

ALLENDER ROAD BRIDGE
(Bridge No. 142)

Allender Road, spanning CSX Transportation railroad tracks,
0.3 miles northwest of U.S. Route 40/Pulaski Highway
White Marsh Vicinity
Baltimore County
Maryland

HAER No. MD-124

HAER
MD,
3-WH MAR.V,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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Location:

Allender Road, spanning CSX Transportation railroad tracks,
0.3 miles northwest of U.S. Route 40/Pulaski Highway
White Marsh vicinity, Baltimore County, Maryland

USGS White Marsh, MD Quadrangle, Universal Transverse Mercator
Coordinates: 17.378820.4361960

Date of Construction: 1945

Engineer/Architect: Baltimore and Ohio Railroad, Office of Engineer of Bridges, Baltimore

Builder/Fabricator: Baltimore and Ohio Railroad, Maintenance of Way Department

Present Owner: CSX Transportation System
500 Water Street
Jacksonville, FL 32202

Present Use: Highway bridge (closed to traffic)

Significance: The Allender Road Bridge was declared eligible for National Register listing by the Maryland State Historic Preservation Office (SHPO) because it retains two riveted plate girders, which were deemed its character-defining elements. These girders were part of a 60-foot turntable erected about 1892 by the West Virginia and Pittsburgh Railroad in Camden-on-Gauley, West Virginia. They were used in the construction of this standard-design wood-trestle bridge during World War II, when the availability of steel structural materials was limited. Their use represents the response and adaptation of the Baltimore and Ohio and other railroads to wartime scarcity.

Project Information: Due to its low load capacity and poor condition, the Baltimore County Department of Public Works and the Federal Highway Administration (FHWA) plan to replace the Allender Road Bridge. To mitigate the adverse effect of this action, the Maryland SHPO entered into a Memorandum of Agreement (MOA) with FHWA. The MOA required that the bridge be recorded at a level set by the Historic American Engineering Record (HAER) and that attempts be made to relocate or reuse all or part of it. This documentation is part of the recordation requested by HAER.

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Narrative Text:

Location of Allender Road Bridge:

The Allender Road Bridge is located in a largely suburban area of northeastern Baltimore County that is served by U.S. Route 40 and the Baltimore and Ohio (B & O) Railroad, within a few miles of Interstate 95, and only about 10 miles northeast of central Baltimore. Some undeveloped land remains to the bridge's south, and Gunpowder Falls State Park is located across Route 40 to its east, but the structure is slowly being ringed by modern development.

The established communities closest to the bridge are White Marsh, about two miles to the southwest, and Bradshaw, about the same distance to the northeast between Gunpowder Falls and Little Gunpowder Falls. These two watercourses—called falls rather than rivers—join just to the east to form the Gunpowder River, a tongue of the Chesapeake Bay. The neighborhood of single-family residences immediately northwest of the bridge, planned near the turn of the century as Loreley City, did not develop until after World War II and now bears the names Loreley and Darryl Gardens.

History of Area:

The area served by the Allender Road Bridge was settled in the eighteenth century. The Philadelphia Road or Route 7, at which Allender Road terminates about a mile northwest of the bridge, was established by the eighteenth century on the site of a former Indian trail (Brook and Rockel 1979:135). The road extended from Baltimore, beyond its present junction with Allender Road, then across Little Gunpowder Falls past Joppa and on to Philadelphia. Joppa, on the east side of the Little Gunpowder about four miles northeast of the bridge, was the seat of Baltimore County from 1724 until the government was shifted to Baltimore City in 1768. It was also the site of an early nineteenth-century ironworks (Scharf 1881:212-215, 923). Late eighteenth- and nineteenth-century houses still stand along the Philadelphia Road in Baltimore County in the vicinity of Allender Road.

According to one source, Allender Road was part of the Philadelphia Road, as originally aligned, in the eighteenth century. After 1785 a section of the road, known locally as "the old post road" or "old Long Calm road," was straightened south of the Gunpowder. The original route reportedly followed Allender Road southeast from its junction with the present Philadelphia Road, crossed the site of the present railroad tracks, and then turned southwest along Red Lion Road to the vicinity of White Marsh. The Allender Road section of the old road was known locally, for unidentified reasons, as "the Race Course" (Marye 1958a:44).

The Philadelphia Road remained busy throughout the nineteenth and early twentieth centuries. By 1802 it carried stage traffic between Baltimore and Philadelphia, acquiring an alternate name, the Old Stage Road (Scharf 1881:311). The Baltimore and Ohio Railroad (now CSX Transportation), in the 1880s, established a line parallel to and about a mile southeast of the Philadelphia Road (Harwood

1990:30, 39). In the early 1940s U.S. Route 40 or the Pulaski Highway was built through Baltimore County, parallel to and less than half a mile southeast of the railroad (Brook and Rockel 1979:364).

The lands immediately around the Allender Road Bridge were apparently settled, or at least claimed, by the end of the first quarter of the eighteenth century. A Baltimore County Historical Society marker just west of the bridge, titled "Scholars Plains," states: "Although a school was built here as early as 1725, by act of the General Assembly this land was sold in 1857. The proceeds were used to erect two schools, one for white, one for colored children, on Philadelphia Road." Scharf's early history of Baltimore City and County does not identify the precise location of the school, but notes that it was in the Eleventh District, in which the bridge stands. He states that in 1725 Thomas Tolley conveyed 100 acres to a trustee for free school purposes, the first gift for a public school in Baltimore County. The schoolhouse was erected in 1890 on the Philadelphia Road. The trustee in 1881 was the "venerable Dr. W.T. Allender," who sold the land and, with the proceeds, built the two school houses and provided for teachers' salaries. Allender, for whom Allender Road may have been named, lived on an estate overlooking the Gunpowder River and the Chesapeake Bay, probably near the eastern terminus of the road, a mile or two from the bridge (Scharf 1881:924). The "old Free School," according to one account, stood along Allender Road west of the present tracks in the eighteenth century (Marye 1958a:44).

The Baltimore and Ohio Railroad was chartered in 1827 to, as its name indicated, connect Baltimore with the markets tapped by the Ohio River. It was accordingly initially extended west across Maryland (Brugger 1988:204; Walsh and Lloyd 1983:195; Stover 1987:17, 30, 38). Following the Civil War efforts were made to find a path for the line northeast from Baltimore to Philadelphia and, ultimately, New York. In 1883 work was begun on this route and by mid-1886 limited operations had begun between Baltimore and Philadelphia (Harwood 1990:30, 39).

The Philadelphia line brought the promise of development to the Allender Road area and other locales within commuting distance of Baltimore. In the 1890s the Loreley Distilling Company platted a subdivision optimistically called Loreley City. From the community, residents could ride the B & O Railroad to work. The company's plans were grand, if unfulfilled (McGrain 1985:212-215; Marye 1958b:241). An 1896 (Bromley and Bromley) atlas of Baltimore County pictures an inset map of the large Loreley subdivisions—filled with a grid of paper streets—which extended west of the B & O tracks, south of Gunpowder Falls, east of the Philadelphia Road, and north of Allender (then called Floyd) Road. The body of the map, however, does not include these streets. It rather includes the words "Lorely Co.," a few houses and, to the east of the tracks, the Loreley station and post office. The 1915 Bromley and Bromley atlas pictures the streets within the inset and the body of the map. Little development had apparently actually occurred there, however. Even though a predecessor to the present Allender Road Bridge had been erected in 1909-1910, the subdivision still only contained a few houses in 1915. Not until after World War II did houses in any number begin to rise in the neighborhood. The growth of the community at this relatively late date was due not to the railroad,

but to ready automobile access to the city provided by the Philadelphia Road and the Pulaski Highway. Home to post-war single-family dwellings, it is now called Loreley and Darryl Gardens.

Predecessor Bridge:

The bridge that preceded the present Allender Road Bridge was constructed in 1909-1910. A 178-foot-long through-truss structure, it consisted of one 25-foot I-beam truss and three "Greiner rail truss spans," two of 42 feet, the other 70 feet long. These steel spans were supported on steel bents, timber abutments, and stone pedestals. The truss members were apparently constructed out of 67-pound track (Interstate Commerce Commission 1916-1927c). The bridge was 15'-10" wide and had a load capacity of about five tons (Brent 1979). The bridge may have been built in part because of the grand plans of the Loreley community. If so, it had limited impact on the growth of that community, which largely rose after its demise.

The original drawings of the present Allender Road Bridge called for a 196-foot-long structure, almost exactly one 20-foot bent longer than the earlier bridge (Baltimore and Ohio Railroad 1942). The additional bent (which was supplemented by yet another 20-foot bent when the structure was erected) would have compensated for changes to the slope proposed in the plans. The plans further noted that the "present roadway" was to be maintained at the north end and raised at the south. The comparable bridge lengths and the roadway reference suggest that the old bridge stood on the site of the new one. No physical evidence of the old bridge, such as remnants of pedestals or abutments, could be found, further suggesting that it was removed from the site of the present structure.

History and Description of Allender Road Bridge:

The Allender Road Bridge or Baltimore County Bridge No. 142 was erected in 1945 to carry Allender Road over the Baltimore-to-Philadelphia line of the Baltimore and Ohio Railroad. It was designed by the B & O's Office of Engineer of Bridges in Baltimore and built by the railroad's Maintenance of Way Department. Baltimore County reportedly contributed \$2,000 towards its construction, although it remained the property of the railroad. With a 20-foot width and a planned load capacity of 15 tons, the bridge was wider and considerably stronger than its predecessor (Baltimore and Ohio Railroad 1942; Baltimore and Ohio Railroad 1945; Brent 1979).

References in the files of the Baltimore County Department of Public Works (Baltimore and Ohio Railroad 1945; Brent 1979) to the bridge being "re-built" and to its "reconstruction" are misleading. Although erected at the location of its predecessor and assigned the same bridge number—13-A—by the B & O, the present bridge was an entirely new structure, built to a different design with different types of materials.

The Allender Road Bridge is a nine-span, 216-foot-long, timber trestle structure with two riveted plate girders at its center. Its eight approach spans, four at either side of its center span, are each 20-

feet long. They and their bents are constructed entirely of timber. The bents are set on concrete pedestals backed by retaining walls formed of railroad ties. Vertical and battered 12"-by-12" posts supplemented with 8"-x-10" sway braces form the bents. Additional braces run parallel to the bridge deck, between the bents. As discussed further below, the bridge's wooden trestle form follows standard designs utilized by the B & O throughout the first half of the twentieth century in Maryland and elsewhere.

The center span of the bridge is 51 feet long. Its two riveted plate girders, the only notable steel elements of the structure, are set into two-and-a-half-foot-wide bents. As noted on the bridge plans, and discussed further below, the plate girders were salvaged from a ca.1892 turntable that was located in Camden-on-Gauley, West Virginia. The plate girders are 54 feet long and of variable depth. They are widest at their central 18-foot portions. The undersides of these 18-foot portions are parallel with the tops of each girders. The 18-foot lengths at either end of the girders angle up towards the ends, giving the girders a bow shape that would have nestled into a turntable. The distance between the bottoms of the girders and the track below is 33'-9". Timber forms the bridge's floorbeams and deck. The deck is 21'-8" wide with a 20-foot clear roadway between timber curbs. Its bituminous wearing surface is between two and two-and-a-half inches deep. Wooden guardrails, three feet high, run parallel to the deck.

The track beneath the bridge does not run quite perpendicular to the deck, giving the structure a slight skew. Once two lines passed beneath the structure. The westernmost line, which originally carried traffic southwest towards Baltimore, has been removed, however. Covered with stone ballast, it is now used as a rough service road paralleling the remaining track.

In 1979 the railroad repaired the bridge's deck, wearing surface, and handrails (Brent 1979; Diver 1978; Robinson 1978). The railroad made additional repairs to the timbers of the substructure in 1980 (Wilbur Smith Associates 1995). At present the bridge's wearing surface, deck, guardrails, and timber retaining walls are in varying states of damage and disrepair. Pairs of concrete Jersey barrier rails stand at either end of its deck, closing it to traffic. In 1996, however, the Maryland State Historic Preservation Office found—following an inventory of the bridge by the Maryland State Highway Administration (Watts 1996) and its review by a state interagency commission studying the eligibility of historic bridges—that the bridge retained sufficient integrity to be eligible for listing in the National Register.

The Allender Road Bridge was not built precisely as designed. The original general plan of 1942 called for eight rather than nine spans, with four 20-foot timber spans to the east of the central span and three to the west. (The drawing of the bridge on the general plan, which seems at first blush to picture only three spans at the east, actually depicts four, with the easternmost two collapsed for reasons of space.) The plan calls for a proposed slope of two-to-one at the east of the railroad cut and of one-and-a-half-to-one at the west. When the bridge was built in 1945, the slope to the west was actually also cut at two-to-one, necessitating the addition of one more 20-foot bent to the west.

Additional braces were also added between bents three and four, seven and eight, and eight and nine (counting east to west and as numbered on the drawings). The bridge pictured on the 1945 drawing is structurally the same bridge as that which stands today, although members have been repaired or replaced during the course of maintaining the timber frame portion of the structure which, member by member and due to the nature of its materials, has a limited life.

Timber Trestle Bridges in Maryland:

Timber bridges were popular in Maryland from its initial European settlement into the twentieth century. The B & O Railroad constructed functional timber trestle railroad bridges in the state from the 1840s to the mid-twentieth century (P.A.C. Spero & Company 1994:33-44). Standard plans for frame and pile railroad trestles from 1906-08 and 1947, designed by the Office of Chief Engineer of the B & O, are located at the Baltimore and Ohio Railroad Museum in Baltimore (Baltimore and Ohio Railroad ca.1908:4; Baltimore and Ohio Railroad 1947:21, 23). Although these plans are for bridges that carry tracks rather than roadways, they indicate that the design of wooden trestles by the B & O changed little during the first half of the twentieth century and that its highway trestles—at least in the case of the Allender Road bridge—differed little from its railroad trestles.

Wooden bridges in Maryland were often designed, beginning in the 1880s, with iron and steel components. In the 1930s composite timber and concrete bridges were erected in the state as well (P.A.C. Spero & Company 1994:33-44). Whether the combination timber-and-salvaged-steel design of the Allender Road Bridge sprang partially from this trend, or from wartime shortages of materials as discussed below, is not known.

Camden-on-Gauley Turntable and the West Virginia and Pittsburgh Railroad:

The two steel plate girders that underpin the center span of the Allender Road Bridge were salvaged from a turntable located just outside of Camden-on-Gauley, West Virginia, on the tracks of the former West Virginia and Pittsburgh (WV & P) Railroad. In the 1880s the amount of timber cut in West Virginia skyrocketed, prompted by the introduction of the bandsaw and the extension of narrow-gauge rail lines into vast expanses of uncut forest. Among the railroads that tapped into the narrow-gauge timber lines were the B & O and the WV & P. The timber boom continued through the teens, until the virgin forest had been harvested out. Following 1920 the lumber industry steadily declined. By 1950 band saws operated at only 11 locations in the state, including Camden-on-Gauley and Richwood, the end of the line of the WV & P (Rice 1985:197-198).

As part of the timber boom (and to a lesser extent expanding coal and coke mining activities), the West Virginia and Pittsburgh Railroad Company was formed in 1890 from the Clarksburg, Weston and Midland and the Buckhannon River railroad companies. Those two companies operated two narrow gauge lines and owned a few partially constructed and planned lines. The new company immediately leased its lines to the Baltimore and Ohio Railroad Company and commenced

construction of a standard-gauge rail line that ultimately connected the B & O railroad in Clarksburg with Richwood in Nicholas County in southeast West Virginia. In 1892 the main line was completed to Camden-on-Gauley in Webster County and it was extended to its terminus at Richwood no later than 1901. By 1899 the B & O had taken over operation of the WV & P and in 1912 purchased it outright (Baltimore and Ohio Railroad 1922:668-678; Baltimore and Ohio Railroad 1929:148-149; Hilton 1990:553; Rice 1985:186).

The southern portion of the WV & P line, from Flatwoods through Camden-on-Gauley on to Richwood, was described in 1921 as containing a large amount of timber and a number of large saw mills, including one at Gauley Mills, a mile north of Camden-on-Gauley. The turntable, along with a water station, was located eight-tenths-of-a-mile south of Gauley Mills and two-tenths-of-a-mile north of the Camden-on-Gauley station (Interstate Commerce Commission 1916-1927a; Baltimore and Ohio Railroad 1929:148-149).

The valuation records prepared by the B & O for the Interstate Commerce Commission in the early twentieth century indicate that a 60-foot steel turntable was located in Camden-on-Gauley. They do not date or otherwise describe the structure. In 1892 a 40-mile extension of the WV & P was laid from Flatwoods to Camden-on-Gauley. In the same year, a combination passenger and freight terminal was built there. The terminus of the line and construction of the terminal at Camden-on-Gauley in 1892 suggest that the turntable was built in that year as well (Interstate Commerce Commission 1916-1927b).

The turntable was in place as late as 1940, according to a guide to stations and sidings published by the B & O the following year (Baltimore and Ohio Railroad 1941:113). The plan sheet of the Allender Road Bridge, dated December 7, 1942, states beneath the plate girders of the structure: "Note: Use 2nd Hand Girders from 60 ft. Turntable removed from Camden-on-Gauley. Girders to be altered as shown on Dwgs 34118 & 34119. Girders stored at Martinsburg, W. Va" (Baltimore and Ohio Railroad 1942). As a result of West Virginia's timber decline, the turntable was either out of service or underutilized, even though still in place, by 1940. The B & O guide to stations and sidings of 1954 no longer shows a turntable at Camden-on-Gauley (Baltimore and Ohio Railroad 1954:118). By that date it had been carrying Allender Road across the Philadelphia line for almost a decade.

The B & O Railroad in World War II:

The B & O Railroad, along with many other American enterprises, had to develop means to deal with the scarcity of steel and other building materials during World War II. The Baltimore and Ohio Railroad Museum in Baltimore possesses examples of the B & O's wartime response and adaptation to this scarcity, including a caboose adapted from a standard boxcar. The museum has expressed an interest in displaying the Allender Road Bridge's plate girders, along with part of their trestle support, to represent the B & O's response to the war (Fulton 1997).

Near the onset of the war, the B & O dismantled the Camden-on-Gauley turntable and stored its parts in Martinsburg, West Virginia, awaiting reuse. The railroad's decision during the depths of World War II to use the turntable girders at the central span of the Allender Road Bridge, and indeed to build a wooden rather than steel bridge, as the predecessor structure had been, was probably due more to the shortage of materials than to abstract engineering principles.

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Research for this document was primarily conducted at the Baltimore and Ohio Railroad Museum, Baltimore, Maryland; the Baltimore County Department of Public Works, Bureau of Engineering and Construction, Structural Design Section, Towson, Maryland; the Maryland Room of the Enoch Pratt Public Library, Baltimore, Maryland; the Maryland Archives, Maryland Hall of Records, Annapolis, Maryland; and the National Archives, College Park, Maryland. Assistance was provided by, among others, Dennis Fulton and Anne Calhoun at the Baltimore and Ohio Railroad Museum; Bill Pontius and James Arford at the Baltimore County Department of Public Works; and David Pfeiffer at the National Archives.