

RIVER DRIVE OVERPASS
(Route 46 Bridge, Structure 0220-150)
Spanning River Drive (County Route 507)
on U.S. Route 46
Elmwood Park
Bergen County
New Jersey

HAER No. NJ-97

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

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HISTORIC AMERICAN ENGINEERING RECORD

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Location: Spanning River Drive (County Route 507) on U.S. Route 46, Elmwood Park, Bergen County, New Jersey.

UTM: 18.573560.4527080
Quad: Paterson, New Jersey

Date of Construction: 1936

Present Owner: State of New Jersey
Department of Transportation
1035 Parkway Avenue
CN 600
Trenton, New Jersey 08625

Present Use: Pedestrian and vehicular bridge.

Significance: The River Drive Overpass is a typical example of a single span, multiple stringer, encased steel highway overpass built during the tenure of Morris Goodkind, chief bridge engineer for the New Jersey State Highway Department from 1925 to 1955. Goodkind emphasized the integration of architecture and aesthetics in bridge design and received awards from the American Society of Civil Engineers and the American Institute of Steel Construction for his designs. The bridge was built to accommodate expansion of the state highway system west of New York City in the 1930s on N.J. Route 6, presently designated U.S. Route 46.

Project Information: This documentation was undertaken in the fall of 1993 in accordance with a Memorandum of Agreement between the Federal Highway Administration and the New Jersey State Historic Preservation Officer as a mitigative measure prior to bridge alterations.

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The River Drive Overpass is located in the Borough of Elmwood Park, Bergen County, New Jersey. The bridge currently carries U.S. Route 46, originally designated N.J. Route 6 over River Drive (County Route 507).¹ U.S. Route 46 traverses New Jersey between the George Washington Bridge and Columbia, New Jersey, on the Delaware River, and is paralleled throughout much of its length by Interstate 80. River Drive extends in a north-south direction along the east bank of the Passaic River. The bridge is located approximately three hundred feet east of the U.S. Route 46 bridge over the Passaic River and approximately 2,800 feet south of River Drive's interchange with Interstate 80 (Interchange 61). Development in the vicinity of the bridge is characterized by residential subdivisions and small-scale commercial establishments.

The River Drive Overpass was built as part of N.J. Route 6 to accommodate the expansion of the New Jersey highway system prompted by construction of the George Washington Bridge (GWB) between Fort Lee, New Jersey, and New York City in 1931. N.J. Route 6 was planned in the late 1920s as a primary highway extending west from Fort Lee, and completion of the GWB spurred its construction in Bergen and Passaic Counties. The River Drive Overpass opened in December 1937 as part of the larger construction of N.J. Route 6 between the GWB and Totowa Borough, west of Paterson.

Although N.J. Route 6 in the vicinity of the bridge consisted of a new right-of-way, large sections of N.J. Route 6 evolved from two existing state highways, N.J. Routes 5 and 12. These routes were established in 1917 when the state legislature created a highway system of fifteen routes to be administered by the newly-created New Jersey State Highway Commission and Highway Department. N.J. Route 12 connected Paterson with Phillipsburg and N.J. Route 5 connected Newark with "the bridge crossing the Delaware River about two miles above Delaware" in Warren County.² In 1927 the Highway Department submitted a proposal to the state legislature for a larger, more comprehensive state highway system. Forty-five routes were newly assigned, many incorporating existing 1917 routes.³ As officially designated in 1927, N.J. Route 6 began "at the Hudson River bridge plaza" and extended "by way of Palisades Park, Ridgefield Park, Little Ferry, Hasbrouck Heights, Paterson, Caldwell, Dover, Netcong, Hackettstown, Buttzville, and Delaware."⁴ N.J. Route 6 incorporated N.J. Route 12 between Paterson and Dover and N.J. Route 5 between Dover and Delaware.

The New Jersey State Highway Department was a national leader in highway design at the time of N.J. Route 6's establishment. The vast increase in automobile ownership in the 1920s presented the Department with a growing array of traffic problems, forcing it to adopt new methods and technologies in order to facilitate automobile traffic in the state. In 1927, the Highway Department became one of the first in the United States to propose dual-highway

¹For clarification purposes, the bridge will be referred to as the River Drive Overpass throughout this report. N.J. Route 6 in the vicinity of the bridge was redesignated U.S. Route 46 in 1953. When the bridge was built in 1936, Elmwood Park was known as East Paterson and River Drive was known as River Road or N.J. Route 3.

²John W. Herbert, "The Establishment of the New Jersey State Highway System," *New Jersey State Research* 5 (June 1918): 84.

³H. Jerome Cranmer, *New Jersey in the Automobile Age: A History of Transportation*, vol. 23 of The New Jersey Historical Series (Princeton, NJ: D. Van Nostrand Company, Inc., 1964), 61.

⁴New Jersey Senate and General Assembly, *An Act to establish a State Highway System*, Chapter 319, 1927, p. 712. The Hudson River bridge plaza denotes the New Jersey approach to the George Washington Bridge, under construction at the time.

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construction on heavily traveled routes.⁵ The considerable amount of through traffic on New Jersey's highways prompted the Department to investigate and utilize bypasses as early as 1929, "by reason of our geographical location between the metropolitan areas of New York and Philadelphia and the new outlets being provided to those centers of population by the construction of bridges over the Hudson and Delaware Rivers."⁶ New Jersey is credited with the design and construction of the nation's first traffic circle (Camden, 1925) and cloverleaf interchange (Woodbridge, 1929), and the first use of formal economic calculations with regard to highway placement and design (Pulaski Skyway between Jersey City and Newark, 1930).⁷ New Jersey also took a leading role in the construction of "superhighways," interregional precursors of the modern interstate system.

The completion of the GWB in 1931 created extensive design challenges for the Highway Department with regard to highway approaches on the New Jersey side of the bridge. Besides N.J. Route 6, N.J. Routes 1 and 4 fed into the western terminus of the GWB. The Highway Department reasoned that "the greatest return would be had by making it possible for traffic to go a considerable distance from the bridge at high speed with a minimum of delay."⁸ N.J. Route 6, as designed, fit this approach by providing a limited-access dual-highway to Totowa Borough, approximately fifteen miles west of the GWB.

Construction of this highway began in 1931 with Section 1, located immediately west of the GWB. The new right-of-way consisted of nine sections, built sequentially and in a westward direction throughout the 1930s. The River Drive Overpass was located within Section 7, a 4.4-mile section between the west bank of the Passaic River and Hasbrouck Heights. Within the vicinity of the bridge, N.J. Route 6 served as a southerly bypass of Paterson.

Construction of the River Drive Overpass began in June 1936 and was completed in November 1936. The general contractor for the project was George M. Brewster & Son of Bogota, New Jersey. The bridge contract totalled \$36,703.50. The federal government undertook the structure's cost as unemployment relief, largely through the provision of construction jobs.⁹ Construction of the bridge required relocation of River Drive approximately 120 feet east to accommodate construction of on- and off-ramps between River Drive and N.J. Route 6. Fencsak Avenue, which intersected River Drive at its former location, was cut-off to allow the relocation of River Drive. Section 7, including the bridge, opened to traffic on December 1, 1937.¹⁰

The River Drive Overpass was designed by P.H. Burch of the Bridge Division of the New Jersey State Highway Department. The design was approved by Morris Goodkind, the chief

⁵Spencer Miller, Jr., "Modern Highway in America," in *Highways in our National Life: A Symposium*, ed. by Jean Labatut and Wheaton J. Lane (Princeton, NJ: Princeton University Press, 1950), 107.

⁶New Jersey State Highway Department, *Annual Report*, 1929, 3. On file at the Bureau of Environmental Analysis, New Jersey Department of Transportation, Trenton, New Jersey.

⁷Miller, "Modern Highway in America," 103.

⁸New Jersey State Highway Department, *Annual Report*, 1930, 3. On file at the Bureau of Environmental Analysis, New Jersey Department of Transportation, Trenton, New Jersey.

⁹"Super-Highway Bids Opened," *The Clifton Times*, 20 February 1936, p. 4. The project was assigned a federal aid number, W.P.M.H. 131A, but it is unclear which New Deal agency contributed to the project. Construction of the bridge was part of a larger drive to provide in excess of 1.5 million man-hours of work.

¹⁰"Another Link of State Highway No. 6 Opened to Traffic," *The Clifton Times*, 2 December 1937, p. 2. The headline on page 1 of this edition proclaimed: "Short Cut to New York Opened."

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bridge engineer for the Highway Department from 1925 to 1955.¹¹ Goodkind emphasized aesthetics in bridge design and established an architectural section within the Bridge Division. As a result, many of the bridges built throughout New Jersey during Goodkind's tenure were stylized with Moderne and Art Deco details.¹² Goodkind was chief designer of the N.J. Route 1 Bridge over the Raritan at New Brunswick, an open spandrel arch, reinforced concrete highway bridge constructed in 1929 for which Goodkind received the Fowler Architectural Award from the American Society of Civil Engineers. The most common bridge type built during Goodkind's term was the encased steel stringer bridge, such as the River Drive Overpass. Goodkind emphasized the encasement of stringers for protection from the elements, thereby preventing corrosion.¹³ The River Drive Overpass represents one of over sixty-five encased steel stringer bridges built in Bergen County prior to World War II. This bridge type offered a standardized inexpensive solution for single-span grade separations.

The River Drive Overpass is a simple span, multiple stringer, encased steel highway overpass. The overpass' overall length is approximately 130 feet from end-of-wingwall to end-of-wingwall and includes a single 64-foot span (center-to-center of bearings). Bridge width is 72 feet inclusive of flanking sidewalks and median strip. Clear roadway width consists of two 28-foot-wide driving surfaces divided by a 4-foot-wide concrete safety barrier. The bridge carries two east bound and two west bound traffic lanes. The bridge underclearance is 14 feet. River Drive's clear roadway width below the overpass is 50 feet, exclusive of flanking 6-foot-wide sidewalks.¹⁴

The bridge superstructure consists of fourteen rolled steel I-section stringers encased in reinforced concrete. All of the steel stringers have a depth of 36 inches and a length of 64 feet. The stringers are tied together laterally with 3/4 inch steel tie rods bolted through the steel I-sections and encased in concrete. The encased tie rods produce the appearance of two lateral beams passing through each stringer. Each beam includes four rows of tie rods and measures approximately 1-foot wide and 3 feet high. The beams are spaced approximately 19 feet from each abutment. The ends of the stringers rest on steel bearing plates located on concrete bridge seats cast into east and west abutments. The west abutment accommodates fixed bearings while the east abutment has expansion bearings. Interior stringers are spaced 5 feet 9 inches center-to-center while the fascia stringers and first interior stringers are spaced at approximately 5 feet center-to-center. The reinforced concrete deck slab is 8 inches thick and is surfaced with 3-3/4-inch asphalt paving blocks topped with an additional 1-inch layer of asphalt surfacing. The bridge roadway is flanked by 6-foot-wide reinforced concrete sidewalks poured monolithic with the bridge deck and stringers. Concrete curbing is faced with steel angles supported by the first roadway stringers. The sidewalks include pebble-finish, reinforced concrete open balustrades. Balustrades measure 6 inches wide and have 9-inch-wide bases and caps. Balustrade openings

¹¹New Jersey State Highway Department, Division of Bridges, "Overpass at Route 3 (River Road)," Control No. 0220, Structure No. 150, Drawings 145-150. Original construction drawings on file at New Jersey Department of Transportation Records Center, Trenton, New Jersey.

¹²A. G. Lichtenstein & Associates, Inc., *Draft New Jersey Historic Bridge Survey*, 1992. On file at the Bureau of Environmental Analysis, New Jersey Department of Transportation, Trenton, New Jersey. For Goodkind's personal treatise on bridge aesthetics see "Architectural Considerations in Bridge Design," *Journal of the American Concrete Institute* 7 (September/October 1935): 29-38.

¹³Ibid.

¹⁴Dimensions noted throughout this description were derived from original construction drawings, New Jersey State Highway Department, Division of Bridges, "Overpass at Route 3 (River Road)," Control No. 0220, Structure No. 150, Drawings 145-150.

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are arched. The end posts contain recessed panels with the inscription "STATE NEW JERSEY [sic] 1935". The balustrade is 3 feet 6 inches tall. Modern metal guardrails are attached to the inside surface of both north and south balustrades.

The bridge's reinforced concrete substructure consists of two U-shaped abutments with angled backs. Each abutment has an overall length of approximately 74 feet and is supported on spread footings measuring 2 feet 6 inches. The average height of the abutments is 14 feet 11 inches from the top of the footing to the top of the bridge seat at the center line of the bridge. Wingwalls are supported by stepped footings with a minimum thickness of 2 feet. Each wingwall is 26 feet long. The east wingwall's height varies from a minimum of 9 feet to a maximum of 19 feet 11 inches while the west wingwall height varies from a minimum of 15 feet 1 inch to a maximum of 19 feet 7 inches. The abutment's exterior wall surface along River Drive includes decorative pilasters and recessed wall panels cast into the wall. The 2-foot-wide pilasters have a slightly projecting base and a simple capital comprised of a cyma molding supporting a plain entablature. Pilasters extend to just below the bridge seat. Wall panels, located between pilasters, are recessed approximately 1 inch and include cyma curves in the upper corners of each panel.

Alterations to the bridge subsequent to its construction include repaving of the deck surface, introduction of a new 3-foot-6-inch-tall concrete safety barrier to replace a low concrete median strip, and the introduction of modern guardrails attached to the inside surface of the existing balustrades.¹⁵

¹⁵NHB Engineers, "Inspection and Rating of Existing Bridges," Structure No. 0220-150, U.S. Route 46 Over River Drive, nd. On file at New Jersey Department of Transportation, Bureau of Bridge Inspection, Trenton, New Jersey.

SOURCES OF INFORMATION

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New Jersey State Highway Department, Division of Bridges. "Overpass at Route 3 (River Road)" Route 6, Section 7, Control No. 0220, Structure No. 150. Original construction drawings on file at New Jersey Department of Transportation Records Center, Trenton, New Jersey.

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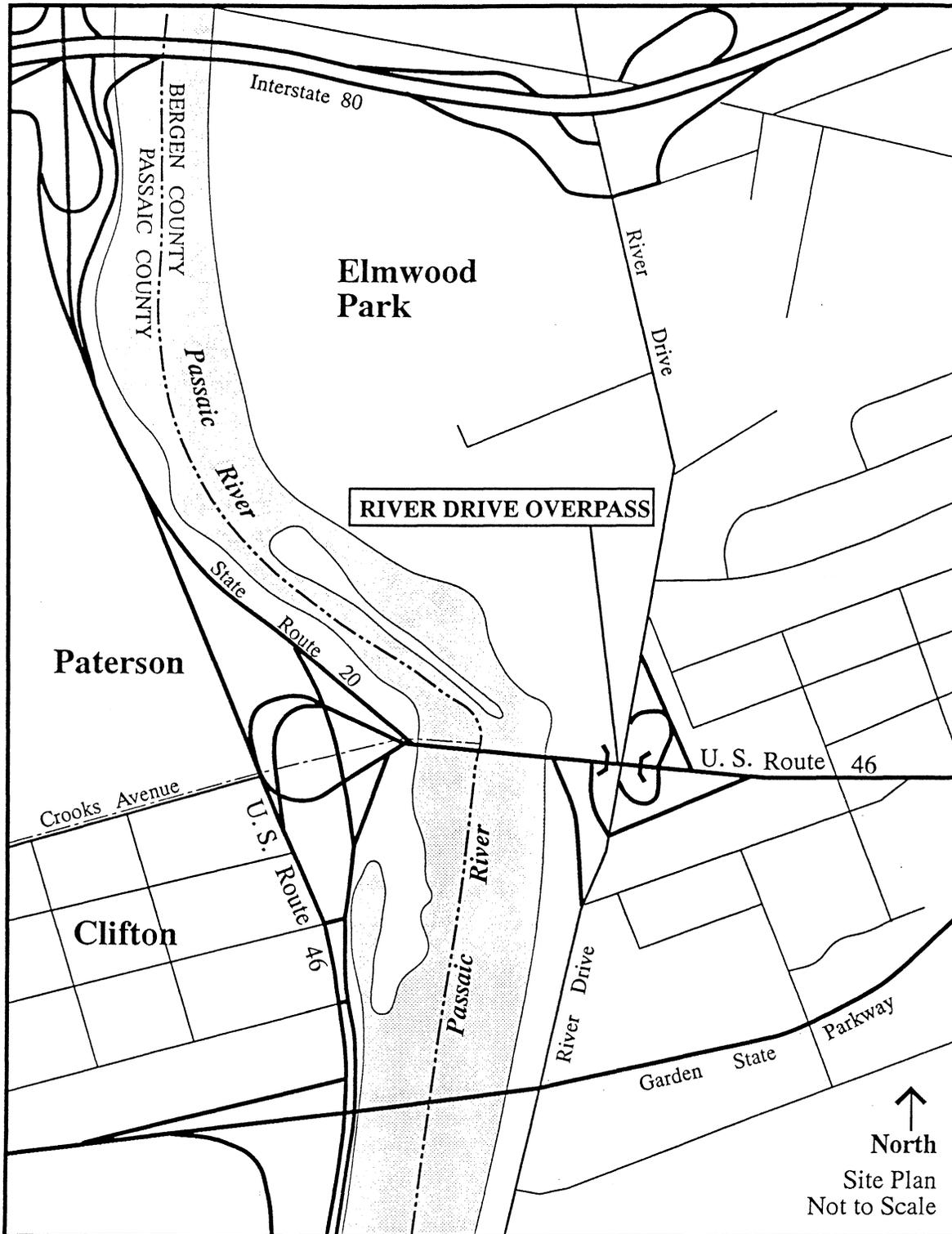
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ADDENDUM TO:
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FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001