

WASHINGTON CROSSING BRIDGE
(Fortieth Street Bridge)
(Allegheny River Bridge No. 7)
Pennsylvania Historic Bridges Recording Project
Spanning Allegheny River at Fortieth St. (State Rt. 2124)
Pittsburgh
Allegheny County
Pennsylvania

HAER No. PA-447

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Location: Spanning Allegheny River at Fortieth St. (State Rt. 2124),
Pittsburgh, Allegheny County, Pennsylvania.

USGS Quadrangle: Pittsburgh East, Pennsylvania (7.5-minute series).

UTM Coordinates: 17/587320/4480820

Dates of Construction: 1923-24.

Designer: Allegheny County: Benno Janssen, architect; Charles S. Davis,
engineer.

Fabricator: Carnegie Steel Co. (Pittsburgh).

Builder: McClintic-Marshall Company, superstructure; H. P. Converse Co.
(Boston), substructure; All-Steel Equipment Company, ornamental
work.

Present Owner: Pennsylvania Department of Transportation.

Present Use: Vehicular bridge.

Significance: The Washington Crossing Bridge is an outstanding example of a
long-span metal deck arch bridge. Its unique architectural details,
forged in a successful collaboration between architects and
engineers in the design and construction of the bridge, add to its
significance. The bridge is also significant because its construction
was the culmination of a conflict over Allegheny River bridge
heights between the U.S. War Department and local governments.
The Washington Crossing Bridge was listed in the National
Register of Historic Places in 1988.

Historian: Dr. David S. Rotenstein, August 1997.

Project Information: This bridge was documented by the Historic American
Engineering Record (HAER) as part of the Pennsylvania Historic

Bridges Recording Project - I, co-sponsored by the Pennsylvania Department of Transportation (PennDOT) and the Pennsylvania Historical and Museum Commission during the summer of 1997. The project was supervised by Eric DeLony, Chief of HAER.

See HABS No. PA-1179 for measured drawings of the Washington Crossing Bridge.

CHRONOLOGY

- 3 March 1899 Congress passes river and harbor act (55th Cong., 3d sess., chap. 425) authorizing the Secretary War to notify owners of navigation obstacles to modify or remove them.
- 25 February 1907 U.S. Supreme Court upholds the constitutionality of 1899 act in *Union Bridge Company v. United States*.
- 14 February 1912 U.S. Army Chief of Engineers issues Allegheny River report to Congress noting obstructive bridges.
- 25 July 1912 Congress passes appropriation bill (62d Cong., 2d sess., chap. 253) with \$300,000 slated for Allegheny River and Pittsburgh harbor improvements.
- 4 March 1913 Congress revokes \$300,000 appropriation to Pittsburgh until recommendations in 1912 Allegheny River report have been adequately addressed.
- 23 March 1917 Secretary of War orders Allegheny River bridges raised.
- 27 February 1919 Congress authorizes Allegheny County to build the Fortieth Street Bridge.
- 28 May 1919 Benno Janssen selected as architect for bridge.
- 30 January 1920 Allegheny County Commissioners give Janssen notice to proceed with the working plans.
- 8 October 1920 Allegheny County Commissioners approve Janssen's plans for bridge.
- 25 July 1922 Fortieth Street Bridge dubbed "Washington Crossing" by county commissioners.

- 20 December 1922 Contracts (for all sections but ornamental work) awarded for construction.
- February 1923 Notice to proceed issued to contractors.
- 29 December 1924 Washington Crossing Bridge officially opens.
- 18 September 1961 By an act of the Pennsylvania legislature, bridge is acquired by the Pennsylvania Department of Highways (now PennDOT).
- 22 June 1988 Bridge listed in National Register of Historic Places.

DESCRIPTION

The Washington Crossing Bridge spans the Allegheny River and railroad rights-of-way for a total length of 2,630'-0", rising 94'-0" above pool full (710'-0" above mean sea level). There are three travel lanes currently on the bridge, although the bridge was designed with a 38'-0" roadway to accommodate streetcars and automobiles. There are two 8'-0" walkways, one on the upstream side and one on the downstream side. The bridge consists of three open-spandrel steel arch spans over the river and twelve deck girder approach spans. The spans are numbered sequentially from east to west. The central river span (Span No. 11) is 353'-6" long with a 42'-0" rise and is flanked by two spans measuring 322'-10-1/2" with a 37'-4" rise. Each of the three three-hinged arch river spans is supported by concrete piers with a bush-hammered surface; the piers are emphasized by pylons extending above the bridge deck. Each pylon is marked by bronze letters that indicate the year construction on the bridge began, 1923, and its name, "Washington Crossing."

The central Span No. 11 is supported by four arch ribs comprised of twenty-one panels, each 16'-10" long. The two smaller river spans (Nos. 10 and 12) each consist of twenty-one panels, each 15'-4 1/2" in length. The arch ribs are riveted plate girders, while the vertical members are built-up members consisting of angles, plates, and Z-shaped sections. The ribs are joined to each other at the panel points by knee-braced, horizontal, 2'-0"-deep riveted plate girders. Additional bracing in the vertical plane at the panel points, consisting of built-up 1- and T-shaped sections, varies with the depth between rib and deck. Diagonal bracing joins the outermost pairs of ribs along the arching surface. Steel used in construction of the bridge had a copper content that ranged from 0.18 to 0.28 percent "to increase its resistance to corrosion."¹

¹ Vernon R. Covell, "The Bridge-Raising Program on the Allegheny River in Allegheny County," *Proceedings of the Engineers' Society of Western Pennsylvania* 41 (1926): 92.

The steel, according to one source, was fabricated by the Carnegie Steel Company (of U.S. Steel?) in its Pittsburgh plant.²

The Washington Crossing Bridge has ten approach piers (Nos. 1 through 8, 13, and 14), consisting of four concrete pillars tied by arches. Some are oblique to the bridge's centerline to accommodate railroad tracks. The deck girder approach spans rest on roller bearings. Two piers (Nos. 9 and 12) are hollow and have stairways leading to the bases of the river arch spans. All of the reinforcing steel used in the concrete work was fabricated by the Jones and Laughlin Steel Company of Pittsburgh.³

Although surfaced with modern asphalt, the Washington Crossing Bridge was initially paved with "creosoted yellow pine blocks laid on a concrete base."⁴ The paving blocks, according to a 1924 pamphlet, were manufactured by the Southern Wood Preserving Company of Atlanta, Georgia.

The structure's more notable aesthetic enhancements are the neoclassical pylons and granite obelisks at each approach. The Lawrenceville (Pittsburgh) approach is particularly notable for the plaza at the foot of the bridge. Bronze plaques commemorating George Washington's 1753 Allegheny River crossing and noting the bridge contractors and county officials are located at each approach. The most outstanding architectural feature, however, are 288 shields with the coats of arms of the original thirteen U.S. colonies and the Allegheny County seal attached to balusters in the railings on both sides of the bridge. Also, at the crown of each river span arch, both upstream and downstream, are ornate bronze cartouches.

HISTORICAL INFORMATION

The Washington Crossing Bridge spans the Allegheny River between Pittsburgh's Lawrenceville neighborhood and the borough of Millvale. The Ohio River and its tributaries, the Allegheny and the Monongahela, have been both bane and benefit to the development and maintenance of Pittsburgh's thriving economy in the nineteenth and early twentieth centuries. Although the rivers were beneficial because their courses provided local industries with a national highway for transporting raw materials and finished products, they were not navigable year-round and subject to unpredictable flooding. Topographically, Pittsburgh's rivers were an obstacle restricting traffic between the city's historic core and outlying boroughs such as Allegheny City. Bridging the urban boundaries was an early-nineteenth-century undertaking deemed important by Pittsburgh residents.⁵

² *Washington Crossing Memorial Bridge Built By Allegheny County, Pennsylvania, 1919-1924*, pamphlet, 1924 (Pittsburgh Bridges: Washington Crossing vertical file, Carnegie Library of Pittsburgh, Pittsburgh, Pa.), 16.

³ *Washington Crossing Memorial Bridge*, 16.

⁴ *Washington Crossing Memorial Bridge*, 17.

⁵ Joel A. Tarr, "Infrastructure and City Building in the Nineteenth and Twentieth Centuries," in *City at the Point: Essays on the Social History of Pittsburgh*, ed. Samuel Hays (Pittsburgh: Univ. of Pittsburgh Press, 1989).

Each of Pittsburgh's three rivers is a navigable waterway. Because of their commercial significance, navigable waters such as the Allegheny River are tied to a complex corpus of bench law and legislation. According to one legal encyclopedia, the term "navigable" "is elastic and somewhat indefinite in its meaning and the term 'navigable waters' may have several distinct meanings and may be applied to certain waters for some purposes and not for others."⁶ The entry further adds,

Navigability in the federal sense means capability or susceptibility of waters, in their natural conditions, of being used for navigation in interstate or international commerce, and navigability in any other sense may mean a variety of definitions given by either of the several states of the union.⁷

The Allegheny River, because it flows between two states (New York and Pennsylvania), is considered a navigable waterway under the federal definition.⁸ "The Allegheny River rises in northern Pennsylvania and flows northwestwardly into New York and thence in a southerly direction into Pennsylvania to its point of junction with the Monongahela River at Pittsburgh," wrote the U.S. Army Corps of Engineers in 1912.⁹ Federal improvement of the Allegheny River began in 1879 by an attempt to provide Pittsburgh with an open harbor through the "removal of bowlders [sic.] and snags and the construction of low dams or dykes to close secondary channels."¹⁰ Work also began on a series of locks and dams along the Allegheny River to provide slackwater navigation into the Pittsburgh harbor. By June 1911, the U.S. Army Corps of Engineers had spent more than \$2.25 million "in the interests of navigation" on the Allegheny.¹¹

The first successful attempt to bridge the Allegheny occurred in 1819 with the construction of the wooden covered Allegheny Bridge by Lewis Wemwag.¹² By 1860, there

⁶ *Corpus Juris Secundum*, 1.

⁷ *Corpus Juris Secundum*.

⁸ If a river is navigable under the federal definition, its regulation and improvement fall under the jurisdiction of federal agencies such as the Interstate Commerce Commission and the U.S. Army Corps of Engineers. The distinction between navigable waters under the federal definition and all others is aptly defined in an 1870 U.S. Superior Court decision: "If a river is not itself a highway for commerce with other States or foreign countries, or does not form such a highway by its connection with other waters, and is only navigable between different places within the State, then it is not a navigable water of the United States, but only a navigable water of the State." See "The Montello," *U.S. Reporter* (Washington, D.C., 1870).

⁹ U.S. War Department, *Report on Examination of Allegheny River, Pa., with Plan and Estimate on Cost of Improvement, With a View to the Construction of Additional Locks and Dams*, 62nd Cong., 2d sess., 1912, H. Doc. 540, p. 3.

¹⁰ U.S. War Department, *Report on Examination*, 4.

¹¹ U.S. War Department, *Report on Examination*, 4.

¹² Tarr, "Infrastructure and City Building," 218.

were five bridges across the Allegheny River. Forty years later, at the turn of the twentieth century, there were seven bridges spanning the Allegheny River between Pittsburgh and neighboring communities.¹³

Although Pittsburgh's industrial history has been generally centered around the city's heavy industries such as iron, steel, and glass, the city and its immediate vicinity actually have a diverse industrial past. While the metal and glass industries generally dominated the economic landscape of the city of Pittsburgh proper, lighter craft-based industries were the focus of many communities (such as Allegheny City, Reserve Township, and Millvale borough) located across the Allegheny River.¹⁴

Since 1814, the United States Arsenal has dominated much of the landscape that once was the borough of Lawrenceville at the Pittsburgh approach to the Washington Crossing Bridge (annexed by Pittsburgh in 1867). Like many parts of Pittsburgh, Lawrenceville retains its earlier (pre-annexation) name as a neighborhood in the larger city. Throughout much of the nineteenth century, Lawrenceville developed a mixed economy with steel mills, including Andrew Carnegie's bridge works, and smaller traditional industries such as breweries, a glue factory, and a tannery. Because of its location at the foot of a steep hill, all of Lawrenceville's industrial development remained confined to a narrow strip of land adjacent to the Allegheny River.

The Washington Crossing Bridge enters the borough of Millvale at its East Ohio Street terminus (now State Route 28, formerly known as the Butler Turnpike). The strip of land between Allegheny City (annexed by Pittsburgh in 1907) and Millvale (incorporated in 1868) has been known by several names. Between 1848 and 1868 it was the independent borough of Duquesne. After its annexation by Allegheny City, it became that city's Eighth Ward.

From the early 1840s through the second half of the twentieth century, the landscape once embraced by the former Duquesne Borough was defined by processing industries such as tanneries, slaughterhouses, breweries and, after 1885, a large stockyard on Herr's Island in the Allegheny River.¹⁵ Before the turn of the twentieth century, many of the workers in and the owners of these industries were German and Irish immigrants. After 1900, eastern European (mostly Croatian) workers settled along East Ohio Street and worked in the tanneries, slaughterhouses, and stockyards.

The industries that once defined the Allegheny River's northwestern shore began to disappear after 1920. Increasing transportation costs for raw materials and declining markets for harness leather decimated the local leather industry. The last tannery active in Pittsburgh tanned out its last stock around 1952. The meat and byproducts industry, however, remained viable for another decade. In 1964, the Pennsylvania Railroad began to close down the Pittsburgh Joint

¹³ U.S. War Department, *Report on Examination*; Tarr, "Infrastructure and City Building," 219.

¹⁴ James C. Holmberg, "The Industrializing Community: Pittsburgh, 1850-1880" (Ph.D. diss., Univ. of Pittsburgh, 1981).

¹⁵ David S. Rotenstein, "Leather Bound: Nineteenth Century Leather Tanners in Allegheny City," *Pittsburgh History* 80, No. 1 (1997): 32-47.

Stockyards on Herr's Island and shortly thereafter the meat packing and rendering plants followed suit. The last slaughterhouse on East Ohio Street — the Fried and Reineman Packing Company, which is visible from the Washington Crossing Bridge, looking toward Millvale — closed in 1961. Today, most of the former slaughterhouse workers' homes along East Ohio Street have been demolished or are vacant and in an advanced state of disrepair. East Ohio Street now is a congested commuter thoroughfare linking downtown Pittsburgh with outlying suburbs.

Bridge

The Washington Crossing Bridge was built to replace the Forty-Third Street Bridge, a wooden Burr truss covered bridge built in 1870.¹⁶ Construction of the Washington Crossing Bridge represented the culmination of a protracted battle between Pittsburgh bridge owners and industrialists who relied on the regional rivers for transportation of coal and other raw materials as well as finished products. Local "agitation" concerning the heights and span lengths of Allegheny River bridges may be traced to the years just prior to the turn of the twentieth century.

On 14 July 1897, Major Charles F. Powell, District Engineer of the U.S. Army Corps of Engineers, sent a letter to Pittsburgh area industries that read:

will you please give me any information you may have of any bridges, causeways or structures now erected, or in the process of erection, that do or will interfere with free and safe navigation on Monongahela, or Allegheny River....

The information is needed for use in complying with the law requiring reports on bridges, etc., interfering with navigation.¹⁷

Replies to Powell's letter poured in from Pittsburgh's industrial giants, including H. C. Frick and Company and the Pittsburgh Plate Glass Company.¹⁸ Also represented in the response were river boat pilots and builders and organizations such as the Pittsburgh Coal Exchange.

On 3 March 1899, the U.S. Congress passed *An Act Making appropriations for ... certain public works*.¹⁹ Under Section 18 of this act, the Secretary of War was authorized to notify the owners of bridges and other structures deemed by the Chief of Engineers to be an "unreasonable obstruction to the free navigation" of navigable waterways in the United States.²⁰

¹⁶ "Two New County Bridges Opening Today," *Pittsburgh Post* (29 Dec. 1924).

¹⁷ Charles F. Powell, to Marmet Co., 14 July 1897, Records of the U.S. Army Corps of Engineers, Pittsburgh District, RG 77, National Archives and Records Administration, Mid-Atlantic Region, Philadelphia, Pa.

¹⁸ Powell, to Marmet Co.

¹⁹ *An Act Making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes*, 55th Cong., 3d sess., chap. 425.

²⁰ *Act making appropriations for ... certain public works*, 55th Cong., 3d sess., chap. 425.

Shortly after the 1899 act was passed, the War Department in 1902 notified the Union Bridge Company, owners and operators of a wooden covered bridge spanning the Allegheny River between Pittsburgh and Allegheny City just north of its confluence with the Monongahela, that their structure constituted an obstruction to navigation:

Whereas the Secretary of War has good reason to believe that the bridge connecting the cities of Pittsburgh and Allegheny, at or near the mouth of the Allegheny River, known as the Union Bridge, is an unreasonable obstruction to the free navigation of the Allegheny River at the Pittsburgh harbor, on account of insufficient height and width of span, and of wide and high riprapping at the piers...²¹

The Union Bridge Company was a private corporation chartered in 1873 under the laws of the Commonwealth of Pennsylvania. Their Allegheny River bridge was built shortly after their corporate charter was approved, and was opened in July 1875.²² The company argued that compliance with the order to raise the bridge would "result in the entire suspension of the operation of this company."²³ Compliance with the War Department's order, in short, would result in a tremendous financial hardship for the Union Bridge Company, which collected tolls on traffic crossing from Pittsburgh's central business district into Allegheny City's First Ward. Attorneys for the company argued in the Western District Court of Pennsylvania that the 1899 act was "unconstitutional because it makes no provision for compensation, and therefore violates the fifth amendment to the Constitution, which enacts, 'Nor shall private property be taken for public use without just compensation.'"²⁴

District Judge Joseph Buffington ruled in favor of the government and the Union Bridge Company appealed its case to the U.S. Supreme Court. The case was argued before the Supreme Court 5 and 6 December 1906, and the lower court's ruling was upheld in favor of the U.S. government. Justice John M. Harlan, writing for the majority (six justices; two dissented and one did not participate in deciding the case) delivered the court's opinion on 25 February 1907.²⁵ The day after the court announced its decision, the *Pittsburgh Post* reported that it was "considered to be the most important to Pittsburgh of any ever rendered" by the Supreme Court. Pittsburgh and Allegheny County officials recognized the impending potential difficulties raised by the decision and the affirmation of the constitutionality of the river and harbor act of 1899.

²¹ *United States v. Union Bridge Company, Federal Reporter* 143 (1906): 381-2.

²² *United States v. Union Bridge Company*, 379.

²³ *United States v. Union Bridge Company*, 382.

²⁴ *United States v. Union Bridge Company*, 388.

²⁵ *Union Bridge Company v. United States, Supreme Court Reporter* 27 (1906-07): 367-94.

The Union Bridge Company's loss laid open the remaining low-lying bridges across the Allegheny River to their eventual fate determined by another Secretary of War one decade later.

While the Union Bridge Company case was being argued in the federal court system, in 1900 a series of hearings were opened in Pittsburgh on other Allegheny River bridges. On 13 March 1903, W. L. Sibert (Chief Engineer, Pittsburgh District, Corps of Engineers) filed a report with Secretary of War Elihu Root recommending the raising of the Allegheny River bridges. Despite Sibert's report and petitions from several Allegheny River valley groups, Root declined to order the bridges raised.²⁶ Three years later another Secretary of War, William Howard Taft, also declined to issue the order to raise the bridges. Taft, as one group representing the "river interests" pointed out, felt that the issue was better left to local authorities.²⁷

During the first round of hearings, on 10 May 1900, testimony was presented that the Forty-Third Street Bridge was "an unreasonable obstruction to navigation."²⁸ The owners of the bridge, the Ewalt Street Bridge Company, argued, "Should this bridge be elevated, as suggested by the Government Engineers, it would be of no value as a bridge, because it could not be reached by any vehicle carrying a heavy load...." Owners Henry Daub and P.W. Gilbert pleaded, "[T]o insist upon the changes being made in the Ewalt Street bridge that are suggested in the notice served upon it, is to insist that the bridge shall go out of existence."

The owners of the Forty-Third Street Bridge were, however, outnumbered by complainants who argued that the bridge was obstructing navigation and hurting commerce in the region. John F. Dravo, Secretary of the Pittsburgh Coal Exchange, wrote:

Numerous manufacturing plants, blast furnaces and other industrial interests are located on the banks of the Allegheny River and the number is being increased in consequence of Government improvement and proposed additional improvement of navigation. These mills, furnaces, etc., get much of their supplies by river. The low height of this bridge interrupts the delivery of regular supplies to the serious loss of industrial interests and the narrow channel passage renders navigation exceedingly dangerous in times of ordinary freshets.

²⁶ Covell, "Bridge-Raising Program."

²⁷ Magee and Martin Beatty, et al., *Brief on Behalf of the County of Allegheny and the City of Pittsburgh Before the War Department of the United States In Re Elevation of the Bridges over the Allegheny River*, n.d., Records of the U.S. Army Corps of Engineers, Pittsburgh District, RG 77, National Archives and Records Administration, Mid-Atlantic Region, Philadelphia, Pa.

²⁸ Charles F. Powell, "Record of Hearing May 10, 1900, Forty-Third Street Bridge," No. E-1308, Box 7, Records of the U.S. Army Corps of Engineers, Pittsburgh District, RG 77, National Archives and Records Administration, Mid-Atlantic Region, Philadelphia, Pa.

The Pittsburgh Coal Exchange respectfully, but earnestly, urge the speedy remodeling of this bridge, providing like height and width of channel as is being provided in new bridges structures across the Allegheny River.²⁹

While the Pittsburgh bridge debate raged on during the first decade of the twentieth century, the city of Pittsburgh commissioned noted architect Frederick Law Olmsted and retired Army engineer Thomas W. Symons to conduct a study of the Allegheny River bridge issue and to prepare a report of their findings.³⁰ Their report indicated that the Forty-Third Street Bridge (as well as the Sixteenth Street Bridge) was an obstruction to navigation that should be rebuilt, however, regarding the remaining bridges on the Allegheny River, the consultants wrote, "*The boats must be made to fit the bridges, and not the bridges to fit the boats.*"³¹

Perhaps the most significant finding in the Symons and Olmsted report was that traffic over the bridges was more economically significant than traffic plying the Allegheny River under the bridges. Symons and Olmsted reported that traffic over the bridges in 1909 carried 108 million tons (\$9.4 billion) compared to only 3.5 million tons (\$400 million) under the bridges. And, they noted, "water borne traffic of the Allegheny River has been steadily decreasing for many years and is now but a small portion of that which once existed."³² They added, in anticipation of the criticism that declined river traffic was due to the obstructive bridges,

That this decline in river traffic is not due to the interference of the bridges is shown by the statement that the navigation facilities are better than ever before, but is due to the lack of modern terminal facilities, boats and methods of carrying on business.

While the fate of the Allegheny River bridges was being argued by the War Department, river interests, and bridge companies, another debate was raging over the bridges. All Allegheny River vehicular bridges were toll bridges between Pittsburgh and Allegheny City built, owned, and operated by private corporations. Residents of Allegheny County had been pressuring elected officials to remove the tolls charged for crossing the river. In 1910, moves were underway by Allegheny County commissioners to comply with the wishes of their constituents in eliminating the river crossing tolls (i.e., buying or condemning toll bridges). The county, however, was unsure how to proceed because of the potential financial liability posed by assuming ownership of bridges that may be ordered raised by the War Department. Allegheny County's difficult position was spelled out in a 1910 letter to Secretary of War J. M. Dickinson:

²⁹ Powell, "Record of Hearing."

³⁰ Thomas W. Symons and Frederick Law Olmsted, *The City and the Allegheny River Bridges: Recommendations for Bridge Heights and Pier Locations to Meet the Various Transportation Needs of Pittsburgh*, report prepared for the Committee on City Planning (Pittsburgh: Pittsburgh Civic Commission, 1910).

³¹ Symons and Olmsted, *City and the Allegheny River Bridges*, 24. Italics in original.

³² Symons and Olmsted, *City and the Allegheny River Bridges*, 11.

As the question of the Federal action of raising the bridges affects the citizens of Allegheny County in their progress towards freeing the bridges over the Allegheny River, wont [sic.] you kindly advise when there will be a hearing held by the War Department. We cannot urge upon you too earnestly the importance of this question to the community, as neither the city or the county can risk the assumption of any obligation in attempting to purchase or condemn the bridges until the Federal Government has determined what it thinks proper. Every day's delay means additional loss to the city, and corresponding gain to the bridge companies.³³

Despite no clear indication from the War Department on its decision regarding the Allegheny River bridges, the Allegheny County commissioners moved forward with their preparations to acquire the toll bridges. On 13 December 1910, they passed a resolution setting the purchase prices for the amicable acquisition of five Allegheny River bridges at Sixth, Seventh, Ninth, Sixteenth, and Thirtieth streets. The county and the owners of the Forty-Third Street Bridge could not reach an acceptable compromise, however.

On 6 March 1911, Pittsburgh and Allegheny County thought they had answers regarding the fate of the bridges when Secretary of War Dickinson — like his predecessors — declined to order the bridges raised. Ten days later, Allegheny County assumed control of the Sixth, Seventh, Ninth, Sixteenth and Thirtieth streets bridges and retired the tolls in a celebration marked by a parade from one bridge to the next. At each bridge, County Commissioners posted a sign that read, "This bridge, by an act of the County of Allegheny, has this day been made free to ordinary public foot and passenger travel."³⁴

The toll on the Forty-Third Street Bridge was not retired until the following year because the County and the Ewalt Street Bridge Company could not agree on a purchase price. The bridge company demanded \$250,000 for their bridge and the Allegheny County Board of Commissioners rejected their offer. Condemnation proceedings were undertaken and the Forty-Third Street Bridge was acquired by the county on 8 June 1912, for \$120,304 — less than half the bridge company's asking price. Including the acquisition of the Forty-Third Street Bridge, the County had expended more than \$2.5 million.³⁵

Finally, because of Congressional pressure, the order was issued to raise the Allegheny River bridges. On 23 March 1917, Secretary of War Newton D. Baker informed Allegheny

³³ H. S. Anderson, to Secretary of War J. M. Dickinson, 3 January 1910, No. E-1308, Box 7, Records of the U.S. Army Corps of Engineers, Pittsburgh District, RG 77, National Archives and Records Administration, Mid-Atlantic Region, Philadelphia, Pa.

³⁴ *Pittsburgh Post* (17 Mar. 1911). Allegheny County engineer James G. Chalfant recounted the effort to free the toll bridges in an affidavit filed with the War Department in 1916; see J. G. Chalfant, "Affidavit of J. G. Chalfant," 1916, Box 1309-A, Records of the U.S. Army Corps of Engineers, Pittsburgh District, RG 77, National Archives and Records Administration, Mid-Atlantic Region, Philadelphia, Pa.

³⁵ Chalfant, "Affidavit."

County by letter that six "obstructive bridges crossing the Allegheny River" must be modified, i.e., raised, to comply with a provision in the river and harbor act of 3 March 1899.³⁶ Baker's letter was based on a 12 May 1917 recommendation by the Chief of Engineers that the bridges were obstructive, i.e., were too low to the surface of the Allegheny River.³⁷

Although Baker issued his order to raise the Allegheny River bridges in 1917, the substantive basis for the decree originated in a 1912 report prepared by the U.S. Army Chief of Engineers and delivered to the U.S. House of Representatives.³⁸ Writing for the U.S. Army Corps of Engineers, Lt. Col. H. C. Newcomer reported:

Navigation in the Allegheny River is obstructed by a number of low bridges
Under existing conditions of navigation the most obstructive bridges are the eight found within a few miles of the mouth from Sixth Street to Forty-Third Street, inclusive, at Pittsburgh.³⁹

Newcomer noted that the clearance heights of the obstructive bridges ranged from 27.7 to 36.0 feet above normal pool level.⁴⁰ The Forty-Third Street Bridge — located 3.5 miles upstream from the mouth of the Allegheny River — and which the Washington Crossing Bridge was built to replace, was the lowest and most problematic bridge in the survey. The Forty-Third Street Bridge had a clearance of 27.7 feet above normal pool level and the width between the centers of its four piers was only 244 feet.⁴¹

In 1912, Congress passed a hefty river and harbor act in which \$300,000 was appropriated for improvements to the Allegheny River and harbor at Pittsburgh.⁴² The appropriation was made subject to a matching contribution made by "local interests" and was revoked in light of the unfavorable U.S. Army Chief of Engineers report on the obstructive Allegheny River bridges.⁴³ Instead, Congress made the \$300,000 appropriation subject to the Secretary of War's receipt of "satisfactory assurances that channel spans of the bridges forming

³⁶ 55th Cong., 3d sess., chap. 425, section 18; U.S. War Department, *War Department Annual Reports, 1920*, vol. 2, *Report of the Chief of Engineers* (Washington: U.S. Government Printing Office, 1920), 1361.

³⁷ U.S. War Department, *War Department Annual Reports, 1920*, 1361.

³⁸ U.S. War Department, *Report on Examination*.

³⁹ U.S. War Department, *Report on Examination*, 5.

⁴⁰ U.S. War Department, *Report on Examination*, 5.

⁴¹ U.S. War Department, *Report on Examination*, 12.

⁴² 62d Cong., 2d sess., chap. 253.

⁴³ 62d Cong., 3d sess., chap. 144; see U.S. War Department, *Report on Examination*.

unreasonable obstructions to the navigation of the Allegheny River will be modified as recommended.⁴⁴

The order to raise (or, more correctly, raze) the Forty-Third Street Bridge and its sister structures along the Allegheny River hit Allegheny County hard. The day after the city received Baker's letter, the *Pittsburgh Post* quoted city and county sources who estimated that compliance with the order would cost local governments and the Pennsylvania Railroad, the bridges' owners, in excess of \$10 million.⁴⁵ Although the County vowed to fight the order on the basis of its constitutionality, the legal precedents for compliance with the 1899 Act favored the War Department.

The day after Secretary of War Baker ordered the Allegheny River bridges raised, 24 May 1917, the Pennsylvania legislature passed a bill in what may have been a related measure to help local governments such as Allegheny County cope with the planning and financial hardships posed by the War Department decree. The bill authorized counties "to locate, lay out, open, construct, and maintain public bridges, whether wholly or partly within any city, borough, or township, across any river or stream" and to "appropriate money, levy taxes and incur indebtedness" to build the bridges.⁴⁶

Two years passed between the initial order issued by Secretary of War Baker and the passage on 27 February 1919, of *An Act Granting the consent of Congress to the County of Allegheny, Pennsylvania, to construct, maintain, and operate a bridge across the Allegheny River at or near Millvale Borough, in the County of Allegheny, in the Commonwealth of Pennsylvania*.⁴⁷ Because of the outbreak of the First World War, the War Department put its Pittsburgh agenda on hold. The effort to improve the Allegheny River was revived after the 1918 Armistice. The War Department again notified Allegheny County on 25 May 1919, three months after the U.S. Congress passed the legislation authorizing the construction of a bridge at Fortieth Street⁴⁸

Benno Janssen

On 28 May 1919, only three days after the second War Department order directing Allegheny County to bring its bridges over the Allegheny River into legislative compliance, the

⁴⁴ 62d Cong., 3d sess., chap. 144, p. 805.

⁴⁵ *Pittsburgh Post* (24 Mar. 1917).

⁴⁶ U.S. Public Law 276 (1917).

⁴⁷ U.S. Congress, House, *An Act Granting the consent of Congress to the County of Allegheny, Pennsylvania, to construct, maintain, and operate a bridge across the Allegheny River at or near Millvale Borough, in the County of Allegheny, in the Commonwealth of Pennsylvania*, 65th Cong., 3rd sess., 1919, H. R. 13648.

⁴⁸ U.S. War Department. *War Department Annual Reports, 1920*, 1361.

Allegheny County Board of Commissioners selected Pittsburgh architect Benno Janssen to "design and supervise the building of the Fortieth Street Bridge."⁴⁹ Janssen (1874-1964) was born in St. Louis, Missouri and was educated at the University of Kansas. He moved to Boston in 1899, where he worked in architecture and continued to study the field at the Massachusetts Institute of Technology. In 1902, Janssen left Boston for two years in Paris and by 1905 was living in Pittsburgh and working for the architectural firm of MacClure and Spahr. After only one year in Pittsburgh, Janssen split from the firm and, with Franklin Abbott, formed his own partnership.⁵⁰

The firm of Janssen and Abbott remained active until Abbott's retirement some time before 1922.⁵¹ In 1922 Janssen formed his second partnership, this one with William York Cocken.⁵² Throughout his career in Pittsburgh, Janssen was well-known for his classical interpretation of commercial and institutional architecture, and residential designs executed in the popular Tudor Revival style.⁵³ Although Janssen designed a number of memorable Pittsburgh public and private buildings (including private clubs such as the Pittsburgh Athletic Association building and a since-demolished Y.W.C.A.), his biographers did not mention his work on the Washington Crossing Bridge.⁵⁴ According to James Van Trump, historian of Pittsburgh architecture, Janssen retired in 1939 and died in Charlottesville, Virginia, on 14 October 1964.⁵⁵

Charles Stratton Davis

The engineer who collaborated with Janssen in the design and construction of the Washington Crossing Bridge, Charles Stratton Davis (1866-1942), was a native of Oxford, New York. He studied civil engineering at Cornell University and received his degree in 1889.⁵⁶ After working for the Massillon Bridge Company in Ohio from 1889 to 1907, Davis had his own practice in Toledo, Ohio, until 1914, when he was appointed senior structural engineer in the

⁴⁹ Allegheny County, Pennsylvania, *Commissioners' Minutes*, vol. 7 (Office of the County Manager, Allegheny County Courthouse, Pittsburgh, Pa.), 147.

⁵⁰ Walter Kidney, *Landmark Architecture: Pittsburgh and Allegheny County* (Pittsburgh: Pittsburgh History and Landmarks Foundation, 1985), 78; James van Trump, *Life and Architecture in Pittsburgh*. (Pittsburgh: Pittsburgh History and Landmarks Foundation, 1983), 114.

⁵¹ Van Trump, *Life and Architecture*, 114.

⁵² Van Trump, *Life and Architecture*, 115.

⁵³ Van Trump, *Life and Architecture*, 111-8.

⁵⁴ Kidney, *Landmark Architecture*; Van Trump, *Life and Architecture*.

⁵⁵ Van Trump, *Life and Architecture*, 111.

⁵⁶ Daniel E. Davis, "Memoir of Charles Stratton Davis," *Transactions of the American Society of Civil Engineers* 107 (1942): 1737.

southern district of the Interstate Commerce Commission.⁵⁷ In 1919, Davis returned to private practice, this time in Pittsburgh. His first Pittsburgh project, according to his obituary published in the *Transactions of the American Society of Civil Engineers*, was the Washington Crossing Bridge.⁵⁸

Design of the Washington Crossing Bridge

Plans prepared by Janssen and Davis were approved by Allegheny County Chief Engineer J. G. Chalfant during the first half of 1921.⁵⁹ With the plans approved at the local level by Chalfant and the county commissioners, and at the federal level by the War Department and Congress, Allegheny County began implementing the steps necessary to fund and build the Washington Crossing Bridge. The first step took place in the Allegheny County Court of Quarter Sessions.⁶⁰ In accordance with the Pennsylvania Act of Assembly of 24 May 1917, the Allegheny County Court of Quarter Sessions authorized "the construction and maintenance of a public bridge with its approaches as a county bridge crossing the Allegheny River ... between the City of Pittsburgh and Borough of Millvale, said bridge was designated as Bridge No. 7, Allegheny River."⁶¹

The decision to award contracts to architectural firms for the design of the Washington Crossing Bridge and other Allegheny River bridges spurred professional engineers in Western Pennsylvania to mount a vigorous protest against the county's decision. "This decision," wrote county engineer Vernon R. Covell in 1925, "brought out some sharp criticism on the part of engineers as to the justice of placing in the hands of architects work based predominantly on engineering principals."⁶²

Debate revolving around whether architects or engineers should be entrusted to design and build Pittsburgh's bridges raged throughout much of the 1920s. The first salvo was fired in December 1919, when the Engineers' Society of Western Pennsylvania passed a resolution, to be

⁵⁷ Davis, "Memoir of Charles Stratton Davis," 1738.

⁵⁸ Davis, "Memoir of Charles Stratton Davis," 1738. Unfortunately, Davis' obituary incorrectly identified the Washington Crossing Bridge as "a concrete arch bridge over the Allegheny River."

⁵⁹ J. G. Chalfant was Allegheny County's chief engineer during much of the Allegheny River bridge-raising debate. Illness forced him to leave his position and on 14 August 1922, he was replaced by engineer Vernon R. Covell (see Covell, "Bridge-Raising Program," 87). Chalfant died on 26 August 1922 (see *Washington Crossing Memorial Bridge*, pamphlet).

⁶⁰ Allegheny County, Pennsylvania, Court of Quarter Sessions, No. 1 (Apr. 1921).

⁶¹ Public Law 276 (1917); Allegheny County, *Commissioners' Minutes*, 9:377.

⁶² Covell, "Bridge-Raising Program," 90.

forwarded to the Pittsburgh chapter of the American Society of Civil Engineers, critical of the county's decision to use architects to design its bridges.⁶³

The conflict was reported nationally in 1923 by the trade journal *Engineering News-Record*. The publication reported that the Engineers' Society of Western Pennsylvania passed a second resolution in May 1923, "against the delegation of the bridge design to architects":

Whereas, it has been brought to the attention of the Board of Direction of the American Society of Civil Engineers that the Commissioners of the County of Allegheny, Pennsylvania, have under consideration the employment of architects for preparing plans and specifications and for supervising the construction of several important bridges in the city of Pittsburgh and

Whereas, these bridges are primarily engineering works demanding safety and economy and involving principles of design, construction and maintenance which come indisputably within the province of engineers and

Whereas, it is detrimental to the public interest to subordinate safety utility adequacy for future traffic and cost of these structures to their appearance, although it is recognized that the embellishment and aesthetic features of bridges may be properly be entrusted to those especially skilled in architecture

Therefore be it resolved, that the responsibility for the design and supervision of such bridges should be entrusted only to qualified civil engineers....⁶⁴

Although the debate was rendered moot when the Allegheny County Department of Public Works was formed with a suitable force of architects and engineers working under one roof, local engineers continued to discuss the dilemma of architects versus engineers.⁶⁵ As a result, the Fortieth and Sixteenth street bridges were the only Allegheny River bridges designed by outside contractors.⁶⁶ Nearly six years after the Washington Crossing Bridge was completed, engineer Charles Stratton Davis found himself engaged in a debate with his fellow engineers defending the design and construction process used on the Washington Crossing Bridge:

⁶³ "Abstract of Minutes, February 1920," *Proceedings of the Engineers' Society of Western Pennsylvania* 36 (1920): 11-2.

⁶⁴ "Architects' Bridge Design Again Under Discussion," *Engineering News-Record* 91 (26 Jul. 1923): 157.

⁶⁵ Covell, "Bridge-Raising Program," 90; P. M. Farrington, et al., *The Allegheny County Highway and Bridge Program 1924-1932*, Report No. R-82-132 (Pittsburgh: Carnegie Mellon Univ. Department of Civil Engineering, 1982).

⁶⁶ This fact is clearly evident when their ornate architectural details are contrasted with the raw engineering aesthetics of the Three Sisters Bridges, the self-anchoring eye-bar suspension bridges constructed over the Allegheny River at Sixth, Seventh and Ninth streets.

In the case of the Washington Crossing bridge there was earnest cooperation between the architect and the engineer to the end that the finished structure had both architectural and engineering merit and did not violate the principles of good design.⁶⁷

Davis went on to take a swing at the engineering purists arguing against the involvement of architects in the design and construction of bridges. He set his sights directly on Vernon R. Covell and his colleagues in the newly formed Bureau of Bridges in the Allegheny County Department of Public Works:

Even though the Sixth Street bridge over the Allegheny River received the award of the American Institute of Steel Construction as the most beautiful bridge built in 1928, I have the temerity to say that this bridge and those at Seventh Street and Ninth Street violate the principles of good bridge design. They are fictitious structures, having the appearance of suspension bridges but in reality being bridges of the cantilever type....⁶⁸

CONTRACTORS

The Allegheny County Board of Commissioners on 25 October 1922 approved an advertisement to run in *Engineering News-Record* for bids to construct the Washington Crossing Bridge.⁶⁹ That same day, they instructed the County Solicitor to prepare a resolution for the issuance of \$2.5 million in bridge bonds for construction of the Washington Crossing Bridge. Allegheny County subsequently issued 2,250 one-thousand-dollar bonds "designated as 'Bridge Bond, Series 11.'"⁷⁰ The twenty-five year bonds, issued at 4.25 percent per annum, were payable semi-annually from 1 January 1924 through 1 January 1953.⁷¹

Construction of the Washington Crossing Bridge was divided into six sections: substructure, superstructure, pavement, Ohio Street reconstruction, ornamental work and

⁶⁷ Wilbur J. Watson, "Bridge Architecture," *Proceedings of the Engineers' Society of Western Pennsylvania* 46 (1930): 81.

⁶⁸ Watson, "Bridge Architecture," 82.

⁶⁹ Allegheny County, *Commissioners' Minutes*, 9:260.

⁷⁰ Allegheny County, *Commissioners' Minutes*, 9:309.

⁷¹ Additional funding for the bridge came from railroads over whose rights-of-way the bridge crossed. The Forty-Third Street Bridge crossed the railroads at grade, causing problems for the railroads and for people trying to cross. The Pennsylvania Railroad and the Baltimore and Ohio Railroad contributed \$300,000 toward construction of the Washington Crossing Bridge, at the behest of Allegheny County Commissioners; see Covell, "Bridge Raising Program," 91.

electrical work. Individual contractors were responsible for completion of each section (Table 1).

Table 1 Contracts Awarded for Washington Crossing Bridge Construction.

Section	Contractor	Amount
1. Substructure	H. P. Converse and Company	\$854,692.79
2. Superstructure	McClintic-Marshall Company	728,677.51
3. Paving	J. H. McQuade and Sons	68,584.55
4. Ohio Street	Thomas Cronin Company	197,205.30
5. Ornamental Work	All-Steel Equipment Company	32,092.00
6. Electrical	Morganstem Electric Company	4,695.00

Because of delays incurred by Allegheny County in proceeding with construction of the bridge, the U.S. Congress had to pass legislation extending the time allotted to the county for completion of the Washington Crossing Bridge. This act amending the earlier authorizing legislation was passed 14 June 1920; it gave Allegheny County until 1924 to complete the Washington Crossing Bridge.⁷²

H. P. Converse Company

The contract for construction of the substructure (piers and towers) was awarded to H. P. Converse Company of Boston, Massachusetts. Bids for six designs lettered "A" through "F" were received by Allegheny County. H. P. Converse Company bid lowest for each of the six designs, against Dravo Contracting Company and Vang Construction Company.⁷³ Allegheny County Commissioners awarded H. P. Converse Company the contract for substructure (Design "D") at \$854,692.79 on 6 February 1923.⁷⁴

McClintic-Marshall Company

The McClintic-Marshall Company was chartered in 1913 "for the purpose of the construction and erection of all kinds of buildings, bridges and structures...."⁷⁵ Capitalized at \$100,000, the company's initial subscribers were Alexander Black, Miles H. England, Hugh R.

⁷² 66th Cong., 2d sess., chap. 289.

⁷³ Allegheny County, *Commissioners' Minutes*, 9:287.

⁷⁴ Allegheny County, *Commissioners' Minutes*, 9:332.

⁷⁵ Allegheny County, *Charter Book*, 47:397.

Domka, Charles O. Miller and Earl J. Patterson.⁷⁶ The McClintic-Marshall Company had its beginnings in the McClintic-Marshall Construction Company, incorporated in 1900 by Charles Donnell Marshall and Howard Hale McClintic, as well as Andrew W. Mellon, Richard B. Mellon, and W. S. Mitchell.⁷⁷ The earlier McClintic-Marshall Construction Company was chartered "for the purpose of the manufacture of iron and steel or both or of any metal or article of commerce from metal or wood or both."

McClintic (d. 5 August 1938) and Marshall (d. 16 May 1945) were classmates in engineering school at Lehigh University.⁷⁸ They graduated in 1888, and in January 1890, they and three associates chartered the Shiffler Bridge Company in Pittsburgh.⁷⁹ Capitalized at \$5,000, the Shiffler Bridge Company was formed to manufacture "iron or steel or both, or any other metal or ... any other article of commerce from metal or wood or both."⁸⁰

The predecessor to the McClintic-Marshall Construction Company, the Shiffler Bridge Company, was merged into the American Bridge Company along with twenty-three other bridge companies in the spring of 1900.⁸¹ On 10 May 1900, the Shiffler Bridge Company transferred the title to all of its Allegheny County real estate and rights of way for \$90,600.⁸² The preceding day, the Carnegie Steel Company transferred the title to its real property assets to the newly formed American Bridge Company for a nominal ten dollars.⁸³

Five year after the formation of McClintic-Marshall Company, Alexander Black (a minority shareholder of 5 shares according to the 1913 charter) formed the McClintic-Marshall Corporation "for the purpose of the construction, erection and equipment of all kinds of buildings, bridges, structures and pipelines above ground, underground..."⁸⁴

Although there are conflicting accounts of which McClintic-Marshall entity was actually awarded the contract to build the Washington Crossing Bridge superstructure, Allegheny County

⁷⁶ Patterson owned a controlling interest in the company with 900 shares. The charter noted that while the other subscribers paid for their shares in cash, Patterson's shares were paid for "by transfer of personal property to said corporation"; see Allegheny County, *Charter Book*, 47:397.

⁷⁷ Allegheny County, *Charter Book*, 26:172.

⁷⁸ *Who's Who in America* (Chicago: Marquis, 1935), 1553, 1595.

⁷⁹ Allegheny County, *Charter Book*, 14:343.

⁸⁰ Bridge historian Victor C. Darnell incorrectly wrote that the Shiffler Bridge Company "was organized in 1870s." See *Directory of American Bridge-Building Companies, 1840-1900*, Occasional Publication No. 4 (Washington, D.C.: Society for Industrial Archaeology, 1984), 69.

⁸¹ See Darnell, *Directory*, 85.

⁸² Allegheny County, *Deed Book*, 1087:20.

⁸³ Allegheny County, *Deed Book*, 1085:13.

⁸⁴ Allegheny County, *Charter Book*, 52:394.

Commissioners' minute books consistently refer to "McClintic-Marshall Construction Company."⁸⁵ According to commissioners' minutes of 24 November 1922, McClintic-Marshall was the low bidder for two options: copper bearing steel and carbon steel. With a bid of \$728,677.51 for the former and \$708,536.96 for the latter, the McClintic-Marshall edged out the Fort Pitt Bridge Works and the American Bridge Company.⁸⁶ According to the McClintic-Marshall bid, the specifications called for 7,416,600 pounds of structural steel (carbon or copper bearing), 5,715,900 pounds of plated girder spans, 4,418 linear feet of hand railing, eighty light poles and 33,350 square feet of smoke shields.⁸⁷

All-Steel Equipment Company

There were only two bidders for ornamental work on the Washington Crossing Bridge: Hecklin Iron Works and All-Steel Equipment Company. All-Steel Equipment Company, which offered bids on two design sets, underbid its competitor on both by ten thousand dollars. All-Steel Equipment Company was incorporated in 1917 under charter allowing them to buy and sell "at wholesale and retail, erecting, installing and leasing and renewing of furniture, fixtures and equipment of every description for offices, buildings and structures of all kinds."⁸⁸ Capitalized at \$15,000, the company had three charter subscribers: A. G. Wells, George W. English and Earl A. Morton.⁸⁹

The specifications for the Ornamental Work section included 288 "shields for hand railing," bronze bands and lanterns on entrance columns, six sets of "cast iron panels, ribbons, and cartouches," light brackets, bronze letters (for bridge towers), and bronze name plates. All-Steel Equipment Company, according to a pamphlet published at the opening of the bridge, subcontracted with John Donnelly and Company of New York to design the cartouches located at each of the arch crowns and the shields depicting the seals of the original thirteen colonies and Allegheny County; the cartouches and shields were subsequently cast by the Michaels Art Bronze Company of Covington, Kentucky.⁹⁰

⁸⁵ Allegheny County, *Commissioners' Minutes*, 9:287, 9:304. A pamphlet published in conjunction with the bridge's opening identified the "McClintic-Marshall Company" as the contractor responsible for construction of the Washington Crossing Bridge superstructure; see *Washington Crossing Memorial Bridge*, pamphlet, 16.

⁸⁶ Allegheny County, *Commissioners' Minutes*, 9:287.

⁸⁷ Allegheny County, *Commissioners' Minutes*, 9:287.

⁸⁸ Allegheny County, *Charter Book*, 51:121.

⁸⁹ Allegheny County, *Charter Book*, 51:121.

⁹⁰ *Washington Crossing Memorial Bridge*, pamphlet, 19.

James H. McQuade and Sons Company

Incorporated in Pittsburgh in 1917, the James H. McQuade and Sons Company was formed to conduct a general contracting business.⁹¹ The company was formed by James H. McQuade, Senior, and his sons, James, Jr. and William E., with a working capital of \$50,000. The company bid against Thomas Cronin and Company for the contract for paving on the bridge and won with a bid of \$68,584.55 against Cronin's \$99,000 bid.⁹²

Construction Details

Before construction of the Washington Crossing Bridge began, the Allegheny County Board of Commissioners had to overcome several obstacles, the greatest of which was the acquisition of nearly twenty acres of land owned by the U.S. War Department as part of the Pittsburgh Storage and Supply Depot (Pittsburgh Arsenal) on the Lawrenceville side of the river. The Secretary of War was authorized by an act of Congress 6 June 1922 to sell "upon terms and conditions deemed advisable by him" a portion of the former Pittsburgh Arsenal.⁹³ The sticking point, it seems, was the asking price for the land.

Citing the financial hardships incurred by their constituents because of the War Department's bridge-raising order, officials of both Allegheny County and the city of Pittsburgh requested that the War Department transfer the title to the needed land for a nominal fee, i.e., donate it.⁹⁴ The Secretary of War replied "that no authority existed for the transfer for a nominal consideration the necessary ground for an approach to the Washington Crossing Bridge."⁹⁵ Negotiations between the county and the War Department were deadlocked and offers to mediate were made by the Allegheny River Improvement Association and the Pittsburgh Chamber of Commerce.⁹⁶

The land — 64,000 square feet — was appraised at \$128,000.⁹⁷ It appears that the War Department's demands for a fair market price on the lands were met and on 21 October 1922, the United States of America transferred the title to a portion of the Pittsburgh Arsenal property to the County of Allegheny for \$129,014.42.⁹⁸

⁹¹ Allegheny County, *Charter Book*, 52:114.

⁹² Allegheny County, *Commissioners' Minutes*, 9:287, 9:332.

⁹³ 67th Cong., 2d sess., chap. 208.

⁹⁴ *Pittsburgh Post* (26 Jul. 1922).

⁹⁵ Allegheny County, *Commissioners' Minutes*, 9:173.

⁹⁶ Allegheny County, *Commissioners' Minutes*, 9:233, 9:261.

⁹⁷ *Pittsburgh Post* (26 Jul. 1922).

⁹⁸ Allegheny County, *Deed Book*, 2128:634.

Construction on the Washington Crossing Bridge began in February 1923. During the course of construction, there were several modifications made to the structure's design. Although most of the divergences from the plans were a result of cost-cutting measures by Allegheny County commissioners, some were enhancements suggested by contractors. For instance, on 20 October 1923, a request was made to change the concrete mix proposed for the bridge piers to include fluxite (a densifier) and hardeners. On the recommendation of Janssen, County Commissioners approved an additional \$45,448.75 for the changes to the H. P. Converse Company contract.⁹⁹

Four months into construction, in June 1923, McClintic-Marshall notified Janssen that the company could not procure the "checkered plates called for in the plans" and requested that they be allowed to "substitute plain copper-bearing steel plates" with a credit to the county of \$275.¹⁰⁰ McClintic-Marshall also requested to modify the expansion joint cover plates with "4" interlocking teeth throughout the bridge," but Janssen denied the recommendation.¹⁰¹

One of the greatest departures from the construction plans concerned the construction of a \$75,000 "comfort station" at the Lawrenceville approach. County commissioners voted, on 6 January 1924, "that plans be rejected for this comfort station due to the excessive cost."¹⁰² Finally, preliminary plans drawn-up by Janssen illustrate decorative "acorn" pendants that were to have been suspended beneath the walkways on the handrails. It appears these decorative elements were never realized.

Construction of the Washington Crossing Bridge was completed in the fall of 1924. Pittsburgh newspapers began reporting in October 1924 that the county was planning to open the bridge in December to coincide with "the one hundred and seventy-first anniversary of the day George Washington crossed the swift running stream at that point."¹⁰³ On 14 November 1924, the Pittsburgh Gazette reported, "The final connection on the bridge, linking the north side of the river with Lawrenceville, was made" and that the first person to cross the river on the new bridge was the wife of R. O. Toms, a superintendent with McClintic-Marshall. According to the *Pittsburgh Post*, the first automobile across the bridge was driven by County Commissioner James Houlahan on 9 December 1924.

⁹⁹ Allegheny County, *Commissioners' Minutes*, 10:17.

¹⁰⁰ Allegheny County, *Commissioners' Minutes*, 9:517.

¹⁰¹ Allegheny County, *Commissioners' Minutes*, 9:517.

¹⁰² Allegheny County, *Commissioners' Minutes*, 10:76.

¹⁰³ "Bridge Here May Be Opened on Date, 171 Years Ago, That Washington Crossed River," *Pittsburgh Gazette* (25 Oct. 1924).

The Washington Crossing Bridge was dedicated on Monday, 29 December 1924.¹⁰⁴ At the time the bridge was opened, estimates of its cost were approximately \$2.3 million. Two years later, county engineer Covell wrote that its final cost was \$2,880,000.¹⁰⁵

Pittsburgh newspapers reported that seven thousand people turned out to witness the formal dedication of the Washington Crossing Bridge.¹⁰⁶ The new bridge was hailed by Pittsburgh residents and people in outlying boroughs as "Pittsburgh's newest pathway to progress."¹⁰⁷ Communities such as Etna, located six miles upstream from Pittsburgh on the Allegheny River, looked forward to the improved access to Pittsburgh that the bridge would provide, as well as the improvements made to East Ohio Street in conjunction with the bridge's construction.¹⁰⁸ Businesses, such as Pittsburgh Provision and Packing Company on Herr's Island and Fried and Reineman Packing Company, took out large display advertisements in a special section of the *Pittsburgh Post* dedicated to the new bridge.¹⁰⁹ Fried and Reineman's ad noted that they were "A modern packing house" located at "East Ohio Blvd., Northwest End of Washington Bridge."¹¹⁰

In a review of Allegheny County's "Bridge Raising Program," Vernon R. Covell wrote that the completed design of the Washington Crossing Bridge resulted in "one of the most pleasing outlines of any of our bridges."¹¹¹ After the Washington Crossing Bridge was opened, Allegheny County closed the obsolete Forty-Third Street bridge and on 30 December 1924, county commissioners awarded a contract to Walter S. Rae to demolish the bridge "at once."¹¹²

Seven years after the Washington Crossing Bridge was opened, architect Benno Janssen sued Allegheny County for \$68,122.52 for "extra work and expenses due to delay" in constructing the bridge.¹¹³ According to one newspaper report, the original design of the bridge

¹⁰⁴ Pennsylvania Department of Transportation, *Historic Highway Bridges of Pennsylvania* (Harrisburg: Pennsylvania Department of Transportation, 1986), 102, incorrectly noted that the bridge opened 24 December 1924.

¹⁰⁵ Covell, "Bridge-Raising Program," 91.

¹⁰⁶ "Washington Crossing Bridge Dedication Attracts Many," *Pittsburgh Post* (30 Dec. 1924).

¹⁰⁷ "The Washington Crossing Bridge," special section of *Pittsburgh Post* (29 Dec. 1924).

¹⁰⁸ "The Washington Crossing Bridge," special section.

¹⁰⁹ A subsidiary of the Pennsylvania Railroad, operated jointly with the Pittsburgh Joint Stockyards on Herr's Island, downstream from the Washington Crossing Bridge.

¹¹⁰ "The Washington Crossing Bridge," special section.

¹¹¹ Covell, "Bridge-Raising Program," 91.

¹¹² "Contracts Let for Removing Three Bridges," *Pittsburgh Gazette* (31 Dec. 1924).

¹¹³ "County is Sued by Architect," *Pittsburgh Post-Gazette* (9 Jan. 1931).

included a curve. Elimination of the curve and another unspecified change in plans created additional work for Janssen's firm, Janssen and Cocken.¹¹⁴ At a hearing before county commissioners, Janssen agreed to accept \$23,000 plus interest accrued since 1926. Two months later, the county and Janssen settled their dispute at \$31,935.¹¹⁵

Allegheny County owned and maintained the Washington Crossing Bridge until 18 September 1961, when the Pennsylvania legislature passed an act "Establishing and taking over as State Highways certain county highways, or sections thereof, tunnels, bridges, viaducts and approaches thereto...."¹¹⁶ Alterations to the original structure since its construction include installation of concrete barriers between travel lanes and sidewalks and replacement of metal doors inside the approach pylons leading to internal stairways.¹¹⁷

Other changes to the bridge have included an effort organized by local residents to add color to the tarnished ornamental plaques on the bridge's railings. In 1975, Stan Hubstenberger convinced Allegheny County and PennDOT to allow him and a volunteer crew to "paint the seals in full color."¹¹⁸ The bridge was documented in 1967 for the Historic American Building Survey (HABS) by a team of Carnegie Institute of Technology (now Carnegie Mellon University) architects and a set of fourteen measured drawings was prepared. On 22 June 1988, the Washington Crossing Bridge was listed in the National Register of Historic Places as an contributing element in the multiple resource nomination "Highway Bridges Owned by the Commonwealth of Pennsylvania, Department of Transportation."

¹¹⁴ "Old Dispute on Span Aired," *Pittsburgh Post-Gazette* (2 Mar. 1931).

¹¹⁵ "31,935 Settles Bridge Dispute," *Pittsburgh Post-Gazette* (13 May 1931).

¹¹⁶ Commonwealth of Pennsylvania, P.L. 1389 (1961).

¹¹⁷ Maintenance files and drawings of the bridge at PennDOT's District 11-0 office were requested but not found in the office; as a result, this material was unavailable for researching this report.

¹¹⁸ "Painters Renew Seals on 40th Street Bridge," *Pittsburgh Press* (27 May 1976).

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APPENDIX: Legislative History of the Washington Crossing Bridge

62d Cong., 3d sess., chap. 144 (4 March 1913), 805: \$300,000 appropriation for improvements to the Allegheny River and harbor at Pittsburgh revoked "until the Secretary of War shall have received satisfactory assurances that channel spans of the bridges forming unreasonable obstructions to the navigation of the Allegheny River will be modified as recommended."

* * *

An Act Granting the consent of Congress to the County of Allegheny, Pennsylvania, to construct, maintain, and operate a bridge across the Allegheny River at or near Millvale Borough, in the County of Allegheny, in the Commonwealth of Pennsylvania, 65th Cong., 3d sess., chap. 66:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the consent of Congress is hereby granted to the County of Allegheny, in Commonwealth of Pennsylvania, and its successors and assigns, to construct, maintain, and operate a bridge, with approaches thereto, across the Allegheny River at a point suitable to the interests of navigation at or near the borough of Millvale, in the County of Allegheny, in the Commonwealth of Pennsylvania, in accordance with the provisions of the Act entitled "An Act to regulate the construction of bridges over navigable waters," approved March twenty-third, nineteen hundred and six.

Sec. 2. That the right to alter, amend, or repeal this Act is expressly reserved.

Approved, February 27, 1919.

* * *

An Act to Extend the time for the construction of a bridge over the Allegheny River at or near Millvale Borough, in the county of Allegheny, in the Commonwealth of Pennsylvania, 66th Cong., 2d sess., chap. 290:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled, That the times for commencing and completing the construction of a bridge, authorized by an Act of Congress approved February 27, 1919, to be built across the Allegheny River, at or near the borough of Millvale, in the county of Allegheny, in the Commonwealth of Pennsylvania, are hereby extended two and four years, respectively, from the date of approval hereof.

Sec. 2. That the right to alter, amend, or appeal this Act is hereby expressly reserved.

Approved, June 14, 1920.

* * *

An Act To authorize the Secretary of War to sell real property known as the Pittsburgh Storage Supply Depot, at Pittsburgh, Pennsylvania, 67th Cong., 2d. sess., chap. 208:

Be it enacted by the Senate and House of Representatives of the United States America in Congress assembled, That the Secretary of War be, and he is hereby, authorized to sell at either public or private sale, upon terms and conditions deemed advisable by him, the land and improvements thereon erected, situated in the city of Pittsburgh, State of Pennsylvania, lying between Thirty-ninth Street, Fortieth Street, Butler Street, and the Allegheny River in said city, comprising an area of approximately nineteen and three-fourths acres, and also a certain parcel of land in said city of Pittsburgh located at the northwest corner of Geneva Street and Forty-fourth Street, comprising approximately one-half acre, together with easements and rights of way leading thereto, all of which said property is generally known as the Pittsburgh Storage and Supply Depot, and to sell this same as a whole or in parcels, as the Secretary of War may determine, and to execute and deliver in the name of the United States and in its behalf any and all deeds or other instruments necessary to effect such sale.

Sec. 2. That all moneys received as the proceeds of such sale, after deducting the necessary expenses connected therewith, shall be deposited in Treasury of the United States to the credit of miscellaneous receipts.

Approved, June 6, 1922.