

HENRY G. SHIRLEY MEMORIAL HIGHWAY OVERPASS
George Washington Memorial Parkway, spanning Shirley Highway
Arlington Vicinity
Arlington County
Virginia

HAER No. VA-122

HAER
VA
7-ARLV,
13-

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
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HISTORIC AMERICAN ENGINEERING SURVEY
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I. INTRODUCTION

Location: Extensions of Henry Shirley Memorial Highway to carry I395 across the Potomac. The bridges which carry I395 across the Potomac are the George Mason Bridge; the Rochambeau Bridge; and the Arlan D. Williams Memorial Bridge. The overpasses are located in Arlington County, Virginia.

Date of Construction: South End Highway Bridge Underpass, 1930-32, widened in 1966. Southbound Underpass, early 1950s. Parallel structure built in 1971.

Type: Rigid frame arch bridges.

Designer: 1931 Bureau of Public Roads
1950s?
1966 Howard Needles Tammen & Bergendoff (widening) for Virginia Department of Highways
1970 Howard Needles Tammen & Bergendoff for Virginia Department of Highways

Present Owner: Virginia Department of Transportation. (verify)

Present Use: Vehicular traffic.

Significance: More recent bridges were built in the style of earlier GWMP bridges.

Project Information: Documentation of the George Washington Memorial Parkway and Clara Barton Parkway was undertaken as a multi-year project by the Historic American Buildings Survey and the Historic American Engineering Record (HABS/HAER), a combined division of the National Park Service, Robert Kapsch, Chief. The project was sponsored by the Park Roads Program of the National Park Service, John Gingles, Deputy Chief, Engineering and Safety Services Division. The Project Supervisor was Sara Amy Leach, HABS Historian. Bridge reports were prepared by Elizabeth M. Nolin (1988); Michael P. Kucher (University of Delaware, 1993); and Jennifer P. Wentzien (University of Washington, 1994).

HABS Report No. VA-69 prepared by Timothy Davis (University of Texas) provides an overview history of the entire parkway project. Jack E. Boucher and Jet Lowe produced the large-format photographs. The Washington-based summer 1994 documentation team was headed by landscape architect Tim Mackey (Harvard University, Graduate School of Design).

II. HISTORY

The Mount Vemon Memorial Highway (MVMH) was completed in 1932 and became the first segment of what is now known as the George Washington Memorial Parkway (GWMP). The South End Highway Bridge Underpass was one of twelve original MVMH bridge structures. The project is an example of clover leaf design and grade separation, a fundamental tenant of early parkway design. The site had already been occupied by a series of bridges crossing the Potomac, including the historic "Long Bridge," prior to the arrival of the MVMH. Since the construction of the South End Highway Bridge Underpass many changes have occurred to the site.

The Northbound Underpass on the site of the South End Highway Bridge Underpass crosses the Potomac on the Arlan D. Williams Memorial Bridge (1971). The Southbound Underpass(es) carries traffic from the Rochambeau Bridge (1950) and George Mason Bridge (1962) towards the Pentagon. The majority of these changes are the direct result of the construction of the Shirley Memorial Highway I395 as part of the Pentagon Network.

These crossings are all 20th century replacements to a series of early utilitarian wooden crossings and the famous "Long Bridge." The Highway Bridge constructed by the Government for the trolley line and for highway purposes was located about 1250 feet up-stream from the old bridge.¹

When the River Route for decided upon for the MVMH, and the route moved closer to the shores of the Potomac River, it became necessary to design an additional grade separation structure to carry the 14th Street Bridge (also known as the Highway Bridge) to Richmond Road. Gilmore Clarke had joined the MVMH team by this time, and he had an opportunity to utilize the rigid frame arch design developed at Westchester. Clarke and the BPR engineers designed a two span structure which allowed for "the modern tendency to separate opposing traffic"² Purportedly commercial development near the shore of the Potomac at the Richmond road crossing prohibited utilization of a large area of shore frontage for a traffic circle or a grade separation with connecting ramps. So the decision was made to fill the river and remove the two southerly span of the highway bridge and place a roadway in the fill. It was boasted that the intersection, what we would now call a cloverleaf, "not only allows greater traffic flexibility, but was necessary to permit traffic to reach its destination in Washington by the most direct route." (RE Toms and JW Johnson, "The Design and Construction of the MVMH").

The South End Highway Bridge Underpass employed a rigid frame arch type structure. An adjacent structure, the Southbound Underpass was built, probably in the early 1950s, to carry traffic from the Rochambeau Bridge (1950). In the late 1960s HNTB prepared plans under contract with the Virginia Department of Highways for widening and increasing the load capacity of the South End Highway Bridge. Portions of the structure were salvaged, and the stone work was replicated on the new north facade. In the early 1970s either an adjacent structure was added or an entirely new Southbound Underpass was constructed. This latest structure is also a rigid frame arch of two spans. The design appears to be an advance upon the first as the two spans share the center vertical leg whereas the 1931 underpass was essentially to separate single span frames. The stone facing on this bridge is a slight variation on the stone

¹See also Donald B. Myer, Bridges and the City of Washington, U.S. Commission of Fine Arts, 1974.

²Arthur G. Hayden, The Rigid Frame Bridge, 1930; 1940, 1950, p. 136.

work of the earlier bridge.

For more information on the design of early MVMH bridges by Gilmore Clarke see HAER Bridge Report Nos. VA-42A,42B,42C,42D, , , , , and DC-19.

III. SOURCES

EDAW Incorporated. "Cultural Landscape Report Mount Vernon Memorial Highway," Volume I: History. Appendix I: Specifications for Bridges. 1987.

Appendix I is a reprint of the original 1930 document.

Hayden, Arthur G. The Rigid Frame Arch. John Wiley and Sons, Inc., NY. 1931; 2nd edition, 1940; 3rd edition with Maurice Barron, 1950.

U.S. Department of Agriculture, Bureau of Public Roads. "Mount Vernon Memorial Highway, Contract Drawing for the Mount Vernon Memorial Highway, Unit III, Bridges". 1929.

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U.S. Department of Agriculture, Bureau of Public Roads. "Mount Vernon Memorial Highway Final Construction Report, Unit III, Bridges." 1932. Box 1399; 420 General Virginia - 1926-29; Bureau of Public Roads Classified Central File 1912-1950, Record Group 30; National Archives at College Park, MD.

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