National Register of Historic Places Inventory—Nomination Form

received AUG 2 5 1983
date entered SEP 2 2 1983

See instructions in How to Complete National Register Forms
Type all entries—complete applicable sections

Type all entries	-complete applicable s	ections		Washington Bridge.
1. Nam	le			
historic	Washington Bridge			
and/or common				
2. Loca	ation Between	oen Amster	dans and Und	ercliff Aves
street & number		ween West 181st St	rect, Manhattan and	
city, town	New York/Bronx	vicinity of		
state	New York code	e 036 county	Bronx / New Yorl	countode 61/05
3. Clas	sification			4
Category district building(s) X structure site object	Ownership _X_ public private both Rublic Acquisition in process NA being considered	Status X occupied unoccupied work in progress Accessible yes: restricted x yes: unrestricted no	Present Use agriculture commercial educational entertainment government industrial military	museum park private residence religious scientific X transportation other:
street & number	ory Johnson, Deputy 16th Floor, Munici		y	Y 135 - 17 10 10 10 10 10 10 10 10 10 10 10 10 10
city, town	New York	vicinity of	state	New York 10007
5. Loca	ation of Lega	al Descripti	on	
courthouse, regi		ork County Register onx County Register		
street & number	31 Chambers Stree	t; 1960 Benedict	Avenue	
city, town	New York; Bronx		state	10007; 10462
6. Rep	resentation	in Existing	Surveys	
(1 title Landmarks	LP-1222) s Preservation Commi	ssion has this pro	operty been determined eli	gible?yes _X no
date Septe	ember 14, 1982		federal stat	e county X local
depository for su	rvey records New Yo	ork City Landmarks	Preservation Commis	sion
city, town	20 Ves	ey Street rk	state	N. Y. 10007

7.	00	CHI	-	••		
	E3	CI I	u		UI	
					_	_

Condition excellent	Check one unaltered	Check one X original site		
excellent deteriorated ruins	X altered	moved date	NA	
fair unexposed				

Describe the present and original (if known) physical appearance

Washington Bridge, a steel and cast- and wrought-iron arch bridge with arched masonry approaches, spans the Harlem River between West 181st Street in Manhattan and University Avenue in the Bronx.

The design of the Washington Bridge is asymmetrical due to site conditions along the Harlem River; the Manhattan side has steeper, more abrupt bluffs, while the Bronx side has a longer and more gradual slope. Thus the approaches to the bridge are different; the Manhattan approach consists of three semi-circular masonry arches, while the Bronx approach consists of three semi-circular arches and one seven- centered masonry arch. These masonry arches, constructed of concrete faced with coursed Maine and Connecticut granite and gneiss ashlar, have voussoirs with keystones. The overall structures of the approaches have bracketed granite cornices which are capped by granite balustrades cut in a circular pattern. Originally, bronze fleur-de-lis ornaments were placed within these circles. The Bronx approach originally had a granite stairway with bluestone steps, as well as a median island in the roadway. Each approach abuts one of the outer piers; a large central pier is located on the Bronx shore of the Harlem River. The three piers are constructed of concrete faced with the same granite and gneiss ashlar as the approaches and have bracketed granite cornices. The piers are set on ashlar bases and accented

by rock-faced quoins. The solid granite balustrade above the piers originally enclosed seating areas with bronze gas and electric lamp posts.

The piers support the two 510-foot steel arches, the western one spanning the river and the eastern one spanning railroad tracks. Each arch span is constructed of six enormous arched girders that are composed of a series of steel plates riveted together. This was the first use in the U. S. of plate girders for arch ribs.' Each arch rib has its own set of skewbacks (from which the arches spring) which are hinged by means of a pivotal bearing. The Washington Bridge is an example of the "two-hinged arch" type of bridge, described by Condit: "in this form the arch is rigid throughout its length but hinged at the abutments or springlines; as a consequence, the maximum bending stress is at the crown, from which it decreases to a theoretical zero at the hinges." This type was a technological advance in steel arch construction. Condit also described the construction of the Washington Bridge above the arches: "the deck of the bridge rests on the usual spandrel posts, but the curious feature is that there is no diagonal bracing whatever, the stiffening members consisting entirely of horizontal struts running both transversely and longitudinally." These vertical posts and struts, along with the floor beams, are made of wrought iron. Additional horizontal bracing was added at a later date. The spans are surmounted by a classically ornamented cornice and balustrade of cast iron over wrought-iron plate. The denticulated and modillioned cornice is set above a frieze containing a motif of shield and branches. Above each shield rises a balustrade post, ornamented by a seahorse and shell motif and decorative cap. Between the posts, the balustrade features stylized Ionic columns alternating with medallions originally having a torch and scroll motif. The top rail of the balustrade incorporates an egg-and-dart motif. All of the metal surfaces of the bridge were painted a gray color "darker than the granite masonry, but in harmony with it."4

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Washington Bridge,
Continuation sheet New York & Brong C

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New York

Automobile first began to cross the Washington Bridge in 1906. That same year the New York City Interborough Railroad Company began the operation of two surface car tracks over the bridge. The increase in automobile traffic necessitated changes in the roadway. The median at the Bronx end was removed. The sidewalks were narrowed and the roadway was widened. In the later twentieth century, with the construction of the Harlem River Drive and Cross Bronx Expressway new ramps were constructed at both ends of the bridge that replace the original approach roads. In the 1930's new horizontal bracing was added to the metal structure. Today the balustrade of the Washington Bridge appears in slightly altered form. The gas and electric bronze lampposts have been removed. A chain-link safety fence and standard highway lampposts have been installed. Sections of the cast-iron and granite balustrade are missing, including such decorative elements as the bronze fleur-de-lis, post caps, the inner motif of the medallions, and sections of stone coping.

David Plowden, <u>Bridges: The Spans of North America</u> (New York: Viking Press, 1974), p. 170.

²Carl W. Condit, American Building Art: The Nineteenth Century (New York: Oxford University Press, 1960), p. 193.

³Ibid, p. 194.

William R. Hutton, The Washington Bridge Over the Harlem River (New York: Leo von Rosenberg, 1889), preface.

8. Significance

Period prehistoric 1400–1499 1500–1599 1600–1699 1700–1799 X 1800–1899 1900–		community planning conservation economics education X engineering exploration/settleme	g landscape architecture law literature military music	religion science sculpture social/ humanitarian theater transportation other (specify)
Specific dates	1886-89	Builder/Architect Cha	arles C. Schneider and and modified by Union	Wilhelm Hilden- Bridge Company.

Statement of Significance (in one paragraph)

The Washington Bridge is a steel and iron arch bridge with arched masonry approaches constructed over the Harlem River in 1886-89 to connect the Washington Heights section of Manhattan with the Bronx. The Washington Bridge is a significant structure in the history of American engineering and its construction reflects the technological advances made in American bridge engineering in the nineteenth century. The bridge is an important example of the use of the steel arch in nineteenth-century American bridges and is a significant early example of the two-hinged type of metal arch bridge. This bridge was the first American bridge to use steel plate girders for arch ribs. The design and construction of the Washington Bridge represents the collaboration of a highly distinguished group of American engineers, architects, and contractors. The masonry arches of the approaches are architecturally distinctive because of their handsome stone craftsmanship and sensitive relationship to the steel-arched bridge. The Washington Bridge is one of New York's most beautiful bridges.

As the development of upper Manhattan proceeded after the Civil War, plans were begun for a crossing over the Harlem River to the Bronx; however, it was not until two decades later that the Washington Bridge was actually built. Desiring a new Harlem River Bridge that should stand as a civic monument, the Harlem River Bridge Commission announced a formal design competition on October 16, 1885. Specifications for the design of the bridge included a clear span of at least 400 feet, an iron or steel superstructure on masonry piers, and a width of 80 feet (with 50-foot roadway and two sidewalks). This competition became one of the most interesting design competitions of the nineteenth century. Seventeen designs for the proposed Harlem River Bridge were received. prizes were awarded, each for a double-span, open web, parallel chord, metal arch design. The winning design was by Charles Conrad Schneider, while the second prize went to Wilhelm Hildenbrand. After the projected cost of the Schneider design came under criticism, the Union Bridge Company submitted plans for a less costly and elaborate version, incorporating the two winning designs and substituting a system of steel plate girders for ornamental rib lattice bracing. These plans were adopted by the commissioners after further modifications by chief engineer William J. McAlpine and civil engineer Theodore Cooper. The design of the metal arch spans was changed slightly after contracts for construction were signed. A decorative cornice and balustrade, designed by DeLemos & Cordes, were added after the commissioners decided during construction that a more ornamental structure was desirable.

The construction of the bridge was a significant engineering feat, employing approximately 500 men. First, three piers were built up to cornice height. The central pier, located on the east shore of the river, was built on a pneumatic caisson resting on solid rock forty feet below mean water. The masonry arch approaches were constructed next, using extensive wooden falsework to form the arches. The construction of the two iron and steel arch spans took the labor of 200 men from September 1887 to May 1888, and also used extensive falsework.

9. Major Bibliographical References

See Continuation Sheet

10. Geogra	aphical Data	90.00			
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state New York	code 036	county	Bronx	code	05
11. Form P	repared By			1141	
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city or town New	York		state New	York 12238	
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665), I hereby nominate the according to the criteria a	distoric Preservation Officer for his property for inclusion in the and procedures set forth by the	National Regist	er and certify that i	Act of 1966 (Publi	c Law 89– ted
State Historic Preservation	on Officer signature	lln	, rean	1	
title Commissi	oner		date	8/18/	83
For NPS use only I hereby certify that	this property is included in the	National Registr		9/22	183
Keeper of the Nationa	al Register				-0-
Attest:			date		
Chief of Registration					

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New York

The bridge assembled an impressive force of distinguished engineers, architects, contractors, and sub-contractors including: William J. McAlpine (1812-90), originally chief engineer and later consulting engineer, who was one of the country's leading engineers; William R. Hutton (1826-1901), chief engineer, who was also a prominent engineer; Theodore Cooper (1839-1919), consulting engineer, who was a notable industrial and bridge engineer whose previous work had included assisting James Eads on the St. Louis Bridge; and Edward Hale Kendall (1842-1901), the consulting architect, who was noted for his cast-iron buildings and elevated stations.

The majority of the construction work of the Harlem River Bridge was completed by December 1888, and the bridge was opened to privileged pedestrians with special passes. In February 1889, the contractors officially turned the bridge over to the commissioners, and on Washington's Birthday the bridge was officially re-named the Washington Bridge, as a part of the national centennial celebration of George Washington's inauguration as president in New York on April 30, 1789. The proximity of the bridge to Fort Washington and Washington Heights was another factor prompting the change of name.

The Washington Bridge was praised at the time of its construction and has been praised by subsequent critics. In 1888 Scientific American remarked that the bridge "with its two immense archways and general boldness of design, ... will for many years be an ornament to the city." The New York Times praised it as "one of the most imposing, beautiful and substantial to be found anywhere about the metropolis and is especially interesting as a perfect and consistent edifice in the arched style of architecture."2 Noted architectural critic Montgomery Schuyler, in Century Magazine in 1900, called the Washington Bridge "an admirable and exemplary work, perhaps the most conspicuously successful monument that American engineering has produced...the bridge proper it would be difficult to overpraise. The completed work so perfectly and evidently fulfills its function and fills its place that the general scheme seems to the spectator a matter of course."3 In 1929 engineer Charles Evan Fowler considered it "in many respects one of the finest pieces of bridge architecture in the world, especially in details, and the masonry is particularly notable for its solid construction, and the perfection of its design and detailing." More recently, the eminent American engineering historian Carl Condit noted that "the two-hinged arch suddenly achieved prominence when it was selected for one of the great steel spans of the century...Washington Bridge is unquestionably an impressive work of structural art, technically and visually..." A significant engineering feat, the Washington Bridge remains one of New York City's most beautiful bridges.

¹"Erection of the Harlem River Bridge at 181st Street," <u>Scientific American</u>, 58 (February 18, 1888), p. 101.

²Sharon Reier, The Bridges of New York (New York: Quadrant Press, Inc., 1977), p.80.

Montgomery Schuyler, American Architecture and Other Writings, Volume II (Cambridge, Mass.: Belknap Press, 1961), p. 357.

⁴Charles E. Fowler, The Ideals of Engineering Architecture (Chicago: Gilette Publishing Company, 1929), p. 195.

⁵Carl W. Condit, American Building Art: The Nineteenth Century (New York: Oxford University Press, 1960), p. 194.

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Washington Bridge,

Continuation sheet New York & Bronx Counties, Item number

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New York

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New York

The boundary of Washington Bridge is encompassed by a line running southward parallel with the eastern curb line of Amsterdam Avenue; a line running eastward which is the extension of the southern curb line of West 181st Street to the point where it crosses Undercliff Avenue; a line running northward parallel with the eastern curb line of Undercliff Avenue; a line running westward from Undercliff Avenue which intersects with the extension of the northern curb line of West 181st Street, to the point of beginning.

The nominated property occupies Manhattan Tax Map Block 2106, Lot 1 in part; Block 2149, Lot 525 in part, consisting of those parts of these lots upon which the structure and approaches of the bridge rest. The Bronx Tax Map Block 2538, Lot 32 in part; Block 2880, Lots 1 & 250 both in part; Block 2884, Lots 2,5, & 9 all in part, consisting of those parts of these lots upon which the structure and approaches of the bridge rest.

The nominated property is outlined on the attached maps (Manhattan Map Scale 120 feet to one inch; Bronx Map Scale 150 feet to one inch). Maps are not included for the middle section of the bridge that spans the Harhlem River.

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Continuation sheet

Washington Bridge, New York & Bronx Counties

Item number

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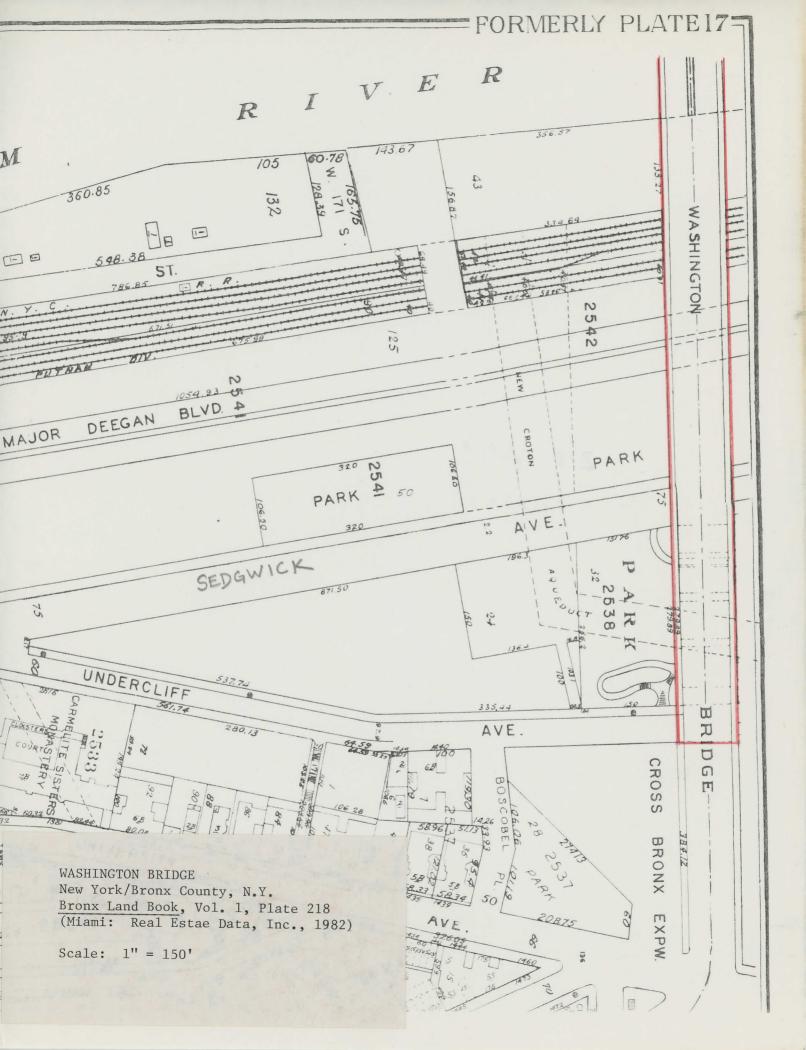
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Form Prepared by:

Fred Wasserman Landmarks Preservation Commission 20 Vesey Street New York, N.Y. 10007





A94-218 Vol. 1

WASO Form - 177 ("R" June 1984)

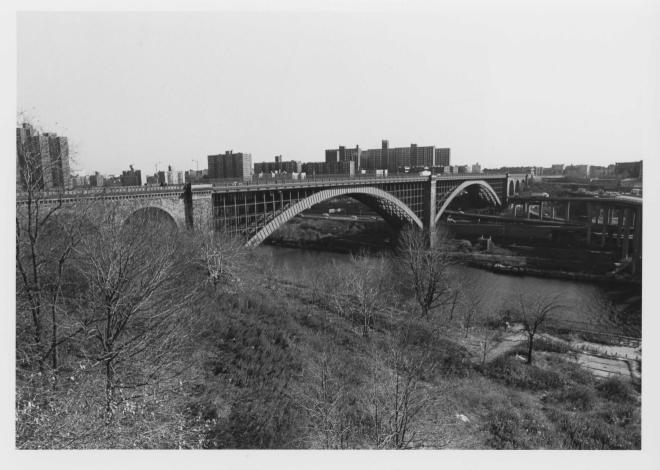
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UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION/RETURN SHEET

Action: ACCEPT 9/33/53 Action: ACCEPT 9/33/53 Entered in the RETURN National Register—REJECT Gowner objection appeal Substantive Review: sample request appeal NR decision Reviewer's comments: Recom./Criteria Reviewer Discipline Date see continuation sheet Nomination returned for: technical corrections cited below substantive reasons discussed below 1. Name 2. Location 3. Classification Category Ownership Public Acquisition Accessible Access	Washington Bridge			
Working No. Fed. Reg. Date: 2.2.4 Date Due:		ounties		
Fed. Reg. Date: 27.3 July Date Due:	NEW TORK			Working No. AUG 25 1983
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title	date		
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> Photo by: Carl Forster, 1982 Neg. at: New York Landmarks

Preservation Commission

View northeast.



Photo by: Carl Forster, 1982
Neg. at: New York Landmarks
Preservation Commission

View northeast.



Photo by: Carl Forster, 1982 Neg.at: New York Landmarks

Preservation Commission

Railing, view east.



> Photo by: Carl Forster, 1982 Neg. at: New York Landmarks

Preservation Commission

Deck, view north.

