

COLONIAL PARKWAY,
ROUTE 199 BRIDGE
(Bridge at Millers Crossing)
Yorktown vicinity
York County
Virginia

HAER No. VA-48-Z

HAER
VA
100-YORK,
18Z-

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

HAER
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VIRGINIA ROUTE 199 BRIDGE
Colonial National Historical Park
HAER No. VA-48-Z

Location: Virginia Route 199 at Colonial Parkway,
1 mile south of Williamsburg,
Williamsburg vicinity, James City
County, Virginia.
Quad: Hog Island, VA
UTM: 18/349200/4123600

Date of Construction: 1966; extensive modifications and the
addition of another bridge in 1974-1975.

Type of Structures: Reinforced concrete arch bridges with
brick veneer.

FHWA structure No.: 4290-021P

Use: Separated grade vehicular crossing.

Designer/Engineer: Bureau of Public Roads, Department of
Transportation; Eastern Office of Design
and Construction, NPS; Virginia Depart-
ment of Highways, Richmond, Virginia.

Builder: Malpass Construction Company, Inc.,
Norfolk, Virginia (1965-1966); and the
Virginia Department of Highways (1972).

Owner: Virginia Department of Highways

Significance: Originally constructed as Miller's
Crossing in 1966, the separated grade
structure was modified in 1973-1975 as
part of the state's plan for a southern
by-pass of Williamsburg with Route 199.
The existing structure was modified and
became the eastbound lane, while a new
westbound lane was constructed. All new
construction was designed to match
existing architectural treatments along
the parkway.

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Project History:

Documentation of the Virginia Route 199 bridges is part of the Colonial National Historical Park Roads and Bridges Project, conducted in summer 1995 by the Historic American Engineering Record, National Park Service.

Historian:

Michael G. Bennett, HAER Historian, 1995

INTRODUCTION

Along with photographs, measured drawings, and an overview history of the Colonial National Historical Park roads and bridges (HAER No. VA-115), individual reports on certain bridges, park tour roads (Jamestown Island Tour Road HAER No. VA-116, and the Yorktown Battlefield Roads HAER No. VA-117), and other structural features of the Colonial Parkway are part of this documentation. These reports provide a more detailed history of a structure's design and construction. Similar documentation for Colonial National Historical Park was completed by HAER in 1988 for the Colonial Parkway (HAER No. VA-48), the Navy Mine Depot Overpass (HAER No. VA-48-A), Capitol Landing Underpass (HAER No. VA-48-B), the C & O Railroad Underpass (HAER No. VA-48-C), and the Williamsburg Tunnel (HAER No. VA-48-D).

CONTEXT

Constructed between 1931 and 1957, the Colonial Parkway is the key transportation feature of Colonial National Historical Park. Crossing the Tidewater peninsula, the road is a scenic link between the "historic triangle" of Jamestown, Williamsburg, and Yorktown--a distance of about 23 miles--designed to provide continuity in the transition from one historical era to another. The Colonial Parkway represents one of the first attempts of the National Park Service to integrate parkway design principles standardized in Westchester County, New York during the 1920s with its own traditions of landscape architecture. Under the initial direction of Charles E. Peterson, chief landscape architect for the Eastern Division of the Branch of Plans and Design, the parkway was constructed to harmonize the scenic qualities of the Tidewater environment with the region's colonial material culture.

Modern highway design and engineering practices were utilized in the construction of the parkway. The alignment of the road is comprised of a variation of spiral and single-centered curves with limited tangents, set in a right-of-way averaging 500' with broad landscaped slopes. Commercial development is prohibited, and access to the road is limited to provide motorists an

uninterrupted flow through the landscape thought to be essential to the historic experience of the park. Extensive "cut and fill" operations were used to create a road with maximum curves of 5° and grades no greater than 5 percent.

The decision to align the parkway along both the York and the James Rivers required the use of hydraulic fill to create a road embankment. Low level concrete slab bridges blend with the sandy areas of fill, providing open views of the rivers and marshes. In the vicinity of Williamsburg, filled spandrel concrete arch bridges with colonial style brick veneer provide separated grade underpasses for federal, state, and county roads. To simulate the character of a "country road," the parkway's pavement was limited to a width of 30' and specially treated to expose the extra large aggregate in the concrete. All of these features, along with interpretive markers, create a roadscape with unity, variety, and character, three common elements of NPS landscape design tradition.

MILLER'S CROSSING

After completion of the parkway in 1957 to coincide with Jamestown's 350th anniversary celebration, efforts continued to restrict public access to the road. Where access was necessary, most grade crossings were replaced with underpasses and interchanges for safety reasons. These projects were designed to enhance the continuity and pleasure of traveling on the parkway so as not to distract from the historical and scenic experience. As was noted in the 1964 Master Plan, "The park is in a growing area that is fast becoming urban and suburban with resulting pressures and complexities."¹ In 1966, a bridge and interchange was constructed at Miller's Crossing to replace a grade connection south of the Williamsburg tunnel. With the completion of the bridge, the Park Service received release agreements of access to the parkway from landowners on the western side of the

¹George F. Emery, acting superintendent, "Master Plan of Colonial National Historical Park," August 1964, 2, Colonial National Historical Park.

right-of-way.²

A separated grade structure was built at Miller's Crossing to provide a safe and adequate connection to the Great Neck Picnic Area northwest of the crossing and to provide a commercial route across the parkway from Rt. 619 to the Kings Point subdivision. During the winter of 1964-1965, plans for the Miller's Crossing Bridge were prepared by the Bureau of Public Roads, and architectural details were designed by the NPS Eastern Office of Design and Construction (EODC). Bids were opened on 12 May 1965 for the grading and construction of a reinforced concrete arch, separated grade structure. The Malpass Construction Company of Norfolk, Virginia was awarded the contract in May and construction began on 29 June. Construction was delayed due to inclement weather, and in December 1965, only 45 percent of the structure was complete. A meeting between the park's chief of maintenance Robinette and landscape architect J. Kiryakakis of the EODC was held in December to discuss the possibility of using glazed headers within the pattern of the brickwork.³

In May 1966, the bridge was considered 82 percent complete and an inspection was made by Wallace Johnson and Charles Schuster of the NPS Western Service Center. This inspection was significant for it was the first inspection of a project on the Colonial Parkway by the new field office since its establishment.⁴ A final inspection was made on 29 July and the bridge was recommended for acceptance. The bridge had a 51'-8" filled spandrel arch clad with brick laid in an English bond. The structure was symmetrical with 38'-6" arced wingwalls built on stepped footings

²Memorandum to the Director of the Southeast Region from park superintendent James Corson, 16 March 1970, file "Williamsburg Southern By-Pass," Colonial National Historical Park, Engineer's office, Maintenance Division.

³Stanley Abbott, Superintendent's Monthly Narrative Reports, May-December 1965.

⁴James Corson, Superintendent's Monthly Narrative Report, May 1966.

supported by treated timber piles. The bridge was 32'-7" wide out to out and provided two 13' lanes for Miller's Crossing. Beyond the 30' wide pavement for the parkway, two 7' drainage ditches were built along the abutment face walls of the bridge, into which weep holes discharge runoff.⁵

Stone skewback abutment corner details highlighted the 2'-8 3/4" arch ring and granite keystone. All brick was laid in English bond parallel to the road grade with incised joints. A 1/2" vertical expansion joint extended the height of the bridge on both sides of the abutment corner, and special attention was made to utilize 3/4" brick closures along the joints. The parapet wall extended 2'-7 1/4" above the concrete curb on Miller's Crossing, and is decorated with two string courses. A rounded, 1'-6 1/2" wide coping tops the parapet wall, and individual 3'-6" piers were built at the end of each wingwall.⁶

ROUTE 199 - THE WILLIAMSBURG SOUTHERN BYPASS

During the second half of the 1960s, the Virginia Highway Department began to plan for a divided four-lane southern bypass around Williamsburg to connect Route 31 with Interstate 64. The proposed Route 199 was to provide a through route around Williamsburg's increasingly congested streets. Preliminary surveys in 1969 identified the Miller's Crossing site as the best location for crossing the Colonial Parkway. Proposals called for the utilization of the existing Miller's Crossing Bridge and the construction of an additional parallel structure to the south. From the standpoint of the park and residents of Kings Point subdivision, the proposal was flawed, as it forced visitor

⁵U.S. Department of Transportation, Bureau of Public Roads, "Colonial Parkway, Project 1D27, Bridge under Miller's Crossing," Colonial National Historical Park, Engineer's office, Maintenance Division.

⁶U.S. Department of the Interior, National Park Service, Eastern Office of Design and Construction, Drawing PKY-COL 3049, 20 October 1964, Colonial National Historical Park, Engineer's office, Maintenance Division.

traffic to the Great Neck Picnic Area and local traffic to mix with the faster moving bypass traffic on Route 199. Consequently, extensive planning and survey was undertaken to devise suitable connections for local use apart from traffic on the southern bypass.⁷

Despite the exorbitant cost, the park suggested that two additional bridges be constructed south of the existing Miller's Crossing and that separated grade structures be built over Route 199 for connecting roads into Williamsburg and adjacent subdivisions to maintain the traffic flow. Although the reasons are unclear (perhaps the funds were not available), the state continued to promote its plan to utilize the existing structure, but offered to rework the interchanges to allow adequate ingress and egress from the by-pass to adjoining properties.⁸

The state's new proposal also called for the location of the new bridge north of the existing structure. This would make the new structure the westbound lane, and the older Miller's Crossing the eastbound lane. Park representatives accepted this proposal with conditions, including one that the load bearing of the Miller's Crossing Bridge would remain the same, adding that renovations "should not affect or change the appearance of the existing arch span type structure which is faced with colonial type handmade brick."⁹

In the early 1970s, the state prepared plans for the renovation of Miller's Crossing and the construction of a new bridge for

⁷Memorandum to the Regional Director of the Southeast Region from Corson, 29 January 1969, in file "Williamsburg Southern By-Pass," Colonial National Historical Park, Engineer's office, Maintenance Division.

⁸Memorandum to the Regional Director of the Southeast Region from acting superintendent Ralph Maxwell, 4 February 1970, in file "Williamsburg Southern By-Pass."

⁹Memorandum to the Director of the Southeast Region from Corson, 16 March 1970, in file "Williamsburg Southern By-Pass."

westbound traffic on Route 199. Commenting upon the plans, the regional director of the NPS stated,

Aesthetically it will give the impression of an historic structure in a proper combination of structural concrete and brick masonry using brick that resembles closely the old fashioned hand-made brick, Virginia style. We are confident that the State will provide proper supervision on this project to assure the highest quality workmanship and performance by the contractor to the satisfaction of the National Park Service.

The director continued to write that the

Contractor shall assume all responsibility for repairing or restoring, at his expense, any item of landscaping such as grading, trees, shrubbery, ground cover and other scenic improvements damaged or destroyed by his construction operations to the satisfaction of the superintendent of Colonial National Park.¹⁰

Residential complaints continued to mount in response to the Park Service's reluctance to allow left turns onto the parkway. Planning and construction was delayed as organized opposition had to be addressed by the state highway department. At the suggestion of citizen groups, a plan was initiated by 1973 to add a fourth interchange to create a full cloverleaf at the intersection of Route 199 and the parkway. This design, it was thought, would relieve the safety problems of local traffic crossing Route 199 and would provide access to all directions on the parkway. The project was undertaken by the state in 1973-1975.

EASTBOUND LANE STRUCTURE

While the existing superstructure of the bridge was kept intact,

¹⁰Both quotations come from a letter to state highway engineer Charles E. Owen from acting superintendent Ralph D. Maxwell, 12 June 1972, in file "Williamsburg Southern By-Pass."

the roadway was excavated 5'-9" below the top of the existing parapet wall, and the wingwall parapets were removed, reinforced, and reconstructed following plans which retained the architectural details of the Miller's Crossing structure. Much of this work was undertaken to upgrade the structure following Virginia Department of Highways Road and Bridges Specifications of 1970. The expansion joints along the back of the spandrel walls and wingwalls were waterproofed with asphalt plank and Minwax weather cap. New expansion bolts were used for all walls and rails. The structure was backfilled with a porous sheathing material and repaved with a 27'-8" wide roadway for the eastbound lanes of Route 199.¹¹

Special provisions were added to the plans to guide the brick masonry work on the bridge. Contractors were directed to obtain brick similar in color and texture to existing brick, and utilize the same brickwork including the use of glazed headers on the interior vault of the arch. The same emphasis on workmanship that had guided masonry work along the parkway was continued in this project (see HAER No. VA-115). The only variation in pattern from the original bridge was that no closures were to be used along the vertical expansion joints on both sides of the arch. After completion, the brickwork was cleaned by water (acid was used only in consultation with the engineer), and waterproofed with two coats of transparent 5 percent silicone water repellent.

WESTBOUND LANE STRUCTURE

The masonry contractors produced a sample panel in August 1974 for the westbound lane bridge of Route 199. Since the supplier of brick for the eastbound lane, Lochern Brick Company, went out of business, a different brick was used that matched the original

¹¹Commonwealth of Virginia Department of Highways, Drawing 234-15A, "Proposed Modification of Bridge E.B.L RTE. 199 over Colonial Parkway--James City County," 26 April 1972, Colonial National Historical Park, Engineer's office, Maintenance Division.

brick as closely as possible. The brick was manufactured by the Alwine Brick Company of New Oxford, Pennsylvania, and was a special mixture of light range (Pennsbury) and dark range (Brandywine) clays. Consistent with the original Miller's Crossing, 5 percent of the bricks used were glazed headers. The masonry cement was a buff colored Flamingo C-81, produced by the Riverton Corporation, with masonry sand supplied by Chickahominy, Inc.¹²

The new bridge for the eastbound lanes follows the architectural treatments of the modified westbound lane. It was constructed under new general specifications developed by the Virginia Department of Transportation in 1970. The bridge is 40'-2" face to face of the 3'-2" high parapet walls. Like all bridges along the parkway, careful attention was given to the bonding of brickwork to the concrete. There are two 7' sloped gutters on both sides of the 30' pavement into which weep holes discharge runoff from Rt. 199. The bridge facing is vertical to grade. The parapet walls are straight with no flare at the approach ends similar to other bridges. They are 148'-8 1/2" long, and closed with square end piers.¹³

¹²Letter from Snow, Jr. & King, Inc. to Higgerson-Buchanan, Inc., 23 August 1974, in file "Williamsburg Southern By-Pass."

¹³Commonwealth of Virginia, Department of Highways, Drawing 239-17, "Proposed Bridge W.B.L. Rt. 199 over Colonial Parkway," collection of the Bridge Division of the Virginia Department of Transportation, Suffolk, Virginia.

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