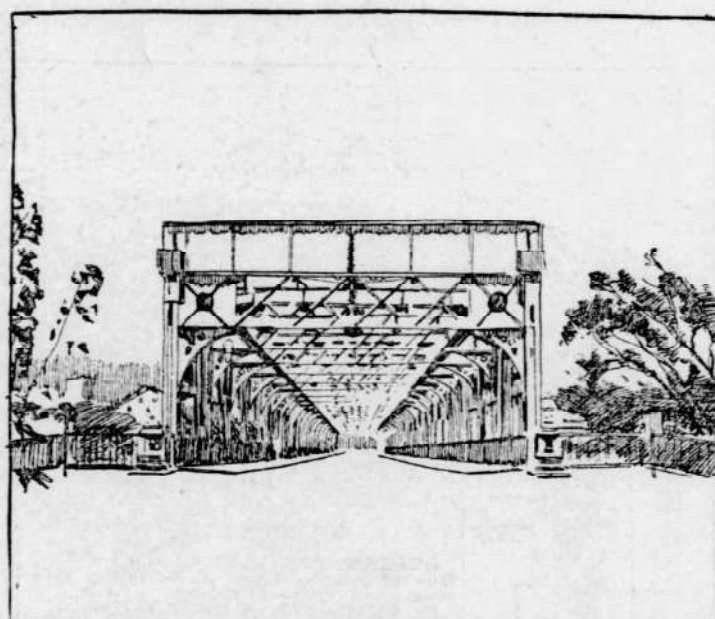


HAER No. PA-35-9

Image 7: Drawing of proposed Falls Bridge with upper deck and modified approaches, 1894.
Source: Falls Bridge HAER PA, 51-PHILA, 701--9, Prints and Photographs Division, Library of Congress.



THE DOUBLE-DECKER FALLS BRIDGE



LOOKING THROUGH FALLS BRIDGE

Images 8 and 9: Drawings from the Philadelphia Inquirer from May 21, 1899.



Image 10: "General View." Source: Falls Bridge HAER PA, 51-PHILA, 701--1, Prints and Photographs Division, Library of Congress.



Image 11: "Truss Detail." Source: Falls Bridge HAER PA, 51-PHILA, 701--3, Prints and Photographs Division, Library of Congress.



Image 12: "Below Deck Assembly Detail, Looking South." Source: Falls Bridge HAER PA, 51-PHILA, 701--18, Prints and Photographs Division, Library of Congress.

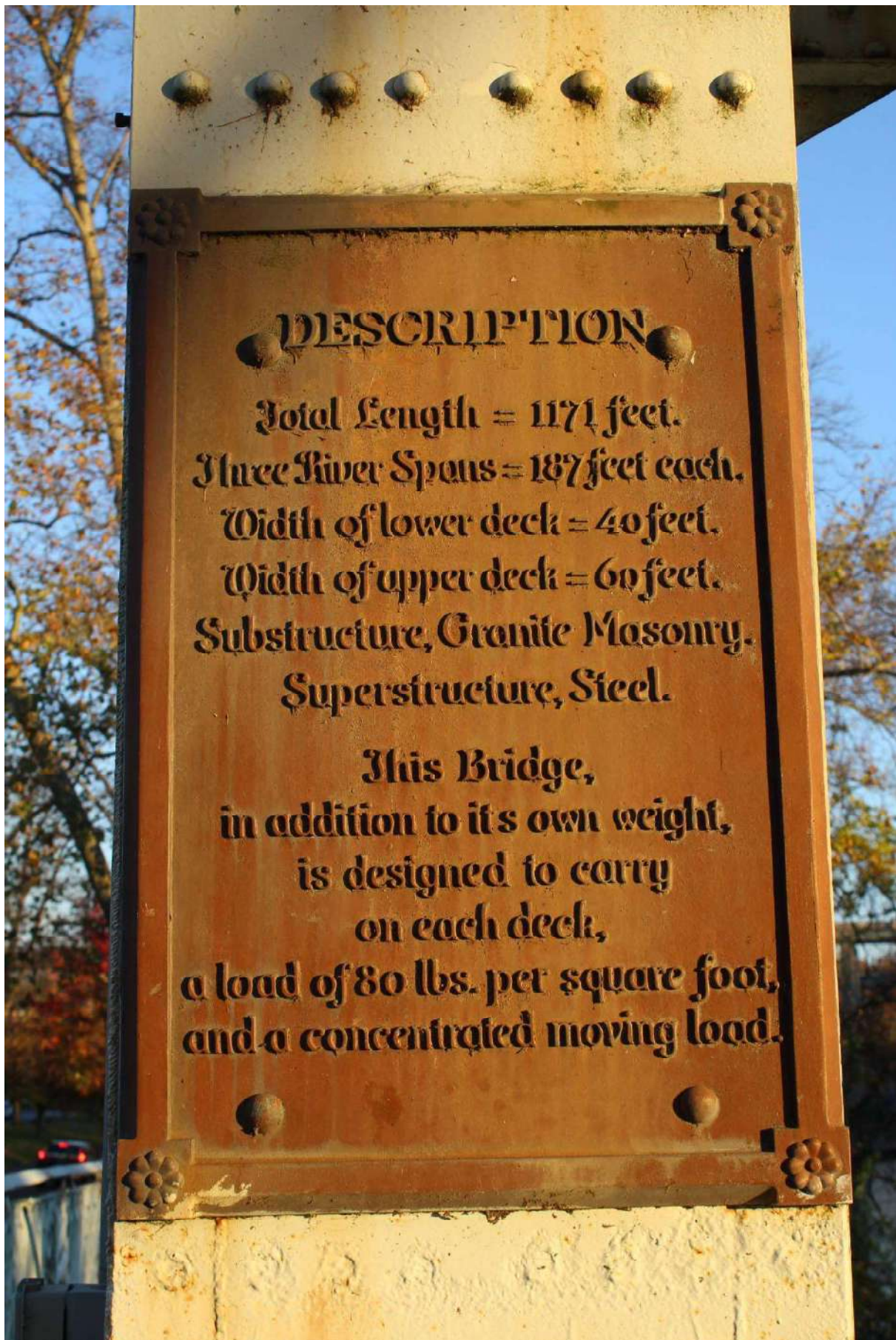


Image 13: Description plaque attached to vertical members near both bridge portals. Source: Photograph by Taryn Williams, November 14, 2020.



Image 14: Logo of the East Falls Village which is a volunteer-driven membership organization of the East Falls Community Council. The logo features the truss system from Falls Bridge.

Source: East Falls Village website.



Image 15: Logo of the East Falls Historical Society. Featured in their logo is the “tree of life” design which is repeated through the balustrade of Falls Bridge. Source: East Falls Historical Society.



Image 16: Banner from the centennial celebration in 1995. Source: East Falls Historical Society

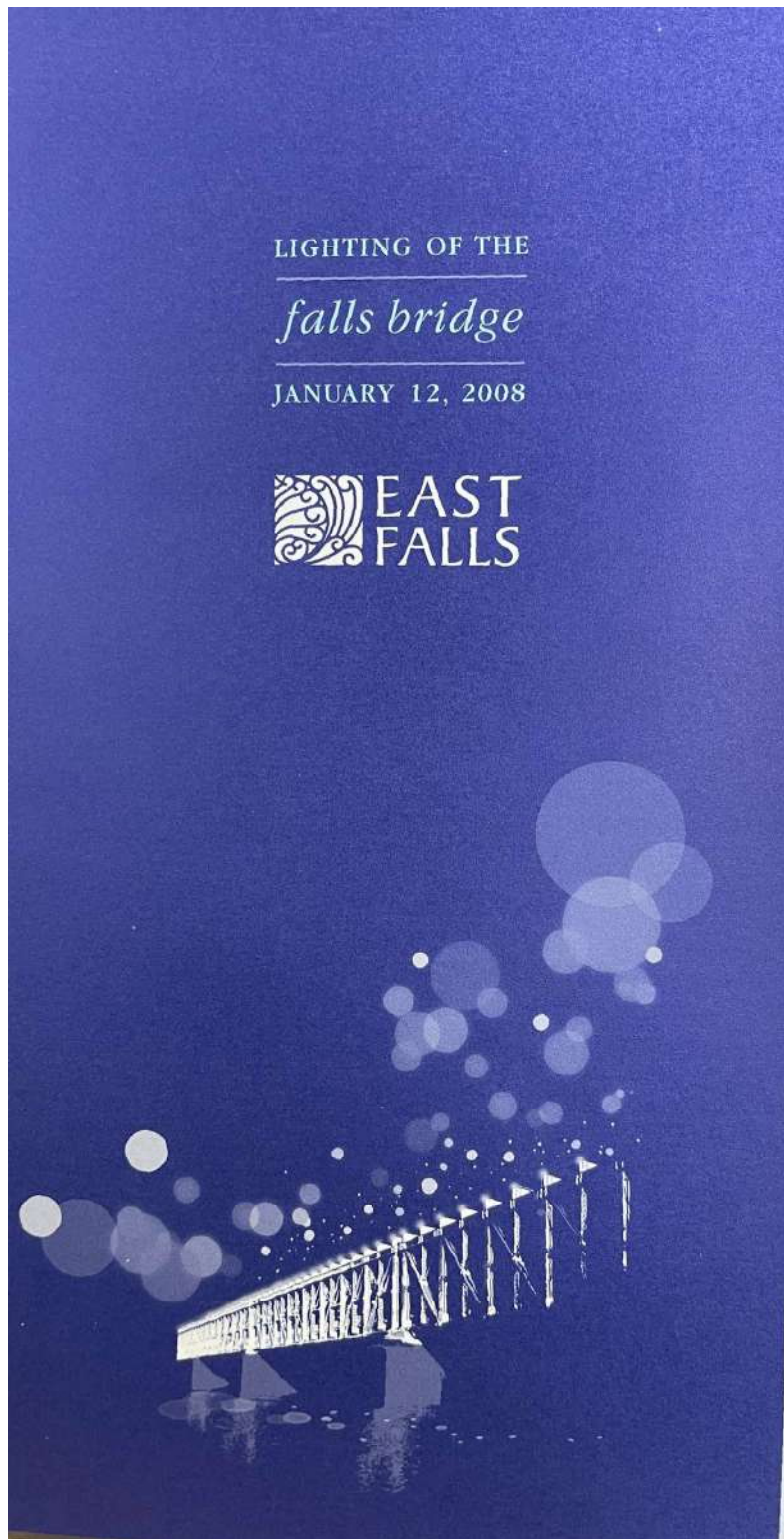


Image 17: Program for the lighting of Falls Bridge in 2008. Source: East Falls Historical Society

BRIDGES

2000 Calendar

The photographs in this year's calendar were taken and provided by the Historic American Engineering Record (HAER) (February, March, April, June, August, October, November, and December), Brian McKee (Cover, January, and July), and Robert Cortright (May and September).

HAER is a long range program to document significant engineering and industrial works in the United States with measured and interpretive drawings, large format photographs, and written histories. All materials are deposited in the Library of Congress and are available to the general public.

Brian McKee is the author of the ASCE Press publication *Historic American Covered Bridges* (Stock #40189) and Robert Cortright is author of the publication *Bridging: Discovering the Beauty of Bridges* (Stock #1NR28). Both books may be ordered by contacting ASCE Central at 1-800-548-ASCE (2723).



Mill Creek Park Suspension Bridge
Youngstown, Ohio



Coox Bay (McCullough Memorial)
Bridge
North Bend, Oregon



Guthrie Arch
New York City, New York



Bidwell Bar Suspension Bridge
Oroville, California



Plaza de España
Seville, Spain



Stuslaw River (Florence) Bridge
Florence, Oregon



Tower Bridge
London, England



Otter Creek Bridge
Canyon Junction, Wyoming



Ponte Quinhentista
Portagem, Portugal



Falls Bridge
Philadelphia, Pennsylvania



Illinois Central Gulf Railroad Bridge
Bohula, Mississippi



Bridal Veil Falls Bridge
Bridal Veil, Oregon

ASCE American Society
of Civil Engineers

1801 Alexander Bell Drive
Reston, VA 20191-4400
800-548-ASCE (2723)
or 703-295-6300
FAX: 703-295-6333
Web: <http://www.asce.org>

Copyright © 1999 American Society
of Civil Engineers

ISBN 0-7844-0446-8



Image 18: Year 2000 calendar from the American Society of Civil Engineers which features Fall Bridge in the month of October. Source: East Falls Historical Society and the American Society of Civil Engineers (ASCE).