MARYLAND HISTORICAL TRUST
DETERMINATION OF ELIGIBILITY FORM

NR Eligible: yes ___
no X

Property Name: Bridge Number 1307401 Inventory Number: HO-1163

Address: Gorman Road over I-95 City: Savage Zip Code: 20723

County: Howard USGS Topographic Map: Savage

Owner: State of Maryland Is the property being evaluated a district? ____yes

Tax Parcel Number: N/A Tax Map Number: 66 Tax Account ID Number: N/A

Project: Historic Highway Bridge Program Agency: MDOT SHA

Site visit by MHT Staff: ____no ____yes Name: _____ Date: _____

Is the property located within a historic district? ____yes ____no

If the property is within a district District Inventory Number: _____

NR-listed district ____yes Eligible district ____yes District Name: _____

Preparer's Recommendation: Contributing resource ____yes ____no Non-contributing but eligible in another context ____

If the property is not within a district (or the property is a district)

Preparer's Recommendation: Eligible ____yes __x__no

Criteria: ___A ____B ___C ___D Considerations: ____A ___B ___C ___D ___E ___F ___G ____None

Documentation on the property/district is presented in:

Description of Property and Eligibility Determination: *(Use continuation sheet if necessary and attach map and photo)*

Description

The Maryland State Roads Commission developed Bridge Number 1307401 to carry Gorman Road over the south bound lanes of I-95 in Howard County. Completed in 1970, the bridge was designed by the Baltimore County engineering firm of Green Associates. The structure is classified as a steel rigid frame bridge and represents a combination of the Inclined Leg and V-shaped subtypes. The bridge has a span of 400 feet between the abutments. The overall width of the deck is fifty-three feet, with a curb-to-curb width of forty-four feet. In addition, the deck features a five-foot wide sidewalk which runs along its north side, and one-foot-wide parapets with steel guard fencing. Concrete plaques, bearing the date of completion, are located at each end of the deck.

The superstructure is composed of the deck and a system of supporting steel beams, stringers, and braces. The deck is constructed of reinforced concrete slabs with a galvanized steel deck pan. Underneath the deck are four stringers and two fascia girders aligned with the length of the span. A series of additional horizontal steel down-braces, also occurring in V-shaped assemblies (100 total), are situated between the stringers and fascia girders, and join with horizontal steel members under the deck. This structural system transmits the load to a substructure that consists of steel piers located at the center and

MARYLAND HISTORICAL TRUST REVIEW

Eligibility recommended ____ **Eligibility not recommended** X

Criteria: ___A ____B ___C ___D **Considerations:** ___A ___B ___C ___D ___E ___F ___G ___None

Comments: _____

_____ 3/2/2020
Reviewer, Office of Preservation Services **Date**

_____ 12/28/21
Reviewer, NR Program **Date**

20200137

Revised Oct 25, 2014

at both ends of the bridge. The end piers are each composed of a series of six parallel inclined steel legs anchored into concrete footings set into the concrete revetment on either side of the roadway. At mid-span are of a series of twelve diagonal steel legs, which form six parallel V-shaped, or inverted delta, piers. These are anchored in the median that divides the north and southbound lanes of I-95. In addition, the deck terminates at each end of the bridge in a concrete abutment with concrete wingwalls. At each abutment, the stringers rest on steel bearing assemblies.

Historic Context

Post-War Highway and Bridge Development

Postwar bridge design and development in Maryland was shaped by broader federal initiatives to modernize and standardize the nation's highway system. The Federal Highway Act of 1956 enabled the development of a 41,000-mile National System of Interstate and Defense Highways. The new system represented a civic infrastructure development project of unprecedented scale in American history and promised to improve the safety and efficiency of the nation's roads. Unveiled at the height of the Cold War, the proposed system met the military's desire for a transcontinental network of interconnected highways that bypassed the country's major cities (Lewis 1997:251). Prior to the passage of this legislation, the federal government began coordinating with states in 1955 to establish national standards for highway designs and materials. Serving as the basis for this effort, the American Association of State Highway Officials (AASHO) and the Bureau of Public Roads constructed a seven-mile test highway near Ottawa, Illinois. The resulting data was compiled into AASHO manuals and distributed to the states. In addition to roadway design, AASHO guidelines and specifications were also instrumental in the development of standardized highway bridges and overpasses. Included in the 1955 AASHO test road were sixteen bridges, representative of highway bridges being constructed at the time. There were eight steel beam bridges, four pre-stressed concrete beam bridges, and four bridges of reinforced concrete T-beam construction. At the end of the test program in 1960, seven of the eleven surviving bridge designs were subjected to further fatigue testing. This early testing informed the development of bridge specifications and design revisions during the following decades (U.S. Department of Transportation 1976:439-441; Fisher et al 2006:32, 36-38).

A national postwar preference for design austerity, combined with accelerated construction schedules, resulted in an emphasis on functionality over aesthetics in bridge design during the initial phase of interstate development under the 1956 act. In the wake of the 1955 test program, the Bureau of Public Roads phased out obsolete plans and issued new standardized bridge plans that featured new materials and designs. This increased uniformity in bridge design was an outgrowth of the national-scope of the interstate highway system. The limited-access highway required large numbers of new bridges to eliminate road crossings, and as a result the use of new bridge designs extended beyond the interstates to secondary roadways during the postwar period. Standardization allowed for greater speed and efficiency of bridge development by state DOTs. Simple beam spans of steel or prestressed concrete were the common type and were replicated for both new highway construction and the improvement of existing roads (U.S. Department of Transportation 2018).

The development of the new interstate highway system continued into the 1960s and 70s. Under the Transportation Act of 1966, President Lyndon Johnson brought together thirty-one federal agencies and bureaus, including federal road building agency the Bureau of Public Roads, to create the Department of Transportation (DOT). In 1970, the Maryland General Assembly followed suit, and created its own transportation department, the Maryland Department of Transportation (MDOT) (Counihan 2008:106-107).

Better highways, the pre-eminence of the automobile within postwar American culture, and suburban expansion created the need for continued road improvements and bridge construction during the 1970s. In anticipation of the rise of mass-transportation, the Federal Aid Highway Act of 1973 allowed states to relinquish Highway Trust Fund money in favor of an equivalent amount from the general fund for mass transportation. While mass transit was endorsed by States, within the context of the energy crisis of the mid-1970s, automobiles remained the preferred method of transportation for the public. Not only was driving inextricably linked to the American way of life, but the interstate highway system enabled the transport of, and ready access to, goods and consumer products. Concurrently, the rise of exurbs – communities located beyond suburbs – throughout Maryland further increased commuter traffic on local highways and bridges, which led to the construction and reconstruction of highways and bridges across the state (Counihan 2008:124-131, 140; Lewis 1997:247).

The Development of Interstate-95 in Maryland and Suburban Development in Howard County

Begun in 1956, I-95 is one of the principal roadways in the U.S. interstate highway system. The 1,915-mile route runs from Miami, Florida to the U.S.-Canadian border. The first section in Baltimore was completed in 1963. In 1968, the *Washington Post* observed that, "already it is possible for an East Coast traveler to go from Maine to North Carolina on dualized, mostly Interstate Roads." Prior to the completion of the section linking Washington and Baltimore, however, motorists relied on the Washington-Baltimore Parkway, described in 1968 as an "expedient" and "overcrowded" (Eisen 1968). This section of I-95 was begun in 1967 and completed in 1971 (U.S. Department of Transportation 2018; Dilts 1971).

The Gorman Road bridge was designed under Federal Aid Project No. I-95-3(28)14; the construction of I-95 through portions of Howard County. The project was undertaken by the State Roads Commission as Howard County Contract No. HO-307-24-772. Original drawings for the bridge prepared by consulting engineers Green Associates are dated January 1968. The SRC approved the plans in April of 1968. Revisions to the plans in 1970 involved the addition of electrical junction boxes in the parapet wall but did not affect the overall dimensions or aesthetic qualities of the design.

The development of I-95 was a catalyst for suburban growth in Howard and Harford Counties and it linked outlying rural areas to urban centers such as Baltimore and Washington, D.C. Illustrative of this trend is Columbia, Maryland, created during the 1960s as a planned suburban community by developer James Rouse. His plan included a downtown core which featured residential and commercial uses, as well as broader social goals such as racial and economic inclusion. Columbia's population grew significantly between 1967, when the development opened, and 1980, coinciding with the completion of I-95 between Baltimore and Washington in 1971. The development has been considered innovative for its environmental and land-use planning. In reimagining the character of suburban development, Rouse solicited input from planning experts such as Kevin Lynch, Herbert Gans, Christopher Jencks, and Chester Rapkin. Author Joel Garreau has classified Columbia as an example of an "Edge City," a center for jobs and retail situated on the periphery of older, established urban areas. According to Garreau, the rise of Edge Cities coincided with, among other factors, the explosive growth in car ownership that occurred in America during the 1970s and 1980s (KCI Technologies 1999:B21; Forsyth 2005:9-17; Garreau 1991:6-7, 113, 427).

The emergence of the indoor, climate-controlled shopping mall was emblematic of suburbanization and the rise in automobile usage that were occurring in Maryland during the period when the interstate highway system was developed. The expansion of retail into the suburbs transformed these areas from urban bedroom communities into self-contained enclaves. While suburban population in Maryland grew by only five percent during the 1960s, retail expenditures increased by 165 percent. Concurrent with the Columbia project, James Rouse was also developing new shopping malls in suburban Maryland. Rouse developed the first enclosed mall in Maryland, Harundale outside Baltimore, in 1958. By the 1970s, he was building other new malls, such as the Columbia Mall (1972) in Howard County and the White Flint Mall (1978) in Montgomery County (Callcott 1985:66-70).

These malls were indicative of changing patterns in shopping and consumer culture away from large urban department stores that had begun during the 1950s and was enabled, in part, by improved automobile-based transportation networks such as I-95. Highway construction represented the greatest expenditure of public funds during the decades following World War II. The new highways and interstates served urban as well as suburban areas, but their effects on mobility and lifestyles extended to the suburbs. Of the fifteen major highways requiring an expenditure of $100 million or more to construct, all but two were developed between 1952 and 1972 and served suburban communities. New highways improved access to downtown jobs, and as historian George Callcott has observed, effectively "subsidized the middle-class, auto-owning, shopping center culture" (Callcott 1985:66-68).

Role of Engineering Firms in Maryland's Highway and Bridge construction, 1948-1972

Following passage of the 1956 Highway Act, the pace of interstate highway construction accelerated dramatically throughout the country. At the state level, private engineering consultants and contractors undertook much of the design and construction work. The chairman of the Maryland State Roads Commission (SRC) was tasked with hiring engineering consultants under a different process from that used in selecting contractors. Under state law, consultants were not required to be the lowest bidder, but rather were selected based on their qualifications. The SRC became a "training ground" for consultants. Three of the most prominent were Wilson T. Ballard, Ezra Whitman, and William R. Kahl. All were former SRC engineers who went on to establish highly successful consulting firms (Counihan 2008:76, 104).

Whitman, who became the first chairman of the SRC in 1939, was a founding partner in the firm Whitman, Requardt & Associates. The firm's postwar bridge projects included the I-895 bridge in Baltimore County, completed in 1957 (URS Corporation 2011:6:5). Ballard, a Cornell University-trained engineer, established the Wilson T. Ballard Company in 1948. Ballard previously served for eight years as the chief engineer of the SRC. In 1958, the firm prepared a design for the MD-157 bridge over Bear Creek in Baltimore County (URS Corporation 2011:6:5). The firm that became Rummel, Klepper and Kahl was established in Baltimore in 1923 as Sandklass, Wieman & Associates. Important projects included the design of the Annapolis-Washington Expressway (1953) and preliminary planning for the Baltimore Beltway (1957). During the 1970s, the firm undertook major planning studies for the I-97, I-495, and I-795 (RK&K 2018). Among the largest and most prominent engineering firms in the state was the J. E. Greiner Company, later known as Greiner Engineering. Engineer John Edwin Greiner founded the company in Baltimore in 1908. The firm was active as a designer of bridges in the state during the twentieth century and authored the significant planning report *Maryland's Primary Bridge Program* in 1938. J. E. Greiner designed numerous bridges in Maryland during the postwar period including the first Chesapeake Bay Bridge (1947-1952) and the MD-231 Bridge over the Patuxent River (1950) (URS Corporation 2011:6:3; P.A.C. Spero 1995:B4).

Green Associates

The Baltimore County-based engineering firm of Green Associates designed Bridge Number 1307401. Green Associates was established in Towson, Maryland in 1952 by engineer Allen I. Green (Benjamin 1988). Erik W. Wolf served as the company's vice president and chief engineer. In 1957, the company named Marshall McCord as chief civil engineer, Ernest F. Sigel as chief mechanical-electrical engineer, Richard R. Reikenis as head of structural engineering, and Robert Czaban as head of the highway section. J Elmer Dunham served as the company's chief field engineer (Baltimore Sun [BS], 26 May 1957:38). The firm designed industrial facilities, highways, and bridges, and prepared numerous studies for local and state government agencies. In 1961, the firm designed a power plant expansion at the Rosewood State Training School (BS, 1 October 1961:C10). In 1965, the firm served as architects and engineers for the design of a new steel processing plant for H. Klaff & Co. in Baltimore County (BS, 14 September 1965:27). In 1970, Green Associates, with offices in Boston, Long Island, Sewickley, Pennsylvania, Towson, Atlanta, and Miami, was ranked seventy-fourth on the list of the top 500 engineering firms in the nation by *Engineering News-Record* magazine (BS 14 June 1970:F7). The company was one of four Baltimore firms contracted for the design of I-95 between Baltimore and Washington, which was completed in 1971 (BS, 21 June 1971:A12). In 1973, the firm received an award from the Consulting Engineers Council of Maryland for the design of the Ridge Road Bridge over I-70 in Frederick County (BS, 22 July 1973:F7).

Highway Construction Corruption

Part of the history of postwar highway development in Maryland included a public scandal that led to the resignation of Vice President Spiro Agnew in 1973. Upon being elected County Executive for Baltimore County in 1962, Agnew began accepting bribes from engineering consultants to secure road contracts. Agnew continued the practice after being elected governor of Maryland in 1966. He maintained that the money represented political contributions to his campaign rather than kickbacks. In addition, he failed to report the income received on his 1967 federal income tax filing. In 1973, after Agnew had left state office and had been elected Vice President in the Nixon administration, U. S. Attorney for Maryland George Beall opened an investigation into Agnew's actions as County Executive. The probe was initiated when attorneys for Lester Matz, principal of a large engineering firm implicated in the scheme, had disclosed documentary evidence to Beall proving Agnew's involvement beyond his governorship and into his vice presidency. Prosecutors also determined that former State Roads Commissioner Jerome Wolff had acted as a middleman in the scheme. Wolff subsequently provided testimony and evidence against Agnew. Facing the prospect of a lengthy and public trial, within the context of the unfolding Watergate scandal, Agnew plead no contest to tax evasion and agreed to pay the back taxes owed to the IRS. He was fined $10,000, sentenced to three years' probation, and resigned as Vice President of the United States on October 10, 1973 (Counihan 2008:104-105; BS, 11 October 1973:A1).

Green Associates were closely involved in the scandal. In 1974, Allen Green was charged with paying thousands of dollars in kickbacks to then-Maryland Governor Spiro T. Agnew to secure lucrative state contracts (Erlandson, 9 November 1974:A1). Green was subsequently expelled from the American Society of Civil Engineers (Erlandson, 14 November 1974:C5). Green was also sentenced to serve eighteen months in federal prison and was fined $5,000 (Erlandson, 26 November 1974:A1).

Following Green's indictment, the Towson and Atlanta branches were sold and rebranded under new ownership as Century Engineering (Grant 1974:K7).

Development of the Rigid Frame Bridge Type

The Gorman Road Bridge over I-95 is an example of the rigid frame type. The rigid frame was first developed in Germany during the early twentieth century for use in building construction; however, the economical design was also applied to the design of bridges of moderate span and railroad grade separations. Popularized by engineer Arthur C. Hayden, concrete rigid frame bridges were first introduced in the United States in the 1920s on urban parkways. Hayden designed concrete rigid frame bridges in which the superstructure and the substructure were integrated as a continuous unit. One of the earliest examples by Hayden was the Swain Street Undercrossing, a concrete rigid frame bridge located in Bronx, New York and constructed in 1923. The form was inexpensive, easily constructed, and aesthetically appealing for standardized bridge structures. Concrete rigid frames facilitated span lengths ranging from forty to 120 feet. Hayden constructed approximately ninety rigid frame bridges between 1922 and 1933, and by 1939 there were approximately 400 rigid frame bridges across the country (Parsons Brickerhoff 2015:3-96, 3-113; P.A.C. Spero 1995: 166).

While concrete rigid frame bridges were much more common than steel rigid frame bridges, both types were developed simultaneously. Steel rigid frame bridges developed prior to World War II were often clad in concrete or a veneer of natural stone. Noteworthy national prewar examples of the rigid frame include the M-27 Au Sable River Bridge in Crawford County, Michigan (1935, steel), the Route 123 Bridge in Fairfield County, Connecticut (1937, steel clad in concrete), and the Amtrak Overbrook Station Bridge in Philadelphia (1935, concrete) (Parsons Brickerhoff 2015:3-113).

In contrast to the early Cold War period and its emphasis on functionality, rigid frame bridges underwent a period of aesthetic refinement beginning in the 1960s. This was in part due to advances in weldable steel alloys, which expanded the possibilities for creative design beyond the limitations presented by riveted rigid frames. In 1959 and 1960, a new high-strength low-alloy steel (ASTM A440) was developed for riveted construction, as well as a companion material (ASTM A441) for welded construction. In 1966, specifications were issued for high-strength columbium and vanadium steels (U.S. Department of Transportation 1976:439). The following year, in 1967, the Welding Research Council conducted additional tests, which resulted in design and specification changes for welded and riveted plate girders, an important component used in the superstructures of steel rigid frame bridges. While steel bridges had traditionally been constructed using hot riveting, this technique was replaced with high strength bolts by the mid-1960s. High-strength bolted connections became the preferred assembly method by the 1970s. Advances in steel alloys led to the increased use of welding in fabricating bridge beams and girders, and also enabled curved and other complex bridge components assembled from steel plate (U.S. Department of Transportation 2018).

Further developments included the introduction of load factor design for steel bridges. This approach combines the probability of a given load and the variability in the strength of materials to provide a more consistent level of strength and reliability for all spans and bridge types. In 1968, the American Iron and Steel Institute developed and circulated *A Tentative Criteria for Load Factor Design of Steel Highway Bridges*. The criteria were subsequently incorporated into the AASHO Bridge Design Specification criteria (U.S. Department of Transportation 1976:439-441).

Three principal subtypes of the rigid frame bridge emerged in the United States after 1960. The first is variously known as the Inclined Leg, Batter Post, K-Frame, or Leaping Stag. These bridges feature piers composed of inclined steel legs that are located at each end of the span. The lack of center-span supports makes this design ideal for river or valley crossings. The second subtype, known as the V-shaped or Inverted Delta rigid frame, features V-shaped piers at the midpoint of the span. This design provides two points of support to the girder and also reduces the number of required column footings. The central V-shaped piers are sometimes combined with inclined legs, representing a combination of these two subtypes, as observed in the Gorman Road bridge. The third subtype is the Pi-shaped rigid frame. The piers of this type occur in two-column bents, resembling the "Pi" symbol from mathematics, and it both elevates the roadway while allowing traffic to flow beneath the bridge, between the columns. This type was primarily applied to urban highways rather than interstate overpasses (Jamal 2017).

The Inclined Leg and V-shaped subtypes first appeared in the United States during the 1960s. Both continued to be constructed throughout the 1970s, with examples of the Inclined Leg type constructed into the late 1980s and 2000s. While no formal national surveys have been conducted for either type, both seem to be fairly rare, with less than fifty combined documented examples. In Maryland, these include:

- Gorman Road Bridge over I-95 in Howard County (1970, combination Inclined Leg/V-shaped)
- Vollmerhausen Road Bridge over the north and southbound lanes of I-95 in Howard County (1970 and 1974, Inclined Leg)
- MD-216 Bridge eastbound and westbound over the I-95 in Howard County (1970, combination Inclined Leg/V-shaped)
- Blooming Rose Bridge over I-68 in Garrett County (1975, Inclined Leg)
- South Division Street Bridge in Salisbury, Wicomico County (1981, Inclined Leg)

Nationally, one of the earliest examples of the Inclined Leg type is the Mirror Lake Bridge in Sauk County, Wisconsin. Completed in 1961, it carries I-90/94 over Mirror Lake. With a span of 220 feet, its steel substructure features piers composed of two slanted steel legs with steel bracing, much like the Blooming Rose Road Bridge. Another noteworthy example is the White Canyon Bridge in San Juan County, Utah, which exhibits the same two-leg pier configuration. A large example of the Inclined Leg subtype, it was completed in 1965 and was honored as a Prize Bridge in 1966 by the American Institute of Steel Construction (AISC). In addition, the Utah Historic Bridge Inventory, published in 2011, recommended the bridge as being potentially eligible for listing in the National Register under Criterion C for the high artistic value of its design, retention of historic integrity, and status as an uncommon type in the state (Mead and Hunt 2011:192). The Blooming Rose Road Bridge over I-68 was also recognized for its superior aesthetic qualities in the 2005 edition of the Maryland State Highway Administration's *Aesthetic Bridges Users Guide* (Maryland Department of Transportation 2005:I-7). Another example of the subtype, the I-70 E. Stadium Drive Overpass in Kansas City, Missouri (1971, Inclined Leg) was recommended as eligible in 2015 under Criterion A for its association with the Truman Sports Complex, and under Criterion C as one of only three examples of the subtype in the state.

The V-shaped subtype seems to be less common than the Inclined Leg, with the first documented examples appearing in the late 1960s. One of the earliest, the Blackwell Interchange Bridge on I-40 in Conway County, Arkansas, was completed in 1967. The bridge carries Fishlake Road over I-40, and features five parallel V-shaped piers at its mid-section. It was recognized as a Prize Bridge by the AISC in 1968 for imaginative and aesthetic design of steel bridges. It also represents the first use of the V-shaped, or inverted delta, pier form in Arkansas. As seen in the MD 216 and Gorman Road bridges in Howard County, V-shaped central piers were sometimes combined with outer inclined legs. Examples of this hybrid type mostly date to the mid-to-late 1970s, and are found in South Carolina, Virginia, Maryland, Pennsylvania, and Missouri. In terms of design and overall dimensions, the Gorman Road Bridge is very similar to the two bridges that carry the east and westbound lanes of MD-216 over I-95, which were also completed in 1970. Like the Blooming Rose Road Bridge, the Gorman Road Bridge was highlighted in the 2005 *Aesthetic Bridges Users Guide* (Maryland Department of Transportation 2005:III-10).

Both the Inclined Leg and V-shaped subtypes were almost exclusively applied to the design of interstate overpasses. Some examples, however, are located in cities and towns, such as the South Division Street Bridge in Salisbury, Maryland and the Murray Avenue Bridge in Pittsburgh, Pennsylvania (1978, Inclined Leg). In addition, these bridges were designed for short to medium-span applications, with total lengths typically ranging from 150 to 450 feet. The Lehigh River New Street Bridge in Bethlehem, Pennsylvania (1972, Inclined Leg) is possibly the largest example constructed, with a total length of 1,466 feet.

Extant Steel Rigid Frame Bridges After 1960					
Name	Location	Date	Type	Total Length/ Deck Width (feet)	NRHP/Awards
Cemetery Access Bridge	Milwaukee, Milwaukee County, WI	1960	Inclined Leg	168/27	Most Beautiful Bridge Constructed During 1960, Class III, AISC
Mirror Lake Bridge on I-90/94	Sauk County, WI	1961	Inclined Leg	324/32	
Ash Street Bridge	Rockingham County, NH	1962	Inclined Leg	221/30	
White Canyon Bridge	San Juan County, UT	1965	Inclined Leg	226/28	Recommended Eligible
Blackwell Interchange Bridge on I-40	Conway County, AR	1967	V-shaped	N/A	Prize Bridge, 1968, AISC
Elam Road Bridge	Rutherford County, TN	1968	V-shaped	327/29	
I-240 over US-78	Memphis, Shelby County, TN	1968	Inclined Leg	220/62	
Moir Park Bridge	Bloomington, Hennepin County, MN	1968	Inclined Leg	208/46	Recommended Eligible
Highland Street Underpass	Memphis, Shelby County, TN	1969	Inclined Leg	159/57	
I-64 over US-250	Charlottesville, Independent City, VA	1969	Inclined Leg	216/N/A	
Gorman Road over I-95	Howard County, MD	1970	Inclined Leg/V-shaped	400/53	
MD-216 over I-95	Howard County, MD	1970	Inclined Leg/V-shaped	413/47 (EB) 413/47 (WB)	
Vollmerhausen Road over I-95 (NB)	Howard County, MD	1970	Inclined Leg	228/32	
I-70 E. Stadium Drive Overpass	Kansas City, Jackson County, MO	1971	Inclined Leg	383/52	Recommended Eligible
US-62 Bridge at I-49	Fayetteville, Washington County, AR	1971	Inclined Leg	194/43	
Chapel Road Bridge	Bethlehem, Ohio County, WV	1972	Inclined Leg	502/27	
Glenn Lily Road Bridge	Warren County, KY	1972	Inclined Leg	275/26	Most Beautiful Bridge, 1973, AISC
Lehigh River New Street Bridge	Bethlehem, Northampton County, PA	1972	Inclined Leg	1,466/55	
PA-75 over US-22 Bridge	Juniata County, PA	1972	V-shaped	251/72	
Cliff Drive Bridge	Branson, Taney	1973	Inclined	315/30	

over US-65	County, MO		Leg/V-shaped		
Vollmerhausen Road over I-95 (SB)	Howard County, MD	1974	Inclined Leg	248/32	
Blooming Rose Road over I-68	Garrett County, MD	1975	Inclined Leg	377/37	Prize Bridge, 1976, AISC
Eden Terrace over I-77 Bridge	York County, SC	1975	Inclined Leg/V-shaped	267/48	
US-21 over I-77 Bridge	Rock Hill, York County, SC	1975	Inclined Leg/V-shaped	270/88	
Grand Forks AFB Interchange	Grand Forks, Grand Forks County, ND	1976	V-shaped	174/N/A	Prize Bridge, 1976, AISC
Mounts Bay Road Bridge over Halfway Creek	James City County, VA	1976	V-shaped	428/N/A	Prize Bridge, 1976, AISC
Sample Bridge Overpass at I-81	Hampden Township, Cumberland County, PA	1976	Inclined Leg/V-shaped	284/N/A	Prize Bridge, 1976, AISC
White Bird Canyon Bridge	White Bird, Idaho County, ID	1976	Inclined Leg	806/N/A	Prize Bridge, 1976, AISC
I-77 Colson Church Road Bridge (NB & SB)	Woodlawn, Carroll County, VA	1977	Inclined Leg/V-shaped	324/42 (NB) 319/42 (SB)	
Carrollton Pike I-77 Bridge (NB & SB)	Hillsville, Carroll County, VA	1978	Inclined Leg	219/43 (both)	
I-393 East Side Drive Bridge	Concord, Merrimack County, NH	1978	Inclined Leg	295/65	
Murray Avenue Bridge	Pittsburg, Allegheny County, PA	1978	Inclined Leg	325/44	
South Division Street Bridge	Salisbury, Wicomico County, MD	1981	Inclined Leg	107/40	
Sullivan Road Bridge	Raleigh County, WV	1985	Inclined Leg	344/39	
East Street Bridge	Pittsburg, Allegheny County, PA	1986	Inclined Leg	450/35	
Southern Blvd. over Normans Kill River	Albany, Albany County, NY	1987	Inclined Leg	475/71	
Hecla Road over I-76	Westmoreland County, PA	1988	Inclined Leg	200/38	
New Oakland Avenue Bridge	Sharon, Mercer County, PA	2006	Inclined Leg	319/36	
Ashcom Road over I-70/I-76	Bedford County, PA	2011	Inclined Leg	227/38	

Significance

To date, no postwar rigid frame bridges of this type have been formally evaluated or listed on the National Register of Historic Places. In addition, there have been few state-level surveys to establish their frequency within national or regional highway systems. National historic contexts and inventories, such as *A Context for Common Historic Bridge Types* (prepared by Parsons Brinckerhoff in 2015) and state-level efforts such as the Maryland context *Phase II State Historic Bridge Context & Inventory of Modern Bridges* (URS Corporation 2011) typically extend only to 1955-1960. While related to the context of highway modernization during the Cold War, the Gorman Road Bridge does not sufficiently contribute to the context at this time to warrant eligibility under **National Register Criterion A**. Research did not uncover associations with significant individuals to warrant eligibility under **Criterion B**. While the bridge represents a re-emphasis on aesthetics and advances in materials technology and construction techniques during the 1960s and 70s, the significance of this bridge type as a work of engineering and design has not yet been sufficiently established at this time to support eligibility under **Criterion C**. The bridge was not evaluated under **Criterion D**.

Bibliography

American Institute of Steel Construction. *Prize Bridges/1976*. New York: AISC, 1976.

Baltimore Sun, 1837-1935. http://search.proquest.com (Accessed June 2018).

Baughn, James. "Historic and Notable Bridges of the U.S." https://bridgehunter.com/ (Accessed June 2018).

Benjamin, Robert. "Johnson Span Cracks Called a Design Error." *Baltimore Sun*, June 22, 1988.

Bruder, Anne E. *"Tomorrow's Roads Today:" Expressway Construction in Maryland, 1948-1965*. Baltimore: Maryland State Highway Administration, 2011.

Callcott, George H. *Maryland and America: 1940 to 1980*. Baltimore: Johns Hopkins University, 1985.

Chase, Cody. "A Look at Bridges: A Study of Types, Histories, and the Marriage of Engineering and Architecture" (2015). *Architectural Studies Integrative Projects*. Paper 73. https://digitalcommons.conncoll.edu/archstudintproj/73 (Accessed June 20, 2018).

Counihan, Harold J. *Moving Maryland Forward: A Century of Modern Road Building*. Baltimore: Maryland Department of Transportation, 2008.

Dilts, James D. "Roads Officials Hope to Open I-95 Between Beltways by July 4." *Baltimore Sun*, June 21, 1971.

Eisen, Jack. "A Brand New Sign for Road Safety, Speed, and Comfort." *Washington Post*, September 26, 1968.

Erlandson, Robert A. "Agnew's Ex-Allies Charged." *Baltimore Sun*, November 9, 1974.

Erlandson, Robert A. "Engineers Society Disciplines 5 More Members Tied to Kickback Scandal." *Baltimore Sun*, November 14, 1974.

Erlandson, Robert A. "Hammerman, Green Both Get Jail Sentences." *Baltimore Sun*, November 26, 1974.

Garreau, Joel. *Edge City: Life on the New Frontier*. New York: Doubleday, 1991.

Grant, James. "Century Looks to Rebuilding a Reputation." *Baltimore Sun*, May 26, 1974.

Fisher, John et al. "Steel Bridges in the United States: Past, Present, and Future." In *50 Years of Interstate Structures: Past, Present, and Future*. Transportation Research Circular N0. E-C104. Washington, DC: Transportation Research Board, 2006.

Forsyth, Ann. *Reforming Suburbia: The Planned Communities of Irvine, Columbia, and The Woodlands*. Berkeley: University of California Press, 2005.

Jackson, Donald C. *Great American Bridges and Dams*. New York: John Wiley & Sons, 1988.

Jamal, Haseeb. Bridge Engineering, "Types of Bridges." https://www.aboutcivil.org/Types-Of-Bridges.html (Accessed June 26, 2018).

KCI Technologies, Inc. *Suburbanization Historic Context and Survey Methodology, I-495 and I-95 Capital Beltway Corridor Transportation Study, Montgomery and Prince George's Counties, Maryland*. Prepared for the Maryland Department of Transportation, State Highway Administration, November 1999.

Lewis, Tom. *Divided Highways: Building the Interstate Highways, Transforming American Life*. New York: Viking, 1997.

Maryland Department of Transportation. State Highway Administration. Office of Bridge Development. *Aesthetic Bridges Users Guide*. Rev. ed. Baltimore: SHA, 2005.

McNichol, Dan. *The Roads that America Built: The Incredible Story of the U.S. Interstate System*. New York: Barnes and Noble, 2003.

Mead & Hunt, Inc. *Utah Historic Bridge Inventory*. Vol II. Prepared for the Utah Department of Transportation Research Division, June 2011.

Mead & Hunt, Inc. *Minnesota Bridges, 1955-1970*. Prepared for the Minnesota Department of Transportation, July 2013.

P.A.C. Spero & Co. and Louis Berger & Associates. *Historic Highway Bridges in Maryland: 1631-1960. Historic Context Report*. Prepared for the Maryland State Highway Administration, 1995.

Parsons Brinckerhoff and Engineering and Industrial Heritage. *A Context for Common Historic Bridge Types*. Prepared for The National Cooperation Highway Research Program, et al., 2015.

Rummel, Klepper and Kahl. "History and Heritage." http://www.rkk.com/this-is-rkk/history-heritage (Accessed September 2018).

URS Corporation. *Phase II State Historic Bridge Context & Inventory of Modern Bridges*. Prepared for Maryland Department of Transportation, State Highway Administration, September 2011.

U.S. Department of the Interior. *How to Apply the National Register Criteria for Evaluation*. Rev. ed. Washington: Department of the Interior 2002.

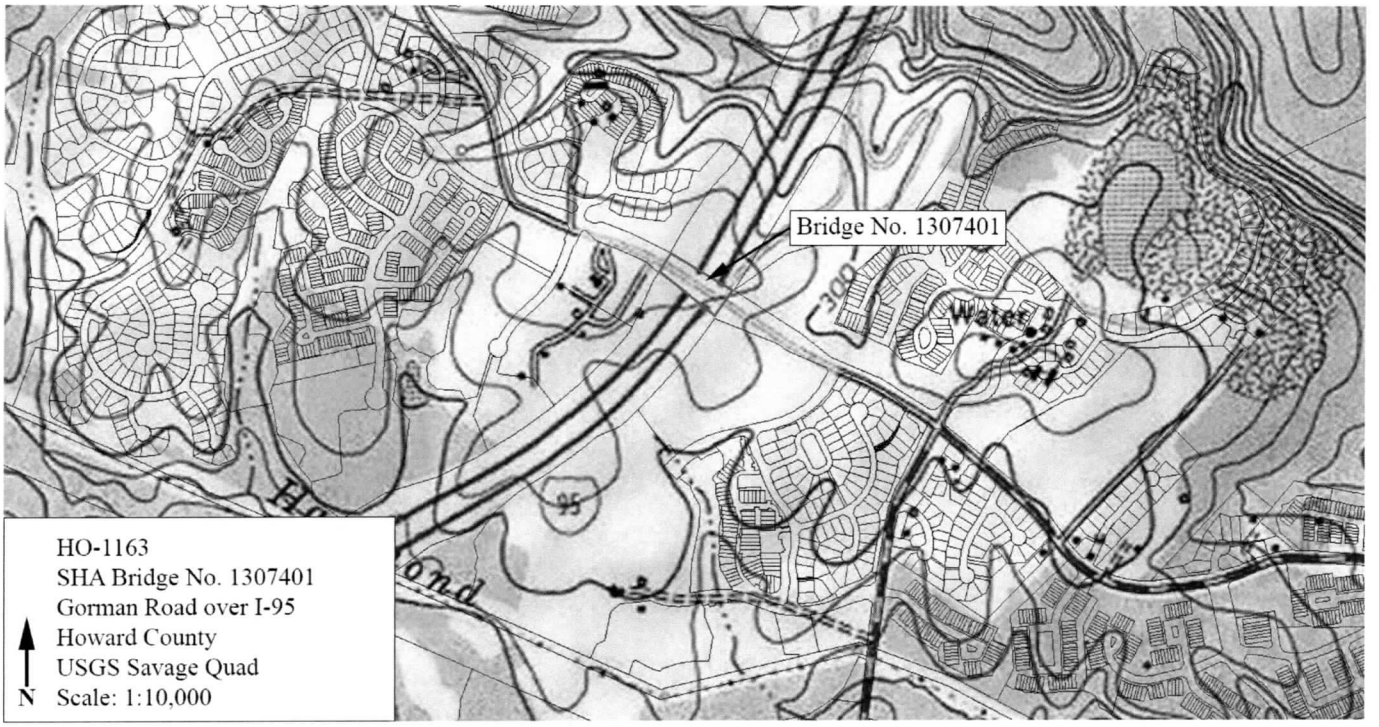
U.S. Department of Transportation. *America's Highways: 1776-1976*. Washington, DC: Government Printing Office, 1976.

U.S. Department of Transportation. Environmental Review Toolkit. "Post-1945 Highway Bridge Engineering." https://www.environment.fhwa.dot.gov/env_topics/historic_pres/post1945_engineering/fast_cheap.aspx (Accessed June 25, 2018).

U.S. Department of Transportation. Federal Highway Administration. "Highway History." https://www.fhwa.dot.gov/highwayhistory/interstate.cfm (Accessed June 2018).

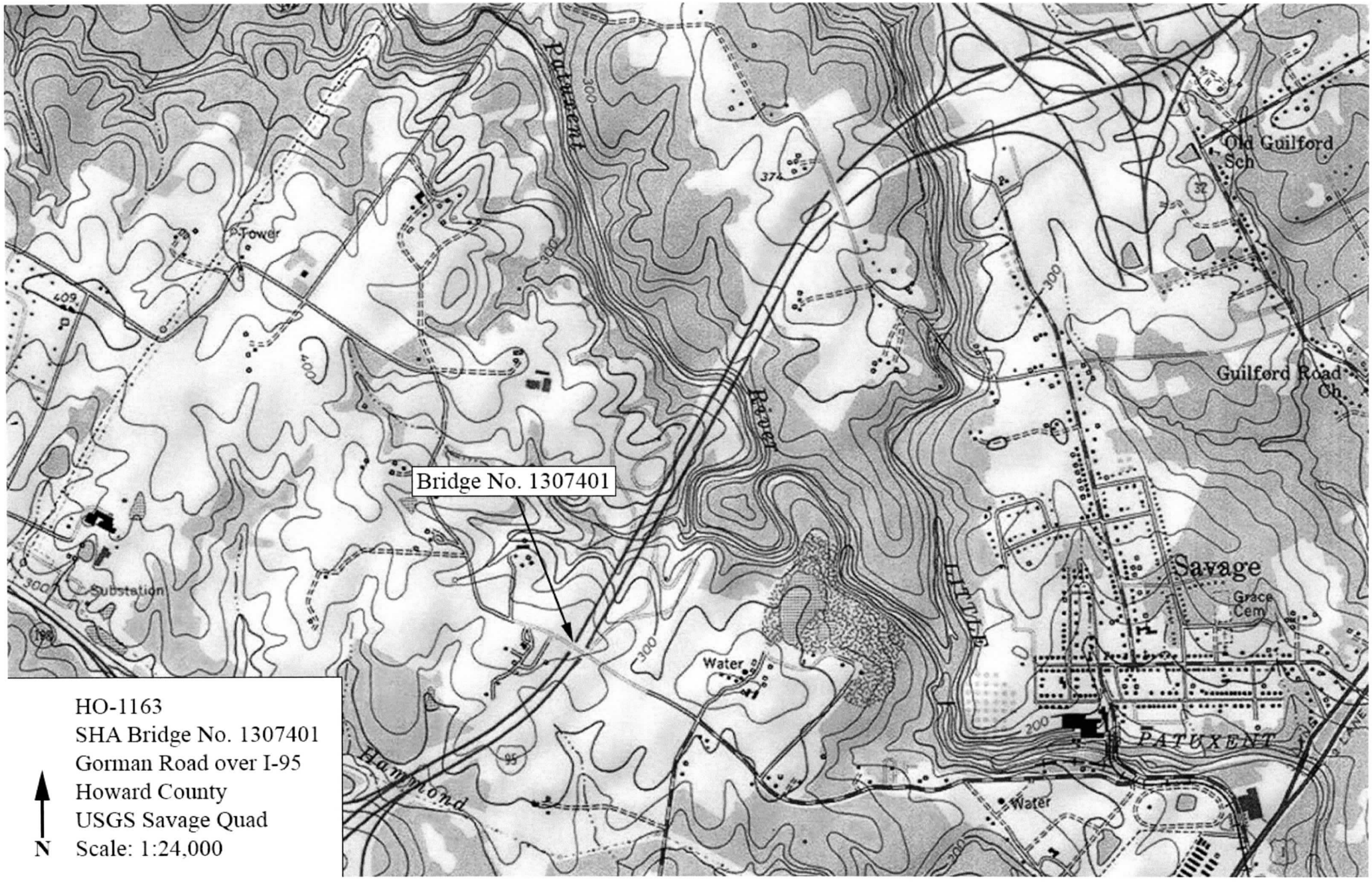
Washington Post, Current and Historic, 1877-Present, http://search.proquest.com (Accessed March 2018).

Additional Documentation

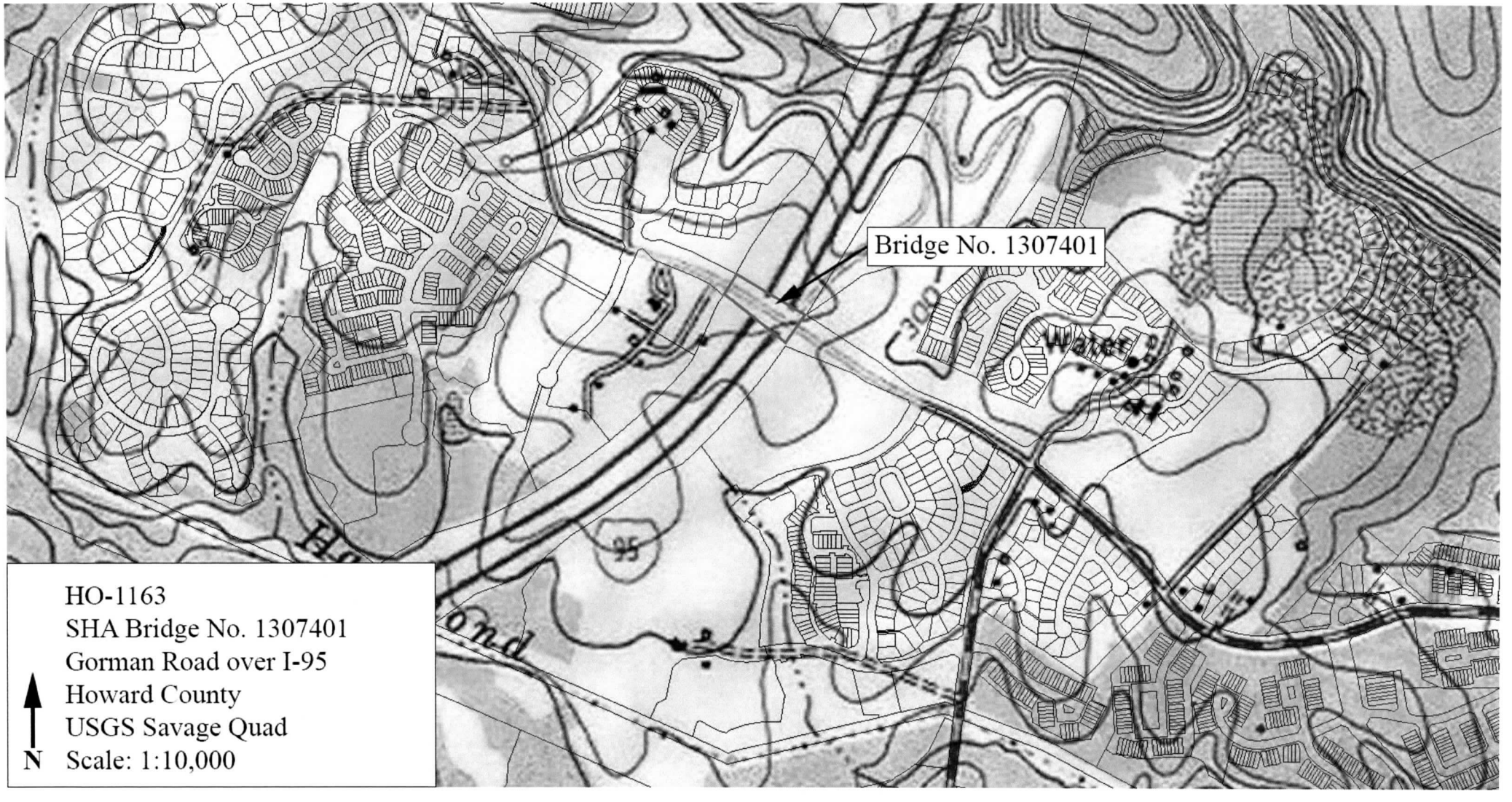


Locator map at 1:10,000 (USGS)

Prepared by: John Gentry, EHT Traceries, Inc. Date Prepared: October 2018



HO-1163
SHA Bridge No. 1307401
Gorman Road over I-95
Howard County
USGS Savage Quad
Scale: 1:24,000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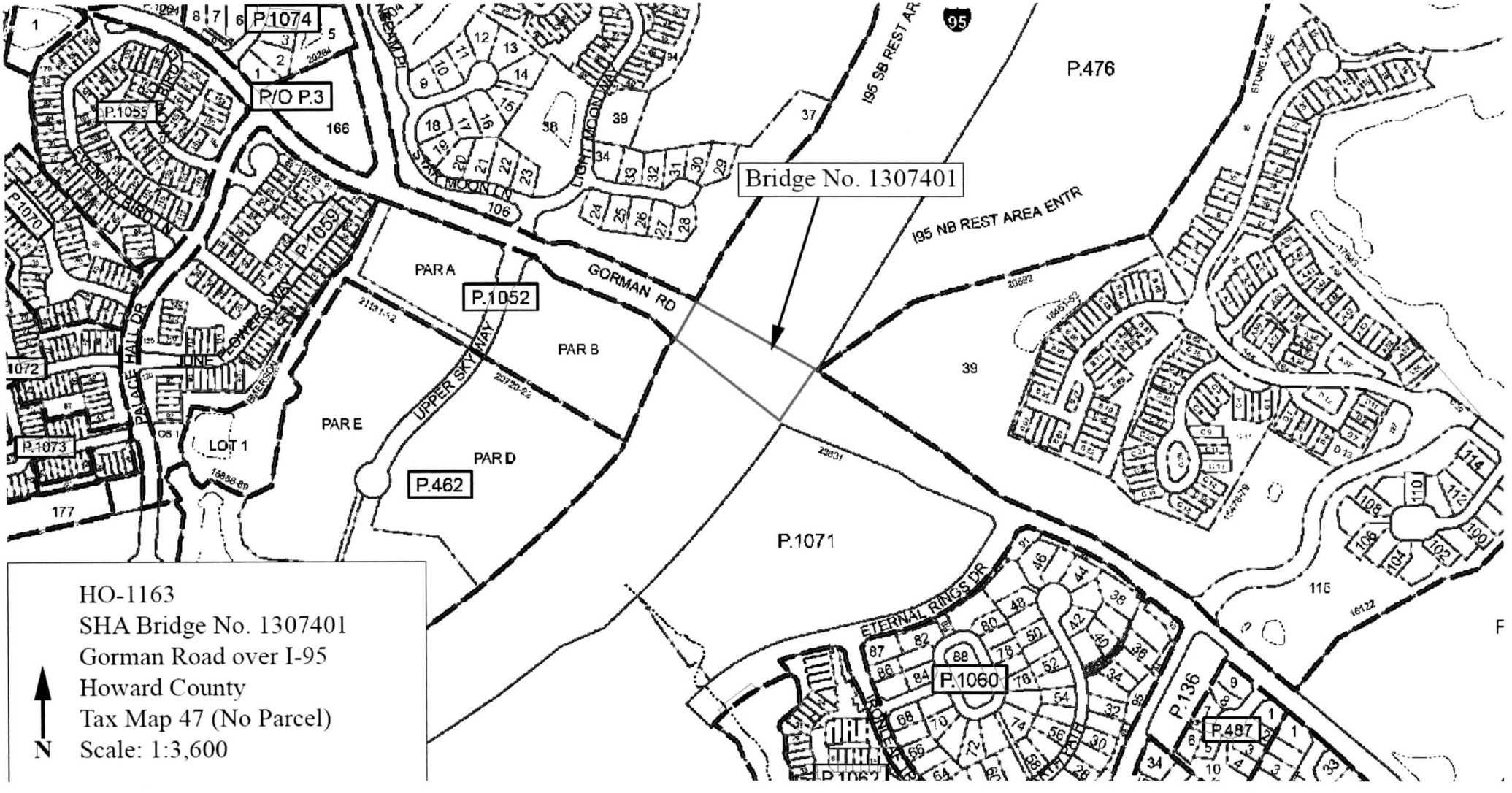
300
Water
95
HO-1163
SHA Bridge No. 1307401
Gorman Road over I-95
Howard County
USGS Savage Quad
N
Scale: 1:10,000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P/O P.3
P.1055
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P.1073
P.1052
P.462
P.1071
P.1060
P.136
P.487
P.476
PAR A
PAR B
PAR D
PAR E
LOT 1
GORMAN RD
UPPER SKY WAY
PALACE HALL DR
FLOWERS WAY
STAR MOON LN
LIGHT MOON WAY
ETERNAL RINGS DR
I95 SB REST AR
I95 NB REST AREA ENTR
HO-1163
SHA Bridge No. 1307401
Gorman Road over I-95
Howard County
Tax Map 47 (No Parcel)
N
Scale: 1:3,600

Photo Log

MIHP No.: HO-1163
MIHP Name: SHA Bridge No. 1307401
County: Howard
Photographer: John Gentry, EHT Traceries, Inc.
Date: June 5, 2018
Ink and Paper Combination: True Black and White on Archival Quality Paper
CD/DVD: Verbatim, DVD-R, Archival Gold

Image File Name	Description of View
HO-1163_2018-06-05_01	View of bridge, looking south.
HO-1163_2018-06-05_02	View of bridge, looking north.
HO-1163_2018-06-05_03	View of bridge, looking southwest.
HO-1163_2018-06-05_04	View from beneath deck, looking west.
HO-1163_2018-06-05_05	View of east end at abutment, looking northeast.
HO-1163_2018-06-05_06	View of the deck, looking west.
HO-1163_2018-06-05_07	View of the deck, looking east.
HO-1163_2018-06-05_08	Dedication plaque.

HO-1163

SHA Bridge No. 13077-01

Guilford Road over I-95

Howard County

Jason Gould

6/5/2018

ARS SHPO

View of bridge looking S.

1 of 8

HO-1163

SHA Bridge No. 13 [illegible]

Caraway Road [illegible]

Howard County

[illegible]

[illegible]

[illegible]

[illegible]

View of bridge, looking N.

2/8

Ho-163

SHA Bridge No. 13[illegible]01

Gorman Road over [illegible]-95

Howard County

John Geoghegan

[illegible]

[illegible]

[illegible]

View of bridge [illegible] SW.

3/8

MD-163

SHA Bridge No. 30240

Gorman Road over I-95

Howard County

John Gentry

6/5/2018

4/8

View from beneath deck, looking W.

4/8

HO-11-53

SHA Bridge No. 13[illegible]

Gorman Road over I-95

Howard County

John Grundy

[illegible]

MD SHPO

View of E. end of abutment, looking NE.

5/8

HO-1163

SHA Bridge No. 1307401

Gorman Road over I-95

Howard County

John Gentry

6/14/2018

MD SHPO

View of the deck, looking N.

6/8

Ho-1163

SHA Bridge No. [illegible]

Gorman Road over I 95

Howard County

John [illegible]

[illegible]

[illegible]

[illegible]

View of the deck looking E.

7/8


1970
1307400

Ho-463

SHA Bridge No. 1307101

Gorman Road over I 95

Howard County

John Gentry

[illegible]

[illegible]

MD SHPO

[illegible]