

CABIN JOHN CREEK BRIDGE  
Clara Barton Parkway  
Cabin John Vicinity  
Montgomery County  
Maryland

HAER No. MD-95

HAER  
MD  
16-CABJO.V,  
3-

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Department of the Interior  
P.O. Box 37127  
Washington, D.C. 20013-7127

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## HISTORIC AMERICAN ENGINEERING RECORD

### CABIN JOHN CREEK BRIDGE

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- Location:** Clara Barton Memorial Parkway milepost 3.44, 1.6 miles from Interstate 495; carries Clara Barton Parkway over Cabin John Creek, in Montgomery County, Maryland, within George Washington Memorial Parkway.
- FHwA Structure No.:** 3300-033P.
- Date of Construction:** 1961-1963.
- Type:** Reinforced concrete continuous multiple box beam bridge.
- Designer:** Bureau of Public Roads (BPR) and the National Park Service (NPS).  
BPR Division 15-- Site survey, plans and construction observation.  
William Haussmann, NPS Architectural Designer.  
F.W. Cron, BPR Regional Engineer.
- Contractor:** Blackwell Construction Co.
- Present Owner:** National Capital Region, National Park Service.
- Present Use:** Noncommercial vehicular traffic of the GWMP over Cabin John Creek and Cabin John Parkway.
- Significance:** One of the best examples of modernist designs for bridges on the GWMP.
- 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 Maryland segment of the George Washington Memorial Parkway (GWMP) was built in the 1960s with the goal of preventing development of residential subdivisions along the Potomac River and preserving the natural landscape.<sup>1</sup> The Cabin John Creek Bridge is part of the Clara Barton Parkway, as the Maryland segment of the GWMP is better known. The bridge is located near the C&O Canal and MacArthur Boulevard, south of the village of Cabin John. Immediately north of the bridge, also spanning the Cabin John Parkway, is the famous Cabin John Aqueduct. The two structures provide an interesting contrast between the massiveness of earlier masonry construction, and a modernist aesthetic emphasizing the lightness of structure.

The Cabin John Creek Bridge resembles an award-winning design executed in steel for a competition sponsored by the American Institute of Steel Construction.<sup>2</sup> The design relies on structural form for aesthetic expression. An exception to this is the stone-facing designed for the wing walls. This detail recalls the stone-faced concrete bridge elevations of GWMP bridges of the 1930s.

With regards to parkway design, the bridge employed modern empirical engineering methods to design a bridge deck curving in two dimensions to allow for the continuous curvature of the roadway above. The superelevated deck slopes downward and curves on a long radius.

### Description

Cabin John Creek Bridge is a three span continuous box beam structure supported on abutments and inwardly sloped piers. The entire structure is reinforced concrete. Two pairs of tapered, inwardly sloping piers are spaced 202' apart at footings. The piers slope inwards at 45 degrees. The overall length of the deck is 378'. Its central and longest span is 150'. The bridge is set skew to the creek at a 44° and spans the creek at a height of about 60'. Minimum clearance is 14'-6". The superelevated deck is built on a radius of 1763' and slopes downward from east to west at approximately 2.5%. The four lane roadway is comprised of opposing 26' roadways separated by a 8'-6" wide and slightly raised median strip. Sidewalks cantilever out 5'-6" on each side. The overall width is 71'-6". The steel bridge rails rise 2.75' from the sidewalk edges.

The creek was relocated prior to construction of foundations. Foundations are reinforced concrete spread footings. Two pairs of sloping piers are continuous with the footings and the deck structure. The deck structure is comprised of two parallel box girders cast integrally with the ribbed deck. A 5000 psi compressive strength was specified for class "A" concrete with a Darex Air Entraining agent. A local concrete truck drivers strike from 5/15/63-6/13/63 delayed work. Wrought iron scuppers were cast into the concrete deck. The wing walls are stone-faced concrete. Stone facing is specified as class "A" masonry. A locally quarried mica schist from Walker Brothers quarry near the Stoneyhurst Quarries was used. The finish on the concrete is specified as a rubbed surface. Railings are steel. The final work was the seeding of the site with Kentucky bluegrass, creeping red fescue and Kentucky 31 (tall fescue). Trails were proposed running along both sides of the creek. However, only one trail was built, a 10' wide path along

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<sup>1</sup>Bureau of Public Roads, "Final Construction Report Project 1A19," 1964.

<sup>2</sup>Christopher Tunnard and Bois Pushkarev, Man-Made America: Chaos or Control? (New Haven, 1963) 243-9.

the east bank of the creek.

F.P.57 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects were applied. 1957 edition AASHO design standards were applied with an H20-44 design load. Final approval was given by Robert W. Andrews, Chief of National Capital Design and Construction Office in November 1963. Total construction costs were reported as \$760,924 with an additional \$85,588 in construction engineering.<sup>3</sup>

#### Alterations

In 1986 a Ferex 100 mesh anode system for cathodic protection made by the Rochem Corporation was installed. Cathodic protection was promoted by the BPR through Demonstrations Projects Division, Project No. 34 which provided \$60,000 of funding. Cathodic protection supplies a low level current to the top mat of reinforcing steel. The repair was made under the Federal Highway Administration, Eastern District Federal Bridge Design Office.<sup>4</sup>

### III. SOURCES

Tunnard, Christopher, and Bois Pushkarev. Man-Made America: Chaos or Control? New Haven, 1963.

U.S. Department of Commerce, Bureau of Public Roads. Plans for Proposed Projects 100A2, 100A19 (repair). Microfiche reductions of original construction drawings on file at the Bridge Inspection office of the Roads on Eastern Federal Lands Highway Division, Federal Highway Administration, Sterling Virginia. Plans are also available on microfiche from National Capital Region Park Headquarters, National Park Service, Washington D.C.

\_\_\_\_\_. "Final Construction Report for Project 100A2." On file at the remote storage facility of the Eastern Federal Lands Division, Federal Highway Administration, Sterling, Virginia.

U.S. Department of the Interior, Historic American Buildings Survey (HABS), No. VA-69, "George Washington Memorial Parkway," 1994. Prints and Photographs Division, Library of Congress, Washington D.C.

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<sup>3</sup>Bureau of Public Roads, "Final Construction Report, George Washington Memorial Parkway, Project 100A2."

<sup>4</sup>Bureau of Public Roads, "Final Construction Report, Project 100A19."