

DOCUMENTATION OF ADVERSE EFFECT

AND

MEMORANDUM OF AGREEMENT

Submitted to the Advisory Council on Historic Preservation

Pursuant to:

36 CFR Part 800.6(a)(1) following 800.8(b) and ©

for

***Rehabilitation of State Bridge No. 698, Van Buren Street Bridge
Located in Brandywine Park, Wilmington, New Castle County, Delaware***

***State Contract Number 92-074-04
Federal Aid Number EBH-698(1)***

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Environmental Studies
Section***

Prepared for

Federal Highway Administration

February, 1997

TABLE OF CONTENTS

Introduction

*Part One: Description of the Project Area, Bridge, Bridge
Condition, and Proposal
Figure 1 - Project Location Map
Photographs
Figure 2 - Typical Section for Rehabilitation*

*Part Two: Identification and Description of the Historic Resources
Figure 3 - HAER Card
Figure 4 - Brandywine Park Historic District Info. & Map*

Part Three: Adverse Effects on Historic Resources

Part Four: Alternatives Considered to Avoid Adverse Effects

*Part Five: Environmental Treatment and Mitigation Measures to be
Employed*

Part Six: Memorandum of Agreement

*Part Seven: Summary of the View of the DE SHPO and Other Interested
Parties*

Appendix I Project Design Plans

Introduction

The Delaware Department of Transportation (DelDOT) proposes to fully rehabilitate State Bridge Number 698 (a.k.a. Van Buren Street Bridge) which carries Van Buren Street over the Brandywine Creek. Originally constructed as part of an aqueduct, the bridge also carries an active water line (soon to be abandoned by others) which is encased within the bridge. The water line functions as an active source of potable water supply for the residences and services in the City of Wilmington. Because of the aging condition of the encased pipe and its function, the structural condition of the bridge itself, and the need to perpetually keep the line active, the City of Wilmington's Public Works Department is in the process of relocating a new, and permanent line off the bridge. This will then accommodate DelDOT's need to repair and rehabilitate the bridge.

The project is located in downtown Wilmington, New Castle County, Delaware. The project area and bridge location are also located in the center of the Brandywine Park Historic District.

Pursuant to 36 CFR Part 800.6 (a)(1), the purpose of this report is to provide the Advisory Council on Historic Preservation with the necessary and adequate documentation/information supporting a finding of Adverse Effect and a Memorandum of Agreement for this proposed bridge rehabilitation. In an effort to ensure the adequacy of this documentation/information, this report is written in accordance with the provisional requirements of 36 CFR Part 800.8 (b) and (c).

Within the Delaware Historic Bridge Survey and Evaluation, it was concluded that the Van Buren Street Bridge is considered as an eligible structure for inclusion in the National register of Historic Places. By consulting with the Delaware State Historic Preservation Office (DE SHPO), the bridge and project area lie within the Brandywine Park Historic District, which is listed in the National Register of Historic Places. By applying the criteria of effect/adverse effect (Part 800.9(a) and (b)), the Federal Highway Administration, the lead federal agency, has determined that the proposed project would have an adverse effect on the historic bridge and historic district area as per Part 800.9(b). The DE SHPO has concurred with this effect determination. Documentation of such evidence can be seen in Part Seven of this document.

Part One describes the Project area, the bridge, the bridge's structural condition, and the proposed Delaware Department of Transportation /FHWA action.

Part Two identifies and describes the historic resources which are listed or considered eligible for the National Register of Historic Places.

Part Three discusses how the proposed project will adversely effect the both historic resources (i.e. the Van Buren Street Bridge and Brandywine Park Historic District).

Part Four discusses the alternative options or ways which were considered to avoid or minimize adverse effects.

Part Five deals with environmental treatment and mitigation measures that will be employed for the Project.

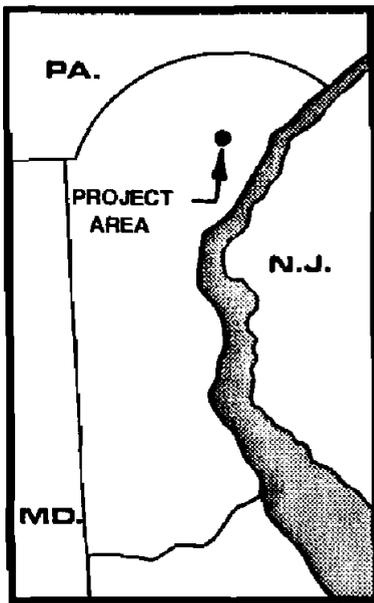
In Part Six, a Memorandum of Agreement signed by all contributing agencies/parties is incorporated so that commitments and/or mitigation measures are acceptable prior to the contract being awarded.

Finally, Part Seven includes coordination and written views of the DE SHPO and other interested persons (agencies or interest groups) concerning the project's finding of adverse effect.

Appendix I consists of the project's design plans for this bridge repair and rehabilitation.

The acceptance of this document and Memorandum of Agreement by the Advisory Council on Historic Preservation, will conclude the responsibilities required in compliance with Section 106 of the National Historic Preservation Act, as amended, and the following the Council's regulations as per 36 CFR Part 800.

KEY MAP



PROJECT LOCATION MAP

NEW CASTLE COUNTY, DELAWARE

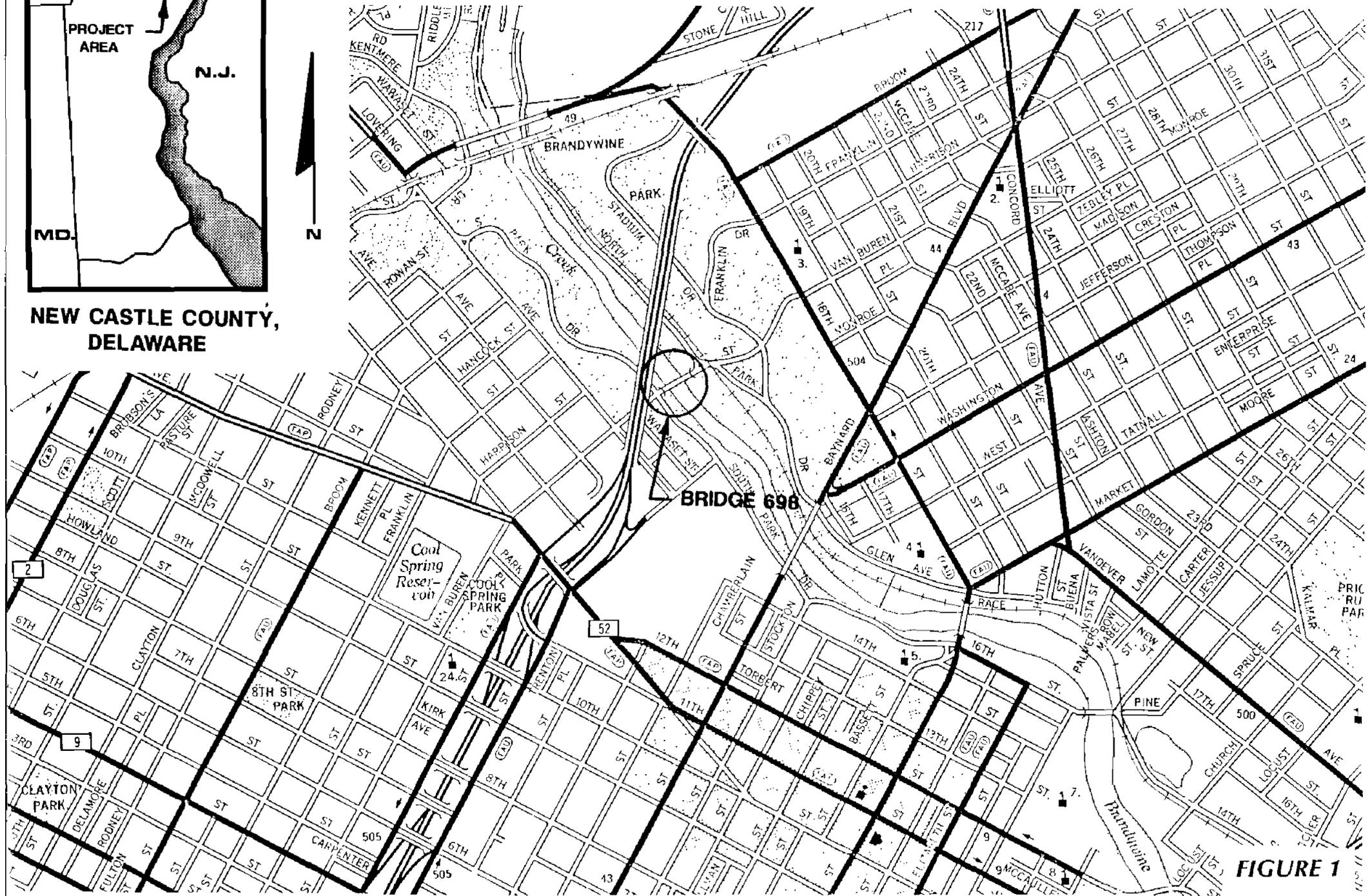
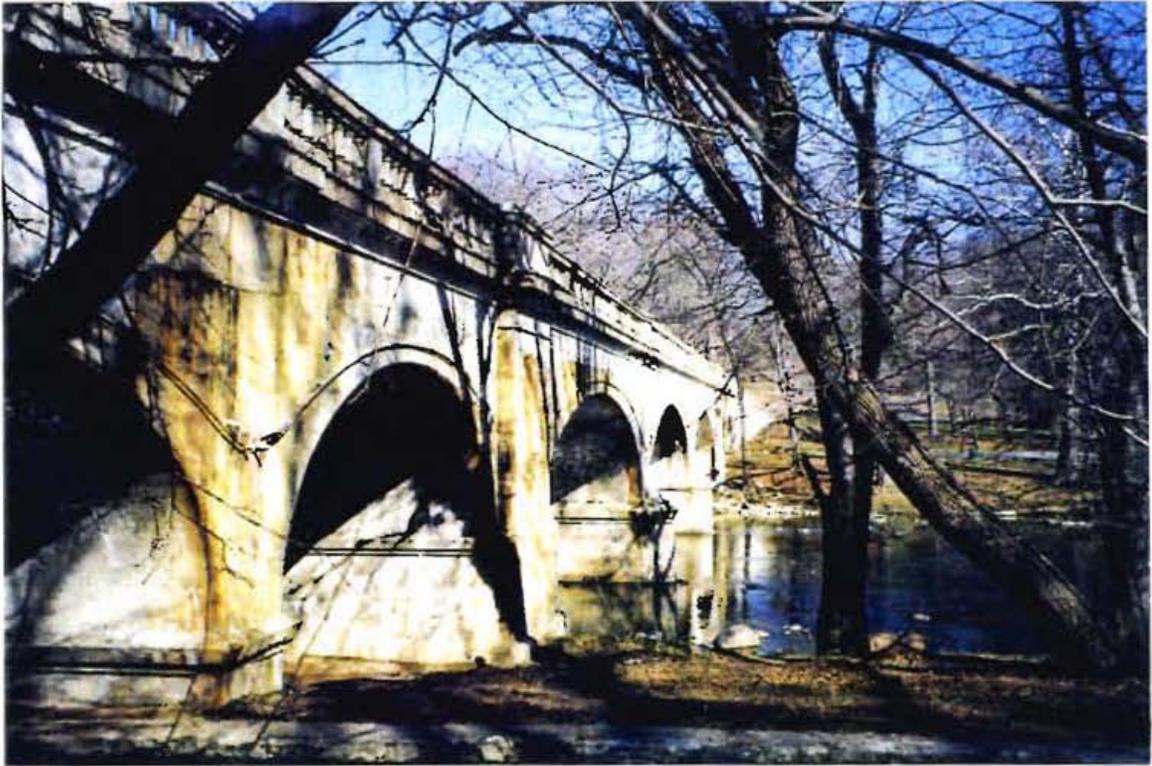


FIGURE 1



Van Buren Street Bridge within the Brandywine Park looking north



Van Buren Street Bridge deck looking north



Van Buren Street Bridge within Brandywine Park looking southeast



Van Buren Street Bridge looking north

Part One: Description of the Project Area, Bridge, Bridge Condition, and Proposal

The project involves a full and extensive rehabilitation of the Van Buren Street Bridge, which carries Van Buren Street over the Brandywine Creek. The project area is located in downtown Wilmington, New Castle County, Delaware. Please see attached Project Location Map on Figure 1.

The project area also lies within the Brandywine Park, a historic urban and landscaped architecture park that is owned by the City of Wilmington. The park, however, is managed and leased by the Division of Parks and Recreation for New Castle County.

The Van Buren Street Bridge is a 353 foot long, eight span steel and ribbed arched structure that is encased in reinforced concrete and earth (now crusher run) fill. The arched concrete bridge functions for motor vehicles, bicyclists, and pedestrians. It is also an aqueduct. The arch spans vary in length measuring, 9', 28', 28', 56', 56', 56', 33', and 33'. Arch reinforcement consists of I-beams in the short spans, and latticed, riveted girders in the longer spans; Thatcher bars reinforce the stairs and retaining walls. The bridge deck carries two lanes of traffic (approx. 10') and one sidewalk (approx. 4'), and one protective curb (approx. 1'): the concrete deck is supported on compacted fill (crusher run) over the arched ribs.

The following photographs illustrate and detail the Van Buren Street Bridge within the Brandywine Park.

The Van Buren Street Bridge is highly embellished, from the concrete substructure to the ornate balustrade. The bridge is topped with an ornate, urn shaped balustrade divided into sections which mirror the spans by dentiled short square columns and end posts.

The bridge was constructed in 1906 as a joint Project by Wilmington's Water Commission and Park Commission. The construction of the Van Buren Street Bridge was primarily intended to improve the city's early water supply. As such encased with in the concrete deck and earthen fill (now crusher run) is a 48" pipe which is currently active for approximately 42% of Wilmington's potable water supply. However, the water line system across the bridge is in desperate need of replacement. The water line (under pressure) has been actively leaking for years, which has hastened deterioration of the bridge's structural, engineering, and aesthetic condition.

According to Wilmington officials who own and maintain the water line and bridge, "as an active water line for approximately 42% of the city's potable supply, the

line must be in continual operation." In order to achieve this, the City of Wilmington plans on constructing a new and permanent water line which will be located off the bridge.

When this task is completed by the City, the new line will have interconnections (or butterfly valves) beyond the bridge's approaches which will essentially switch the system over.

Once this new system has been installed, DelDOT, who only maintains the bridge, plans to fully repair and rehabilitate the deteriorating structure.

Based on necessary bridge repair and rehabilitation needs, the extent of the project involves removal of the existing roadway/deck and roadway fill to reconstruct the reinforced arches and spandrel walls. The existing arches will remain as forms as new reinforced concrete I-beams will span between piers. Various details in Figure 2 show cross sections of proposed work. This can be better seen and detailed in Appendix A.

In order to accomplish the above work and rehabilitate/rebuild the bridge, the original water line (which will no longer be in operating service) has to be permanently removed. There is no need, feasible justification, or applicable use for reinstalling a new line back on the bridge, since the existing line is relocated. Future capacity use or maintenance needs as a redundant line on the bridge are not desired, feasible, nor operable. Therefore, part of the bridge's original function, an aqueduct across the Brandywine Creek, will no longer exist.

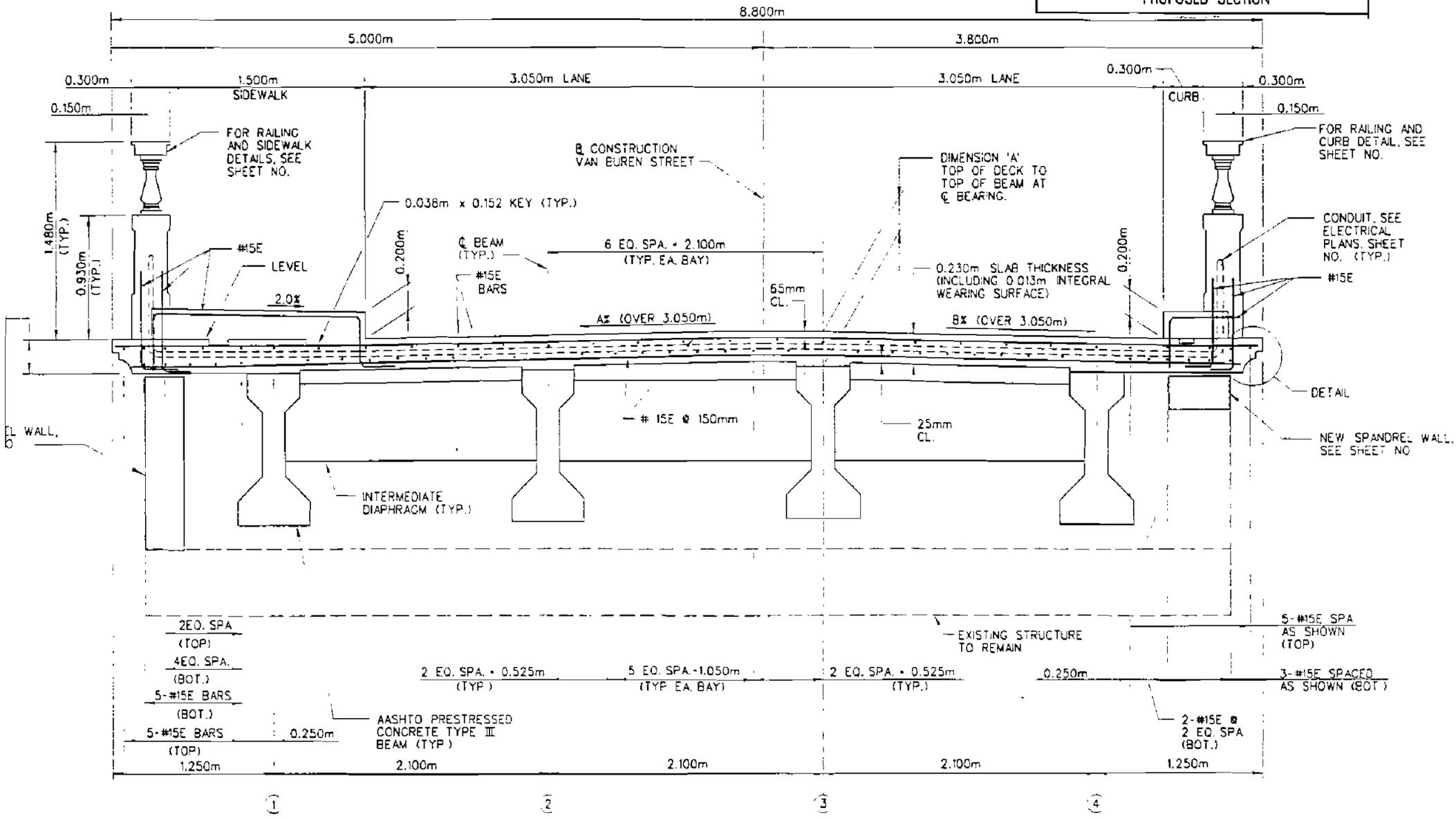
Numerous repair and minor rehabilitation projects have attempted to restore or correct water line failures on/across the bridge as an effort to postpone an extensive repair and rehabilitation that is now needed. It is known and well documented that much of the damage to the bridge results from water main leaks at the north and south ends. As a result, the leaks, have essentially undermined the roadway and has damaged and rusted the bridge's substructural components (the brown, black, and gold streaks). The perpetual water leaks have resulted in the proposed replacement of the water line across the bridge/waterway by the City of Wilmington in a new, but off-site, adjacent location.

In addition, stress from vehicle travel, deck percolation of water and salts, as well as freeze-thaw activity within the bridge over time have hastened the deterioration of the bridge.

Overall, the superstructure is in serious condition with spans experiencing cracking, leaching, moisture, rust stains, spalling, and loss of earth (crusher run) fill.

More specifically, results of inspection indicate that the arched ribs are severely cracked and spalling in many places. Dripping and water seepage from the water main

CONTRACT	COUNTY	FEDERAL AND PROJECT NO.	SHEET NO.	TOTAL SHEETS
92-074-04	NEW CASTLE	EBH-698(1)	35	
VAN BUREN STREET BRIDGE OVER BRANDYWINE CREEK BRIDGE NO. I-698 PROPOSED SECTION				



TYPICAL CROSS SECTION AT INTERMEDIATE DIAPHRAGM
SCALE: 1:20

FIGURE 2

has caused severe damage and dampness in the spandrel walls over the piers. Portions of the spandrel walls have rotted, cracked, or have spalled off. Throughout various lengths of the bridge, the spandrel walls are up to 2" - 5" out of plumb.

Numerous cracks with efflorescence and rust stains have developed at the base of the walls and in the fascia portion of the arch barrels as a result of the torsional effect of the wall rotation. At several locations, ½" to 1" gaps have opened at the construction joints between the bottom of the spandrel walls and top of the arch barrels.

Reinforced concrete balustrade parapets and pier ends have also spalled, rotted outward, and are deteriorating with the spandrel walls. The parapet sections are out of plumb and balustrade section have various gaps, cracks, or missing sections of baluster. The balustrade railings have also deteriorated due to acidic deposition caused by rain, air pollution, vehicle damage, and time. The railing end posts and intermediate posts have random cracking. The railing cap and base have transverse cracking throughout.

Current parapet configurations and designs are not crash safe. Since the parapets are open balustrade sections, they permit snagging effects when vehicles hit them. As a result over time, there is presence of vehicle damage on individual baluster sections (despite the lack of reported traffic accidents). Various construction joints between the bottom have rotated inward. There are transverse cracks. Various portions have also spalled. They are out of plumb throughout. By today's bridge and roadway standards, the overall parapet height is extremely low (3'-0" on sidewalk), and poses a serious safety concern for the high amount of pedestrians and vehicles that utilize the bridge.

A steady flow of water from the encased water main continues to leak from a drainpipe on the underside of the arch barrel near the north abutment. Rain water also seeps and percolates through from cracks and voids from the bridge deck.

Drainage inlets are filled with trash, leaves, and debris. They are clogged, resulting in new or standing drainage patterns.

Lighting fixtures are out of plumb. Current electrical wiring and conduits are out of safety code and hang unfastened along the outer cornice line. The lights are not ornamental to a park setting or time frame of the bridge.

Within the superstructure, arched barrels are rusted and corroded. There are longitudinal cracks on the underside of the arch barrels with efflorescence and rust staining.

Transverse cracks within 3' of the springing on the arched barrel undersides with efflorescence and severe rust staining. There are several areas of honey combing and deterioration of the arch barrel concrete.

At many locations, the substructure components have longitudinal cracks in their arched barrel undersides. These cracks extend through the springing and into the substructure.

There are several transverse and random cracks with efflorescence and rust staining throughout the substructure and areas of deteriorated and delaminated concrete.

Scouring up to 3' in depth are typical at the piers. The concrete footing protection aprons are undermined in several locations.

The south abutment stairways are undermined in places due to embankment erosion. The stairways, the stairway walls, and decorative railings leading into the Brandywine Park have also cracked, parged, and have spalled throughout.

Currently, based on bridge inspection results, the Van Buren Street Bridge has been listed on the Critical Bridge Action List for repair/rehabilitation. A three (3) ton limit has been posted. Closure is expected in the winter of 1996-97.

The project involves a total restoration of the Van Buren Street Bridge in order to salvage the bridge and to maintain a safe and adequate crossing for various transportation components.

The extent of the project involves an overall repair and rehabilitation scheme that will consist of the removal of the existing deck roadway and sidewalk, encased (abandoned) 48" water main, and earth fill (crusher run) to reconstruct the reinforced concrete arches. The existing arches will remain as forms as new reinforced concrete I-beams will span between piers. The new deck surface will then be poured with concrete.

The proposed deck work above is structurally and absolutely necessary. It will take all the dead and live loads off the arches. This is in order to preserve and protect the arches in-place. The arches, themselves, will be repaired where necessary and will remain as forms. The work described above has been developed to minimize as much as possible the perception of a changed bridge; from a visual/aesthetic standpoint.

In addition, outside spandrel walls on the west side and a portion on the east side will be completely parged off and rebuilt. The rebuilt walls shall match existing designs and dimensions. This includes all components of the entablature and cornice line. The east side wall over the Brandywine Creek will only be parged, patched, cleaned, and, thus, rehabilitated where needed.

Stairs and abutment wingwalls will be completely repaired/rebuilt on the west side. The east side stairway shall be parged, patched, cleaned, and partially rehabilitated or replaced where needed.

All PVC pipes, currently jetted into walls, will be removed. Holes shall be patched and sealed.

Other incidental work will involve scour and pier repair, striping/signing, cleaning and weather proofing, drainage improvements, anti-graffiti coating inside the arches, painting all exterior surfaces, recreation of original lighting designs/fixtures on the bridge, Belgian block approach improvements, brick sidewalk, and other minor repair work.

The proposed rehabilitation on the bridge will essentially mimic or replace existing elevations, dimensions, thickness and materials.

However, the incurring rehabilitation work is quite significant and the final project will be, essentially, a new bridge. In terms of architectural treatment, the bridge would be restored/rehabilitated in a manner compatible with its historic character and setting and with every effort to mirror original details. However, in terms of terms of the bridge's original historic function (part aqueduct), structural loading (only pertaining to the bridge's classification of a reinforced concrete arched bridge), and design details of the bridge parapets, changes are inherent as an effort to save the structure.

In terms of the new parapet selection, although the new parapet railing design (Detroit Superior Bridge Railing) closely imitates the current balustrade sections, it will not duplicate its attractive openness.

Other decorative features that will be included in the project will be approach roadway traffic calming measures. The approach areas will be reconstructed with a Belgian block stone pattern. On the north end, it will tie into the existing block pattern.

On the south end, it will be blocked up to the intersection with South Park Drive. The new Belgian block concepts are original to the project area.

As supplemental traffic calming, the current traffic signal at the intersection past the bridge's south approach end will be converted into a four way stop with a flashing red signal.

Part Two - Identification and Description of the Historic Resources

The first concept of a water crossing at this project location had been developed by the City (Wilmington) Water Commission. This involved submerging a water main across the Brandywine Creek. Planners and Engineers balked at this concept and decided to incorporate the large water pipe/main within a bridge, affording the pipe better protection as well as linking the two sections of Brandywine Park to make the Zoo and park areas more readily accessible. The cost of this combination, a roadway/carrageway and aqueduct, was \$40,000, paid according to a 1900 agreement: the Park's Commission paid for one-third of the cost and the Water Commission paid two-thirds. The two agencies which had cooperated in construction of the bridge continued to share jurisdiction over its maintenance until 1958, when the Park Board took full control. As of that date, an inspection of the structural analysis was undertaken by the State Highway Department indicated that the bridge required repairs and improvements estimated at \$200,000. The Department's inspection found the substructure in unexpectedly good condition, but recommended removing the deteriorated deck, sidewalks, and balustrades, and replacing the roadway with a modern, wider thoroughfare. In 1970, these plans were implemented. However, the modern, wider thoroughfare was not constructed as recommended. Instead, the roadway was widened 3'-0" by removing the curb and sidewalk on the east side; three sections of the southeastern balustrades were replaced.

According the original contract plans located in DelDOT archive files, work under the 1906 contract (BNK-7 or Contract No. 7) indicates that the deck should have consisted of a concrete deck. However, it was constructed with Belgian block, similar to the surrounding Brandywine Park Roads. The deck also originally consisted of two 8' lanes with two 4' sidewalks. Four fluted poles with global lumination designs on top of the parapets were also detailed. Theodore A. Leisen was the Chief Engineer. Leisen was a consulting engineer working for Concrete Steel Engineering Company out of New York City.

In reference to all known documented repairs and bridge modifications, in 1958 a stress analysis was preformed on the deck in order to access the need for a wider/modern roadway width. This proposal called for keeping the piers and arches and replacing the deck with a profile that would consist of two 15' lanes and two 5' cantilevered sidewalks with metal parapet railings. The encased 48' water main would be abandoned in place, while two 30" pipes would be installed/encased adjacent to it. However, none of these ideas were incorporated.

In the summer of 1970, the deck and earth fill were removed, replaced, and resurfaced/laid over with select borrow, crusher run, Portland Cement Concrete, and

hot-mix. Catch basins were installed or replaced which would connect to storm drains for the city's combined sewer and storm water system. The deck profile (width), including the sidewalks and curb were reconstructed to accommodate two 10' travel lanes with one 4' sidewalk on the west side and a 1' barrier/curb was placed on the east side. Three entire sectional pieces of balustrade parapet were replaced at the southwest end. Concrete guardrail and wire and post were replaced with cable stay guardrail and posts. The bridge was also painted with a barrier sealant coating.

In 1980-81, the bridge was cosmetically repaired with gunite to prevent spalling and further cracking. The bridge was cleaned by sandblasting. It was repainted with two coats of gray paint. Other repairs included: a partial concrete facelift through parging and patching the spalling arches, piers, parapet railing, stairways, wingwalls, and vertical facing of the east and west sides. All exposed faces of concrete were treated with a bonding agent before the pouring of fresh concrete. The hot-mix deck was removed and resurfaced. Cable stay guardrail and bullions were also removed and replaced with brown wooden guardrail and posts. Original lighting and poles were removed and replaced with a more conventional, modern fixture.

In March of 1984, \$4,800 was spent to repair the damaged southwest parapet corner of the bridge. Specifically, these repairs included: reattaching existing posts to their base, constructing new posts and attaching them to their base, repair of the southwest walls and rails with formed concrete to match the existing walls, doweling the existing walls and bases with #4 rebar 24" long with approximately 12" spacing, replacement of 6 missing balusters to match existing, replacement of sectional damage of bridge railing, application of an epoxy bonding agent to bond all connections between new and existing concrete, and painting of all new concrete to match existing.

A 1991 routine and temporary maintenance repair included repair of cracks, spalls, and leaching. More specifically, various spalled areas on curb, sidewalk, and encasement were repaired. Other work included repair of hot-mix pavement at approaches and temporary repair of spalls and unsealed cracks at various locations.

In the winter of 1996 emergency maintenance was performed on the deck due to outward skewing of the outside spandrel walls. This work included temporarily patching/sealing open cracked areas between the travel surface and sidewalk to prevent water seepage. Since January of 1996 the bridge has been closely monitored to ensure that walls or other cracked areas are not worsening.

In reference to the documented water line leaks on the bridge, the line, which is a major main, has been known to be leaking since 1978 at the bridge's north and south approaches.

In 1979 PVC pipes were drilled and installed within the outside arches to help percolation drainage from water main leaks and deck cracks.

In October of 1990, larger leaks developed in the 48" diameter water line. Two small holes were found near the invert of the pipe and were repaired without dewatering the pipeline. Approximately nine months later, a second leak occurred 150 feet away from the previous leak. The second leak, as described by City of Wilmington personnel, occurred in the lower half of the pipe within a pitted area approximately 2 feet by 2 feet.

Consultation with the Delaware State Historic Preservation Office (DE SHPO) indicates that the Van Buren Street Bridge is included within the Delaware Historic Bridge Survey and Evaluation as a bridge considered eligible to the National Register of Historic Places (N-1566). The structure was evaluated in a HABS/HAER Inventory between April and November of 1988. The DE SHPO has confirmed the bridge's consideration of eligibility in a December 23, 1991 Memorandum of Agreement which included a statewide inventory and evaluation of all bridge structures on Delaware. The HABS/HAER card is attached in Figure 3 for additional detail.

The Van Buren Street Bridge, itself, is the only inventoried example in Delaware of a multiple span solid spandrel, filled concrete arched bridge. The bridge is one of the earliest concrete bridges surveyed in Delaware. Among the first structures in Wilmington/the State to utilize the relatively new technology of construction, or "concrete steel" construction, the bridge represents an early example of this technology to a multiple span bridge set in a city park. The bridge demonstrates the aesthetic potential of the new material, as well as the versatility of design possibilities in the unobtrusive incorporation of a 48" water main within a monolithic structure. The Van Buren Street Bridge also has considerable technological significance, reflecting the variety of early 20th century concrete reinforcement types in its reinforcing scheme: beam reinforcement (latticed and Melan - type rolled I-beam) and bar reinforcement (Thacher bars).

In identifying the historic resource of the Brandywine Park, since Wilmington's pre and postindustrial development, areas along the banks of the Brandywine Creek have always been used for recreational purposes. In 1833, State Legislation introduced and passed a bill to provide for "Public Parks for the use of the citizens of Wilmington and vicinity." State Legislation also established a Board of Commissioners to take care and manage such parks, when acquired.

After the commission was established, the Board of Park Commissioners contacted Frederick Law Olmsted Sr. to review and consult possible park sites in and around Wilmington. He (Olmsted) recommended that the land along the Brandywine Creek be obtained for a park. By 1886, the Board of Commissioners had the funds to acquire the first lands of Brandywine Park. Other portions of the park have been since donated or acquired at later times.

HABS/HAER INVENTORY

See "HABS/HAER Inventory Guidelines" before filling out this card.

1. NAME(S) OF STRUCTURE

State Bridge Number 698

2. LOCATION

Van Buren Street over Brandywine Creek & Flume
Wilmington, New Castle County, Delaware

3. DATE(S) OF CONSTRUCTION

1906

4. USE (ORIGINAL/CURRENT)

Vehicular

5. RATING

CA

6. CONDITION

Fair: Spalling, cracking and calcium stains on arches, piers and abutments.

State Highway Bridge 698 (Van Buren Street Bridge) is a 353 feet long, eight span filled, solid spandrel concrete arch bridge and aqueduct. The spans vary in length, measuring 9'-0", 28'-0", 28'-0", 56'-0", 56'-0", 33'-0" and 33'-0". Arch reinforcement consists of I beams in the short spans and latticed, riveted girders in the long spans; Thacher bars reinforce the stairs and retaining walls. The bridge carries two lanes of traffic with a total horizontal clearance of 24'-0"; the concrete deck is supported on compacted fill over the arch ribs. The Van Buren Street Bridge is highly embellished, from the concrete substructure to the ornate balustrade. The bridge is topped with an ornate, urn-shaped concrete balustrade divided into sections which mirror the spans by dentilled shaft square columns and end posts. All piers are corbeled at the top and rounded below, while four are retained in through the parapet and topped with decorative light posts. The west wing walls serve as the base for a straight staircase that leads to the bridge deck from the park. At the stairs the parapet is extended to act as a railing and is decorated with incised geometric shapes. Square columns serve as the newels at the bottom of the stairs. When viewed in elevation, the detailed ornamentation is augmented by decorative arch rings which emphasize the arch structure, and the corbeled fascia. A marble bridge plate, located between spans 1 and 2 on the south elevation, documents the 1906 date of construction and lists the members of the Board of Water Commissioners and the Chief Engineer, Theodore A. Lelsen.

Delaware Department of Transportation records state that Bridge 698 was built in 1906; original drawings are filed at the Department. The drawings indicate that the nationally prominent Concrete-Steel Engineering Company of New York served as consulting engineers; from 1901 to 1912, preeminent American engineer, Edwin Thacher, a reinforced concrete pioneer, was associated with the firm. Constructed as a joint project by the Water Commission and the Park Commission, the Van Buren Street Bridge was an integral part of a major project undertaken to improve the city's water supply. The concrete arches encased a pipe, 48 inches in diameter, carrying water across the Brandywine from Porter Reservoir on Concord Pike to the filter station at 16th and Market Streets. The first concept developed by the Water Commission involved submerging the water main across the Brandywine River. Planners decided to incorporate the large main within a bridge, affording the pipe better protection and linking two sections of Brandywine Park to make the Zoo more readily accessible to visitors. The cost of this combination highway bridge and aqueduct was \$40,000, paid according to a 1900 agreement: the Parks Commission paid for one-third of the cost and the Water Commission paid for two-thirds. The two agencies which had cooperated in constructing the bridge continued to share jurisdiction over its maintenance until 1958, when the Park Board took full control. At that date, an inspection of the structure undertaken by the State Highway Department indicated that the bridge required repairs and improvements totaling \$200,000. The Department's inspection found the substructure in unexpectedly good condition, but recommended removing the deteriorating deck, sidewalks, and balustrades, and replacing the roadway with a modern, wider thoroughfare. In 1970, the roadway was widened 3'-0" by removing the curb and sidewalk on one side; the existing balustrade was carefully preserved.

State Bridge 698 is the only example of a multiple span solid spandrel, filled concrete arch bridge. This highly embellished structure is also the earliest concrete bridge surveyed in the state. Among the first structures in Wilmington to utilize the relatively new technology of reinforced concrete, or "concrete-steel", construction, the Van Buren Street Bridge represents an early application of this technology to a multiple span bridge set in a city park. It demonstrates the aesthetic potential of the new material, as well as the versatility of design possibilities in the unobtrusive incorporation a 48-inch water main within this monolithic structure. The Van Buren Street Bridge also has considerable technological significance, reflecting the variety of early twentieth century concrete reinforcement types in its reinforcing scheme: beam reinforcement (both latticed and Melan-type rolled I-beam) and bar reinforcement (Thacher bars). Consulting engineers were the Concrete-Steel Engineering Company of New York City, which had achieved national prominence in the field of reinforced concrete bridge construction. In the decade ending in 1904, this company and its predecessors had constructed 300 reinforced concrete spans across the country. Among the American engineers who contributed to the development of reinforced concrete bridge technology during its formative period was Edwin Thacher (1840-1920), associated with Concrete-Steel Engineering Company from 1901 to 1912. Thacher became interested in steel-reinforced concrete construction in the late 1880s, and by 1895 had made this a specialty. He designed and constructed viaducts and bridges for leading southern railroads during the period 1889-1904. Also during this period, he became the western representative of Fritz von Emperger's company, and was instrumental in disseminating the Austrian engineer's technological innovations in the United States. Among Thacher's numerous patents are designs for deformed steel bar reinforcement, early examples of the reinforcement used in current design. The bridge drawings specify that Thacher bars were used as reinforcement in the stairs and buttresses of the Van Buren Street Bridge.

10. NAME(S) OF STRUCTURE

State Bridge Number 698

11. PHOTOS (W/ FILM ROLL & FRAME NO.) AND SKETCH MAP OF LOCATION

75A:27-36

76A:3-8



76A:3

- Mack, Warren W. "A History of Motor Highways in Delaware", in Reed, Henry Clay, Delaware: A History of the First State, vol.2, pp.535-550 (NY: Lewis Historical Pub. Co., 1947).
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- Wilmington Morning News, 20 March 1936.
- Wilmington Evening Journal, 1 February 1958; 13 June 1958.

Delaware State Archives. State of Delaware, New Castle County Levy Court, Specifications, Proposals, Contract and Bond. ms., State Archives, Dover, DE.

Delaware State Archives. New Castle County Road Commissioners Papers, various years 1750-1940, ms. State Archives, Dover, Delaware.

Delaware DOT records: Contract files.

Plans on file at Delaware DOT: Contract #BNC-7, 70-05-002, 80-071-02

12. SOURCES

13. INVENTORIED BY:

AFFILIATION

DATE

P.A.C. Spero & Company with Kidde Consultants for Delaware DOT

April-November 1988

FIGURE 3

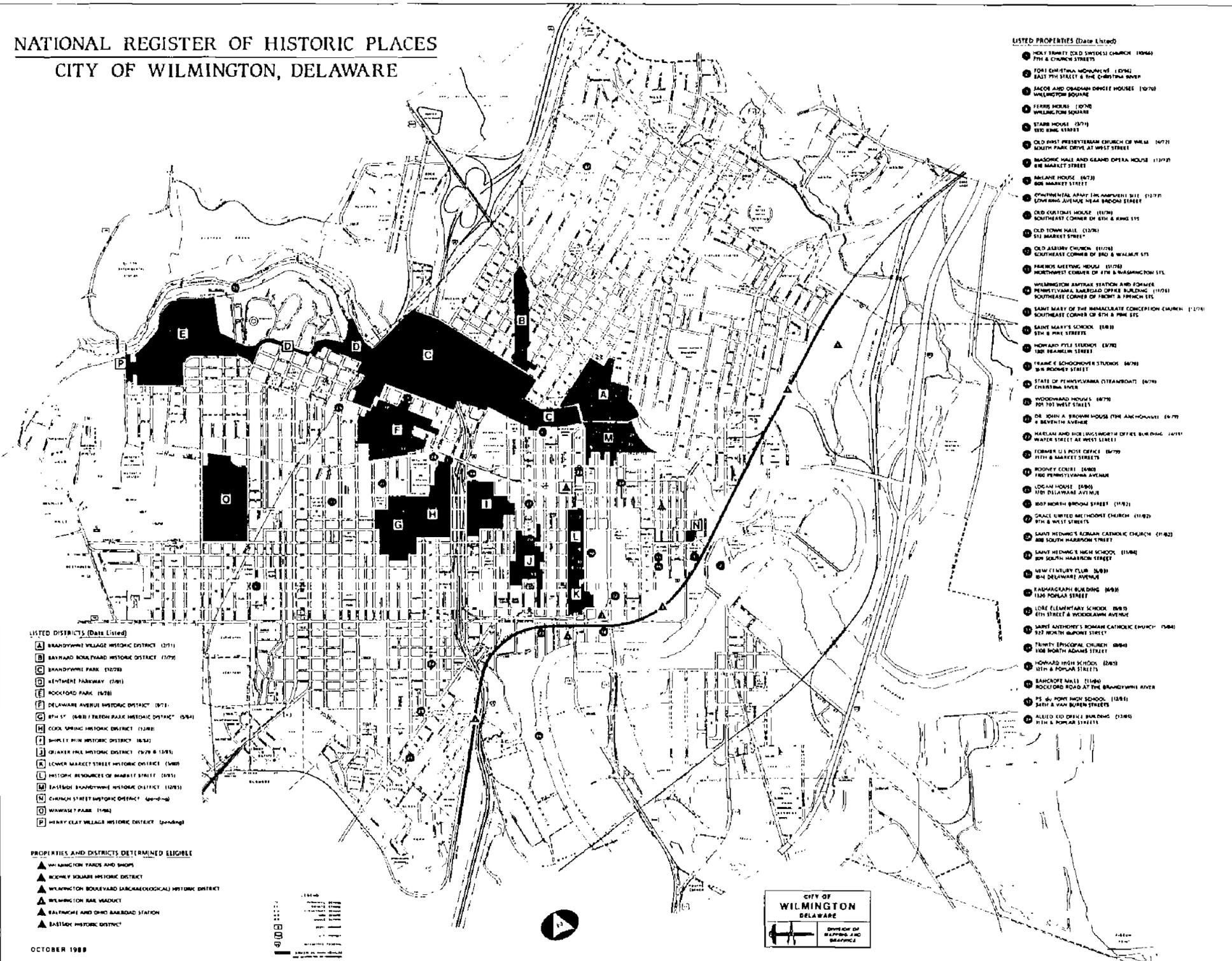
Samuel Canby, a local Wilmington engineer and surveyor, laid out the earliest plans and designs of Brandywine Park. In his consultation with Olmsted, Canby blended the park's natural topographic beauty with winding roads, paths, and walks. Of prime importance was the preservation of Brandywine creek and its millraces, a tribute to the park's landscape. Since its park establishment, many other memorials, buildings, structures, objects, and special events have been placed or planned in the park. The Van Buren Street Bridge is one such example.

The park today, as from its inception, is central to the recreational activities of Wilmington. The Brandywine Park's history is heavily advocated in its creation and layout by Frederick Law Olmsted Sr. who encouraged a naturalistic style in park and landscape development of open space. Olmsted, known internationally for his ideas and theories about park and open space design in cities, exerts a significant influence on the park's conception and layout.

As Wilmington's first public park, Brandywine Park was listed on the National Register of Historic Places December 22, 1976. An amendment to this district, extending the district's boundaries and park resources was approved in July 23, 1981. A map of Brandywine Park Historic District is illustrated in Figure 4.

NATIONAL REGISTER OF HISTORIC PLACES

CITY OF WILMINGTON, DELAWARE



LISTED DISTRICTS (Date Listed)

- A BRANDYWINE VILLAGE HISTORIC DISTRICT (1971)
- B BAYNARD BOULEVARD HISTORIC DISTRICT (1979)
- C BRANDYWINE PARK (1978)
- D KENTMERE PARKWAY (1981)
- E ROCKFORD PARK (1978)
- F DELAWARE AVENUE HISTORIC DISTRICT (1971)
- G 8TH ST. (1881) FREEDOM PARK HISTORIC DISTRICT (1981)
- H COOK SPRING HISTORIC DISTRICT (1988)
- I SHIRLEY PITT HISTORIC DISTRICT (1982)
- J QUAKER HILL HISTORIC DISTRICT (1979 & 1981)
- K LOWER MARKET STREET HISTORIC DISTRICT (1989)
- L HISTORIC RESOURCES OF MARKET STREET (1975)
- M EASTERN BRANDYWINE HISTORIC DISTRICT (1975)
- N CHURCH STREET HISTORIC DISTRICT (1984-85)
- O WAWASEE PARK (1988)
- P HENRY CLAY VILLAGE HISTORIC DISTRICT (1984-85)

PROPERTIES AND DISTRICTS DETERMINED ELIGIBLE

- ▲ WILMINGTON YARDS AND SHOPS
- ▲ ROCHLEY SQUARE HISTORIC DISTRICT
- ▲ WILMINGTON BOULEVARD (ARCHAEOLOGICAL) HISTORIC DISTRICT
- ▲ WILMINGTON RAIL VIADUCT
- ▲ EASTINGHO AND OHIO RAILROAD STATION
- ▲ EASTSIDE HISTORIC DISTRICT

LISTED PROPERTIES (Date Listed)

- 1 HOLY TRINITY (OLD SWEDISH) CHURCH (1868) 7TH & CHURCH STREETS
- 2 FORT SMITHINA MOUND (1894) EAST 7TH STREET & THE CHRISTINA RIVER
- 3 JACOB AND OSABAN DWIGHT HOUSE (1978) WILMINGTON SQUARE
- 4 FEARS HOUSE (1978) WILMINGTON SQUARE
- 5 STARR HOUSE (1971) 1310 KING STREET
- 6 OLD FIRST PRESBYTERIAN CHURCH OF WILM. (1971) NORTH PARK DRIVE AT WEST STREET
- 7 BRADGON HALL AND GRAND OPERA HOUSE (1971) 616 MARKET STREET
- 8 ALLANE HOUSE (1971) 808 MARKET STREET
- 9 CONSTITUTIONAL ARMY ENCAMPMENT SITE (1977) LOWRING AVENUE NEAR BRADGON STREET
- 10 OLD CUSTOMS HOUSE (1978) SOUTHWEST CORNER OF 8TH & KING STS.
- 11 OLD TOWN HALL (1978) 514 MARKET STREET
- 12 OLD ALABAMA CHURCH (1978) SOUTHWEST CORNER OF 8TH & WALNUT STS.
- 13 FRENCH MEETING HOUSE (1978) NORTHWEST CORNER OF 4TH & WASHINGTON STS.
- 14 WILMINGTON AIRTRAX STATION AND OFFICE BLDG. (1978) PENNSYLVANIA BARCLAD OFFICE BUILDING
- 15 SOUTHWEST CORNER OF 8TH & PINE STS.
- 16 SAINT MARY'S OF THE IMMACULATE CONCEPTION CHURCH (1978) SOUTHWEST CORNER OF 8TH & PINE STS.
- 17 SAINT MARY'S SCHOOL (1978) 8TH & PINE STREETS
- 18 HOWARD FIELD STATION (1978) 1201 BRANFORD STREET
- 19 FRANK E. SCHUCHOWITZ STUDIOS (1978) 304 ROOSEVELT STREET
- 20 STATE OF PENNSYLVANIA STEAMBOAT (1978) CHRISTINA RIVER
- 21 WOODWARD HOUSE (1978) 201 101 WEST STREET
- 22 DR. JOHN A. BROWN HOUSE (THE ANCHORAGE) (1978) 8 BENTLEY AVENUE
- 23 HAZELAN AND RICH LONGMOUTH OFFICE BUILDING (1978) WATER STREET AT WEST STREET
- 24 TOMBER L.S. ROSS OFFICE (1979) 11TH & MARKET STREETS
- 25 ROSSNEY CENTRE (1980) 180 PENNSYLVANIA AVENUE
- 26 LOGAN HOUSE (1980) 1021 DELAWARE AVENUE
- 27 100 NORTH BRADGON STREET (1982)
- 28 GRACE UNITED METHODIST CHURCH (1982) 9TH & WEST STREETS
- 29 SAINT HENRY'S ROMAN CATHOLIC CHURCH (1982) 808 SOUTH HARRISON STREET
- 30 SAINT HENRY'S HIGH SCHOOL (1984) 808 SOUTH HARRISON STREET
- 31 NEW CENTURY CLUB (1983) 104 DELAWARE AVENUE
- 32 RADIOGRAPH BUILDING (1983) 1140 POPULAR STREET
- 33 LORE ELEMENTARY SCHOOL (1983) 8TH STREET & WOODLAWN AVENUE
- 34 SAINT ANTHONY'S ROMAN CATHOLIC CHURCH (1984) 322 NORTH WILMONT STREET
- 35 SAINTS EPISCOPAL CHURCH (1984) 108 NORTH ADAMS STREET
- 36 HOWARD HIGH SCHOOL (1985) 11TH & POPULAR STREETS
- 37 BRADFORD HALL (1986) ROCKFORD ROAD AT THE BRANDYWINE RIVER
- 38 P.S. 40 PORT HIGH SCHOOL (1981) 34TH & VAN BUREN STREETS
- 39 ALFRED KID DRINK BUILDING (1986) 1114 & POPULAR STREETS



Preservation Profile: Brandywine & Rockford Parks

Sites Worthy of Historic Designation

Frederick Law Olmsted's public parks created an oasis of rural ambience in the midst of sprawling cities. His design for Central Park in New York City in 1857 was his first project as a landscape planner and remains one of his most well known. His influence extended to Wilmington, where he influenced the formation and character of the City's park system in its infancy the 1880s. Support for a public park system began in the 1860s, when the City's expansion posed a threat to the favorite local picnic ground along the Brandywine Creek. A committee of five prominent citizens inquired into acquiring land along the Brandywine as well as land for a public square. However, the citizens of Wilmington did not approve the committee's suggestion to purchase land along the Brandywine, allowing only funds for a public square.

The interest in expanding the park system did not die, as a second committee, chaired by U.S. Senator Thomas S. Bayard, reported in 1869 that the Brandywine Valley provided the ideal elements for a park. This report motivated City Council to form a public park committee. However, the inaction of this committee in the 1870s caused William P. Bancroft, the father of Wilmington's park system, to garner support from influential citizens and lobby the State to pass the Park Commission Bill of 1883. The law gave the Mayor and Council the authority to spend \$10,000 per year to acquire land for parks. Bancroft offered to donate land outside the City limits. This influenced the legislation, to grant the City power to annex the area between the park and the City boundaries.

In a resourceful public relations move, the commissioners invited Mr. Olmsted to study the Brandywine site. In his

report he focused on the great natural beauty of the Brandywine River valley, now Brandywine Park. He urged that the City buy the land quickly, before it was lost. Olmsted also recommended that the commission accept Bancroft's offer of land for what is now Rockford Park. Both Olmsted and Bancroft believed in the salutary benefits of parks for city dwellers who lived in cramped conditions. By 1895 the Board commenced its work, assembling the needed acreage for and completing the development of Brandywine Park, Rockford Park, and Kentmere Parkway.

The United States Department of the Interior lists these three sites in the National Register of Historic Places. In addition, the City has designated Kentmere Parkway a historic district. As an example of landscape architecture, Brandywine Park stands as one of the finest in Delaware. Olmsted found the park to contain all the necessary elements for a beautiful park, such as trees, uneven grades, slopes, water, drives, walks, concourses, entrances, music stands, lawns, greens, and playgrounds.

Rockford Park's significance lies in William P. Bancroft's adoption of the philosophy of Frederick Law Olmsted. Bancroft strongly supported Olmsted's belief that open space was essential to the vitality of city dwellers. Even though scholars do not consider the Wilmington parks as significant Olmsted project, he did suggest the acquisition of Brandywine Park, devised a plan for Kentmere Parkway, and unofficially advised William Bancroft on the design for Rockford Park. □

(Article contributed by David Collins, Office of Planning Intern, 1991)

Brandywine & Rockford Parks City of Wilmington, Delaware

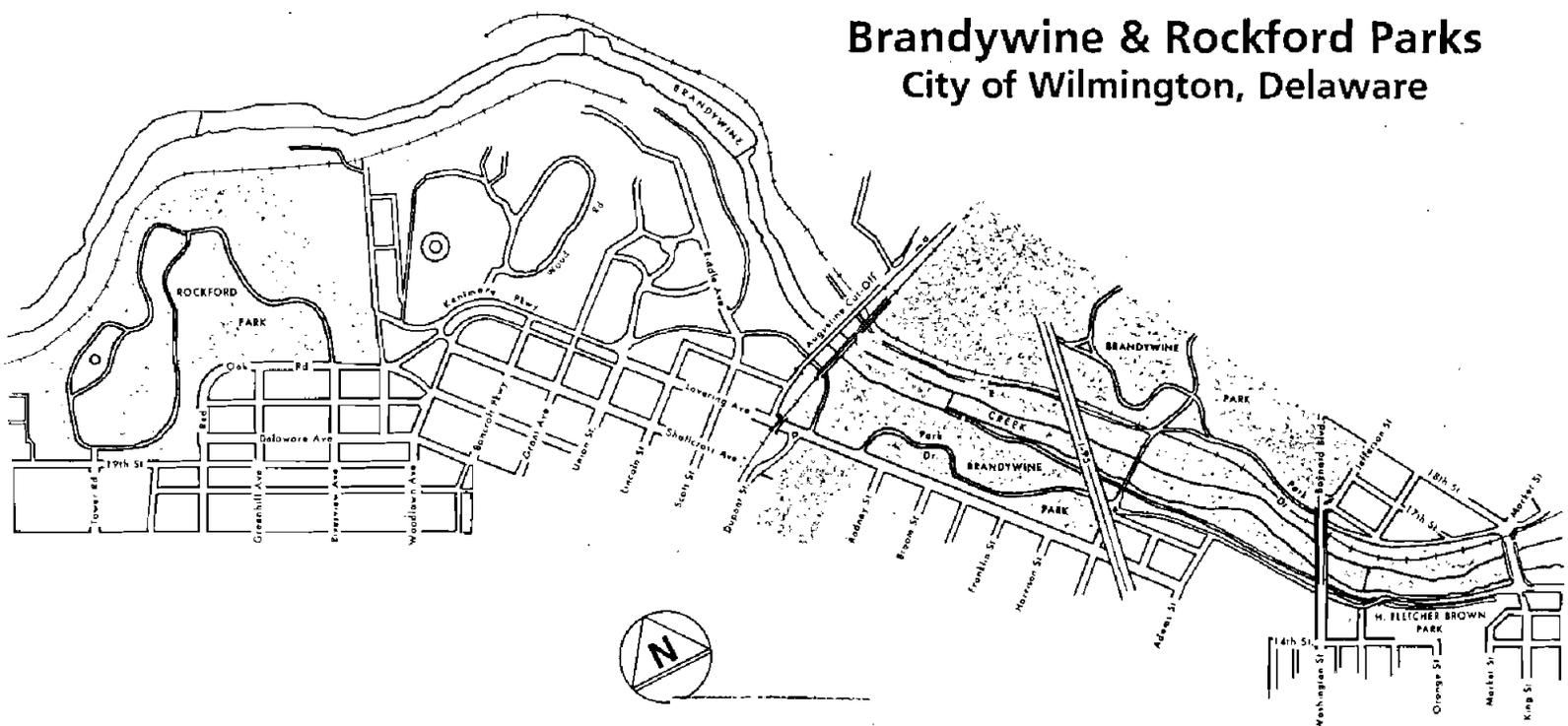


FIGURE 4

Part Three - Adverse Effects on the Historic Resources

Extensive consultation and coordination has been undertaken with the DE SHPO, local preservationists, and interest groups concerning the development of plans and the scope of work for this project. Design and treatment measures have been incorporated or added into the project based on many recommendations and requests suggested of these individuals or groups.

As a result of the proposed rehabilitation action, DeIDOT via FHWA has agreed on the proposed rehabilitation option that best suits the bridge and project area while upgrading and meeting all safety and design standards set forth by AASHTO. While some of the proposed actions are changes which constitute an adverse effect, all interested parties and groups readily agree that this is the best option for the bridge and Project area.

Therefore, the some of the modifications incorporated into the bridge rehabilitation will have an effect, and this effect is considered adverse not only on the historic resource itself, but the Brandywine Park Historic District.

The proposed action involves removal of the entire deck, partial superstructure, and parapets to repair and rehabilitate the bridge. The work will also permanently remove the encased 48" water line and earth fill (now crusher run) and the original design of the ornate balustrade parapet. As a result, because there will be an alteration and destruction to part of this historic structure, adverse effect Criterion 800.9(b)(1) is applicable.

The Van Buren Street Bridge, itself, will also be adversely effected under Criterion 800.9(b)(1) in that original balustrade parapet designs will be removed and replaced under a slightly different design.

The project will have an adverse effect under Criterion 800.9(b)(2) by altering significant features of the bridge (i.e., parapet), the project will alter the character of the setting of Brandywine Park Historic District.

The Van Buren Street Bridge and Brandywine Park Historic District will also be adversely effected under Criterion 800.9(b)(3) by the introduction of visual elements which alter the visual quality of both settings. The visuals element consist of adding protective rip-rap along the existing piers and streambank area to protect the bridge and stream bank from scouring and erosion. Original parapet designs will also be removed and replaced with a new, but modified, design.

The remaining criteria of adverse effect under 36 CFR 800.9(b) do not apply.

The proposed rehabilitation work will not perpetuate deterioration of the bridge and Brandywine Park Historic District under Criterion 4.

Under Criterion 5, the proposed rehabilitation work will not result in transfer, lease, or sale of either property.

Based on the given scope of work, potential archaeological resources are not expected within the project area.

Based on the foregoing analysis is our opinion that the Van Buren Street Bridge and Brandywine Park Historic District will suffer adverse effects as a result of the federal undertaking.

Part Four - Alternative to Avoid Adverse Impact

Various alternatives were considered which not only deal with rehabilitation treatments to the bridge, but also the potential reinstallation of redundant water main across the bridge.

Do Nothing

The Do Nothing alternative addresses or resolves adverse impacts on all treatment methods of parapet and water line removal (800.9 (b)(1)). It also resolves adverse impacts directly related to the visual quality of the bridge appearance and Brandywine Park (800.9(b)(3)). However, the Do Nothing alternative does not consider the purpose and intent of the project as discussed in Part One of this document. Existing conditions have already down posted the weight limit to a critical action of 3 tons. The southwest wall on the bridge which has rotated outward as much as 6". It is currently being monitored. At some point, the bridge can no longer handle freeze thaw activity in the winter, vehicle stress, general fatigue, vehicle traffic on the bridge. It is likely that the bridge will be closed to all forms of transportation access sometime this winter (1996-97).

Ignoring a mandatory maintenance/rehabilitation bridge project will lead to further deterioration of the bridge, and thus, it would continue to deteriorate to a point where it would fail. As a result, if nothing is done, severe injuries, and/or fatalities could potentially result as well as loss to a historic resource would occur. The Do Nothing may violate various Environmental Justice criteria established under the FHWA. The Do Nothing option would also result in adverse effect in that there would be neglect of the property, resulting in further deterioration and eventual removal.

Therefore will all respects, the Do Nothing solution is worse than accepting and accepting the adverse impacts to the bridge and historic district.

Keep Conditions and Stabilize Bridge

A concept or plan to stabilize existing conditions would avoid adverse impacts by keeping the abandoned water line within the bridge and keep the original parapets since they would not need to be removed and replaced with a new and approved design. Visual adverse impacts on the bridge and historic district may also be avoided.

However, in order to keep existing conditions and stabilize the bridge would require an extensive amount of reinforcement wiring, bracing, and anchor tie-rods to ensure that the bridge is safely operable. Given the extensive amount of cracking and deterioration of the arches, walls, piers, and overall structural functions, so much

stabilization methods would be needed that the bridge would not really be supporting itself. Stabilization methods would only be, at most, an intervening measure for eventual replacement. There would be visual adverse effects in any type of stabilization method, too.

To remove the rip-rap placement along the piers to streambank would further neglect its repairs and preventative maintenance.

Rehabilitate Bridge and Close or Modify Vehicular Use

The purpose of the project is to rehabilitate the existing deteriorated conditions of the bridge. This will maintain present and future transportation systems for all modes on travel and ensures the safety and enjoyment for the general public. During the public workshop and subsequent community meetings, consideration and input was suggested to close the bridge for vehicle use (except under emergency situations) or limit the bridge to one way traffic. Owners of the bridge, surrounding roads, park, and park area (i.e the city of Wilmington) have already stated their position as well as other community groups that live in the immediate area that the bridge not be closed or altered to motorized traffic by any means (except under special conditions such and planned events within the park). Political representatives, community leaders, and park officials have also indicated their desire to maintain existing traffic patterns.

If this option were ever pursued, a case can be made that bridge closure or limitation will divert, impact, and burden transportation accessibility of surrounding roads which are as equally sensitive to the existing location. This would inhibit emergency responses, recreational opportunities, parkland and recreational accessibility, added traffic burdens to nearby roads, bridges, or communities.

Typical Section and Balustrade Parapet Design Options

The development of rehabilitation/reconstruction alternatives considered a wide range of ideas and included extensive agency and public coordination and comment. DelDOTs original proposal was an attempt to best accommodate transportation, safety and historic/aesthetic elements. This alternative involved significant widening to include two fourteen foot lanes , two five foot sidewalks, and the Texas T type parapet. In the view of the SHPO, this alternative represented the most radical change to the original structure and would have resulted in the most severe adverse effects. Through the extensive consultation program undertaken for this project , a more compatible design was developed. Alternative design issues focused on compromises concerning the typical section, and therefore, overall bridge width and the parapet design.

The existing open balustrade sections of the bridge parapet do not meet safety standards for vehicle deflection, they fail AASHTO design and safety standards.

Therefore, they must either be replaced with an approved parapet option, or, as an alternative option, a protective guardrail could be placed in front of the current parapets. The drawback of a protective guardrail is that installation would require either widening or cantilevering the bridge deck to maintain the existing section or, decreasing an already narrow and substandard travel width and potentially removing sidewalks. Neither structurally widening the deck, nor significantly revising /restricting traffic and pedestrian access patterns were acceptable alternatives.

Another option to allow the use of ornate balusters sections would require, to meet minimum safety requirements, a metal or concrete wheel/bumper guard be installed along the face of the curb and sidewalk. This additional railing is necessary due to existing balustrade sections failing crash and safety design standards (due to the snagging presence, not crashing through them or # of accidents on bridge as one may infer). The current design exception in the width of the travel surface is conditioned on the incorporation of the approved, crash worthy parapets.

In addition, a protective guard rail may present a significant safety concern within the park due to the amount of youths/pedestrians that visit and use this bridge. One concern, along with others, is that youths (or even adults) will walk along the top of this railing and fall/jump/slip into travel lanes or rail gaps and sustain serious personal injury. To some, an added wheel/bumper guard is also an unattractive visual concept which may constitute as more of an adverse effect to the bridge and project area. In consultation with the DE SHPO and interested parties, the majority of the community and governing bodies, felt that a metal guardrail placed on top of the curb, constituted as an adverse effect in not only its appearance, but in the need to widen the bridge to provide the loss of travel and sidewalk width. The DE SHPO and all other interested parties do not want the bridge widened and are willing to accept the new modified parapet design.

Thus, if an approved rail is not placed on the bridge, design criteria would warrant adverse effects which are not accepted by the DE SHPO and other interested parties.

Adding more reinforcement to the new balustrade designs, or looping/threading cable wires within the balustrade design does not eliminate the snagging effects one would experience during a vehicle strike on the parapet.

Taking into consideration all of the concerns; historic preservation, safety, traffic/access requirements, pedestrian access needs, agency and community input, the proposed typical section and parapet design evolved. The Detroit Superior Bridge Railing parapet type best mimics the architectural flair of earlier bridge designs, while providing for necessary current safety requirements. Plan details are provided in appendix I.

Part Five - Environmental Treatment and Mitigation Measures to be Employed

In response to specific requests by consulting parties and interest groups, guardrail replacement will not be connect to the new parapet walled ends. Also, guardrail will not extend along the facing of the walls.

The proposed replacement of the parapet walls will be replaced with a balustrade design that closely mimics the original design. Insets to both the otter and inner walls and balustrade sections will break up the symmetrical look and design.

Special provisions have been made to replace the existing lumination system with a replicated pole and lighting design that was illustrated on the original 1906 plan sheets.

Special provisions have also been set up in the plan sheets that include traffic calming measures. One provision includes changing the four way signalized intersection on the south approach area to a complete four way stop area with red flashing lights. Other traffic calming measures include recreating a Belgian block travel surface pattern on the north and south end approaches.

To mitigate the adverse effect under Criterion 800.9(b)(1), DelDOT via FHWA will be consulting the National Park Service's Mid Atlantic Regional Office to determine what level and kind of recordation is required for the bridge rehabilitation. DelDOT will ensure that all photo documentation is acceptable prior to rehabilitation work. Copies of this documentation will be provided to the DE SHPO and appropriate local achieves designated by the DE SHPO.

To also mitigate the adverse effect under Criterion 800.9(b)(1), DelDOT via FHWA will carefully remove existing balustrade parapet walls. They will be moved and stored in Wilmington's Public Works Yard until an adaptive reuse plan is agreed upon by park administrators and planners to carefully place and restore them back within the park (but not back on the bridge) setting as a tribute to the bridge and park.

To mitigate the visual adverse effects under Criterion 800.9 (b)(2) and (3), DelDOT via FHWA has consulted with the DE SHPO and other interested parties regarding the rehabilitation of the Van Buren Street Bridge. All rehabilitation schemes and detail designs have been carefully selected, modified, and evaluated to ensure not only its visual compatibility, but also the rehabilitation of structural and architectural parts.

The design of new sections of the bridge will satisfy FHWA and DelDOT's goal of providing barriers which conform to AASHTO standards, but will also address preservation concerns for visual compatibility with the historic structure and setting. Architectural details of the bridge will be replicated where possible (spandrel walls and staircases), and will incorporate similar elements of the existing design where replication is not feasible (balustrade). Rehabilitation of the few remaining portions of the bridge will employ methods and materials compatible with the historic concrete. Finally, DelDOT will continue to consult with the DE SHPO and other interested parties to ensure that the final construction plans and specifications include appropriate instructions to the contractor regarding design details and construction methods and materials.

Part Six - Memorandum of Agreement

WHEREAS, the Federal Highway Administration (FHWA) has determined that the rehabilitation of State Bridge No 698 (Van Buren Street Bridge), located on Van Buren Street, Wilmington, New Castle County, Delaware, will have an adverse effect on the Van Buren Street Bridge and Brandywine Park which are listed on the National Register of Historic Places, and has consulted with the Delaware State Historic Preservation Office (DE SHPO) pursuant to the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470(f); and

WHEREAS, the Delaware Department of Transportation (DelDOT) has been invited to concur in this Memorandum of Agreement;

WHEREAS, DelDOT's intent is to rehabilitate the Van Buren Street Bridge in a manor compatible with its historic character and setting;

WHEREAS, the City of Wilmington, New Castle County, and the Friend Society of Brandywine Park have been invited to participate in the consultation process.

NOW, THEREFORE, the FHWA and the DE SHPO agree that if the Advisory Council on Historic Preservation (COUNCIL) accepts this Memorandum of Agreement in accordance with 36 CFR Section 800.6(a)(1)(I), the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the rehabilitation on those historic properties.

STIPULATIONS

The FHWA will ensure that the following measures are carried out:

1. Prior to any rehabilitation work on the Van Buren Street Bridge, DelDOT shall contact the National Park Service, Mid-Atlantic Regional Office to determine what level and kind of HABS/HAER recordation is required for these properties (i.e. the bridge and Brandywine Park setting in vicinity of bridge). DelDOT will ensure that all initial photo documentation and required prints are accepted by the National Park Service. Copies of final and approved documentation will be provided to the DE SHPO and appropriate local archives designated by the DE SHPO.

2. DelDOT shall photograph various phases of the bridge deck removal to demonstrate and record the 48" water main in situ. Copies of the photographs will be included with the final HABS/HAER documentation to be prepared under Stipulation 1.

3. DESIGN PLANS

a. DelDOT will take into account the comments of the DE SHPO and the consulting parties on the semi-final project plans concerning design, methods, and materials to be employed in the rehabilitation of the Van Buren Street Bridge.

b. DelDOT will provide a copy of the final project plans and specifications to the DE SHPO and consulting parties and take into account any further comments prior to those plans and specifications being accepted as final by DelDOT.

c. DelDOT shall submit any subsequent changes in the project plans or specifications to the DE SHPO and other consulting parties, for their review and comment prior to implementing such changes.

4. Prior to the construction and shaping of the parapet walls, DelDOT will have the contractor schedule an on-site meeting (at the project site or agreeable alternative site) with representatives from the DelDOT's Environmental Studies Section, the DE SHPO, and other consulting parties. The on-site meeting will be scheduled so that above representatives review and approve a test section of the parapet wall in order to ensure that color, pattern, concrete forming/texture, shape, and overall appearance is compatible with the original historic design and appearance. It will be required of DelDOT to assure that the contractor conduct a test section before any further work can continue on the parapet walls. DelDOT Environmental Studies Section will take into account comments received at the on-site meeting of the test section and will authorize the contractor to continue or modify the test section (thus, potentially the overall parapet plan details). The contract specifications or plans will require that the contractor construct a test section of the parapet wall, schedule the on-site meeting, and modify the plans if necessary.

5. During any stage of mobilizing construction equipment or during any reconstruction phase of the bridge, DelDOT will ensure that the contractor does not disturb or damage any part of the south raceway canal. Any alteration, potential disturbance, or actual work on the raceway will require DE SHPO notification of such action for consultation and approval.

6. As determined by the contractor, any dredged, excavated, or construction materials will be disposed of at locations (temporary or permanent) that have been reviewed and approved by the DE SHPO prior to any disposal or transportation to assure no adverse effect onto potential archaeological sites. The DE SHPO will review and comment on any disposal site within 15 calendar days in receipt of adequate information.

7. *At any time during implementation of the stipulations of this agreement, should an objection to any measures ruled by any of the signatories be made, the objection shall be forwarded by the signatory to the COUNCIL for resolution as per CFR 800.6.*

Execution of this Memorandum of Agreement by the FHWA and the DE SHPO and its subsequent acceptance by the COUNCIL, and implementation of its terms, evidence that the FHWA has afforded the COUNCIL an opportunity to comment on the rehabilitation of the Van Buren Street Bridge and its effects on historic properties and that the FHWA has taken into account the effects on the project on historic properties.

Federal Highway Administration *Date*

Delaware State Historic Preservation Officer *Date*

CONCURRENCE:

Delaware Department of Transportation *Date*

ACCEPTANCE:

Advisory Council on Historic Preservation *Date*

Part Seven - Written Views of the DE SHPO and Other Interested Parties

All coordination, reviews, documentation, input, etc. with the DE SHPO as well as other interested or involved parties are provided on the following pages.



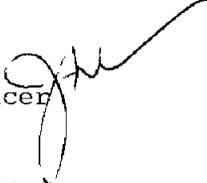
STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
HISTORIC PRESERVATION OFFICE
15 THE GREEN

TELEPHONE (302) 739-5685
April 8, 1997

DOVER • DE • 19901-3611

FAX: (302) 739-5660

MEMORANDUM TO: Joseph Wutka, Assistant Director, Planning, DelDOT

FROM: Joan N. Larrivee, Deputy State Historic Preservation Officer 

SUBJECT: Effect on resources of the Bridge 698 (Van Buren Street/
Brandywine Creek) Rehabilitation Project; State Contract No.
92-074-04; Federal Aid Project No. EBH-698(1)

In accordance with the Advisory Council's regulations (36 CFR 800.9) and in consultation with the DE SHPO and other interested parties (the City of Wilmington, New Castle County, and Friends Society of Brandywine Park), the Federal Highway Administration, through its designee, the Delaware Department of Transportation (DelDOT), has applied the Criteria of Effect and Adverse Effect to those properties within the above-mentioned project area which are eligible for, or listed in, the National Register of Historic Places. These properties are: Bridge 698 (Van Buren Street Bridge), and the Brandywine Park Historic District.

We have reviewed DelDOT's revised case report, which contains their final determinations concerning these properties, and we concur with the findings therein. Both Bridge 698 and the Brandywine Park Historic District will be adversely affected by the project. Mitigation of these adverse effects is discussed in the case report. Mitigation has focused on design details for the sections of the bridge which will be reconstructed, and rehabilitation methods for original sections that will remain. We have consulted with the FHWA, through DelDOT, concerning these measures and concur that the proposed actions are appropriate. A Memorandum of Agreement outlining the measures to be employed in protecting the historic properties affected by this project has been signed by the DE SHPO.

cc: Robert Kleinburd, FHWA
Therese M. Fulmer, Manager, Environmental Studies, DelDOT
Michael Hahn, Senior Highway Planner, DelDOT
Valerie Cesna, Preservation Planner, New Castle County Dept. of Planning
Lori Salganicoff, Preservation Planner, City of Wilmington
Susan Mulcahey Chase, Friends Society of Brandywine Park



STATE OF DELAWARE
DEPARTMENT OF STATE
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FAX (302) 739-5660

February 12, 1997

MEMORANDUM TO: Therese M. Fulmer, Manager, Environmental Studies, DelDOT
FROM: Gwen Davis, Archaeologist *GD*
SUBJECT: Bridge 698 (Van Buren St./Brandywine R.) Rehabilitation Project; State Contract No. 92-074-04; Federal Aid Project No. EBH-698(1); Memorandum of Agreement

I have reviewed Mike's last draft of the MOA (dated Feb. 3). I also received comments on the draft from Dan. Although the majority of our comments (memo dated Jan. 30) on the previous draft have been addressed, there are still a few issues that need to be resolved. Primarily, we are still concerned about Stipulation 3, which discusses review of plans and subsequent design changes. As we have previously stated, this stipulation should be more specific about the process we will undertake to assure that the final construction plans represent the most historically compatible design possible. The Stipulation should also specify that we, and the other consulting parties (City, County, and possibly the Friends Society), have the opportunity to review the revised plans before DelDOT signs off on them. We feel that the following language is most appropriate to address these concerns (basically the same language presented in our earlier memo, with some minor revisions).

3. Design Plans.

- a. DelDOT will take into account the comments of the DE SHPO and the consulting parties on the semi-final project plans concerning design, methods, and materials to be employed in the rehabilitation of the Van Buren Street Bridge;
- b. DelDOT will provide a copy of the revised project plans and specifications to the DE SHPO, (list any concurring parties), and consulting parties for their review and comment prior to those plans and specification being accepted as final by DelDOT.
- c. DelDOT shall submit any subsequent changes in the project plans or specifications to the DE SHPO, (list any concurring parties), and consulting parties for their review and comment prior to implementing such changes.

Memorandum to T. Fulmer
February 12, 1997
Page 2

Dan also recommends adding another WHEREAS statement, to read as follows:

WHEREAS, it DelDOT's intent to rehabilitate the Van Buren Street Bridge in a manner compatible with its historic character and setting.

Thank you for your continuing cooperation on this project. If you have any questions, please do not hesitate to call me.

cc: Joseph T. Wutka, Assistant Director, Planning, DelDOT



STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
HISTORIC PRESERVATION OFFICE

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FEB 11 1997

DEPT. OF TRANSPORTATION
DIVISION OF PLANNING

TELEPHONE: (302) 739-5685

FAX: (302) 739-5660

February 6, 1997

MEMORANDUM TO: Michael C. Hahn, Senior Highway Planner, DelDOT

FROM: Gwen Davis, Archaeologist *GD*

SUBJECT: Bridge 698 (Van Buren St./Brandywine R.) Rehabilitation Project; State Contract No. 92-074-04; Federal Aid Project No. EBH-698(1); Documentation of Adverse Effect (case report)

As Joan and I discussed with you last week, the above-referenced document should be revised to correct some inaccuracies and include additional information. Our recommended changes are listed below.

1. **page 1, 4th & 6th para.; and page 11, 3rd para.:** clarify that Brandywine Park Historic District, and Van Buren Street Bridge as a contributing element of the District, are listed in the National Register of Historic Places.
2. **ca. p. 4:** add a diagram indicating the existing profile of the bridge, for comparison with proposed shown in Figure 2. The diagram you used for the public workshops would be sufficient.
3. **p. 6, 9th para.:** The statement "All the proposed work above (with its additive elements) will not be seen or detected from a visual or aesthetic standpoint" is confusing, and should either be revised or deleted. The changes within the deck and arches (i.e., removal of the waterline and fill, addition of new beams) would not be visible, but other changes (i.e., parapets, deck architectural details) which will directly result from the replacement of the deck and superstructure will be visible.
4. **p. 7, 5th para.:** second and third sentences are contradictory; the parapets are part of the "architectural treatment".
5. **p. 10, 4th para.:** replace the word "nominated" with "inventoried". (The bridge is listed in the National Register as part of the Brandywine Park Historic District, but it has not been nominated for listing as an individual structure.)
6. **p. 12, last para.:** We disagree that Adverse Effect Criterion (2) is not applicable. By altering significant features of the bridge (i.e., parapet), the project will alter the character of the setting of Brandywine Park Historic District. That character does contribute to the property's qualification for the National Register. Also, note that the regulatory citation of the adverse effect criteria is 36 CFR Part 800.9(b).

7. p. 13, 3rd para.: revise as follows: "..., archaeological resources are not expected within the project area."

8. p. 15, 3rd para.: Statements that closure or reduction of vehicular traffic on the bridge would lead to "loss of economic time" and "add extra emissions into a non-attainment area", and that "Environmental Justice as well as conservation of energy and natural resources established under the FHWA would be violated" are questionable. To what does the first phrase refer?. How would traffic being diverted to surrounding, nearby roads increase the overall volume or emissions of the area, or affect energy conservation and natural resources?

9. pp. 15-16: The overall discussion of construction alternatives (essentially beginning with the fourth full paragraph on page 15) centers on the balustrade issue and does not reflect the variety of alternatives discussed among the agencies and the public. This actually does a disservice to FHWA and DelDOT (particularly yourself), which have expended considerable time and effort to consider a range of ideas and include public comment. Adding the diagrams used in the public workshop would immediately illustrate the various alternatives considered. We also recommend several changes to the text.

Before going into the discussion of the parapet/guard rail issue, describe DelDOT's original preferred alternative--significant widening to include two fourteen foot lanes, two five foot sidewalks, and the Texas T type parapet. This alternative represented the most radical change to the original historic structure, and would have resulted in the most severe adverse effects. Describing this alternative would serve as a balance, demonstrating the more compatible design achieved through our extensive consultation under Section 106. Next, explain that alternative design issues focused on compromises concerning the travel lane, and therefore, overall bridge width and the parapet design.

On a technical note (top of page 16), stating that a design exception on the balustrade couldn't be given due to waivers "already being granted on the narrow width of the travel surface" is somewhat misleading. As I recall, DelDOT's bridge design section said that a guard rail would be necessary if the original parapet design were used, regardless of whether the bridge were widened or not.

10. p. 16, last para.: clarify the statement "intermediate number of varying balustrade sections", or delete entire sentence.

11. p. 17, Part V: The first four paragraphs of this section involve very specific details of the project and do not really directly address the mitigation of the adverse effects. These paragraphs could be placed in the previous section, or deleted entirely if the information they contain is already covered in that section.

Memorandum to M. Hahn
February 6, 1997
Page 3

In the third paragraph, asserting that the "balustrade design...**closely** mimics the original design" (emphasis mine) is a bit of an overstatement. Also, the last sentence is unclear. If you are referring to the details of the panel beneath the balusters, I would say that panel insets will provide varied planes and the appearance of depth on what would otherwise be a monotonous solid concrete wall.

The actual discussion of mitigation measures begins with the 5th paragraph. In the 7th paragraph, note that this measure also mitigates adverse effects under Criterion 2 (see comment no. 6 above), and name the "other consulting parties". Also, I recommend revising the last sentence, and adding others, to more clearly define the result of all the parties' considerable efforts on the bridge design, e.g., the following statements:

"The design of new sections of the bridge will satisfy FHWA and DelDOT's goal of providing barriers which conform to AASHTO standards, but will also address preservation concerns for visual compatibility with the historic structure and setting. Architectural details of the bridge will be replicated where possible (spandrel walls and staircases), and will incorporate similar elements of the existing design where replication is not feasible (balustrade). Rehabilitation of the few remaining original portions of the bridge will employ methods and materials compatible with the historic concrete. Finally, DelDOT will continue to consult with the DE SHPO and other interested parties to ensure that the final construction plans and specifications include appropriate instructions to the contractor regarding design details and construction methods and materials.

Thank you for your consideration of these comments. We look forward to seeing the revised case report and MOA (the latter discussed under separate cover), and finalizing the Section 106 process for this important, and extensive project. We continue to appreciate your dedicated efforts on behalf of this historic property.

cc: Joseph T. Wutka, Assistant Director, Planning, DelDOT
Therese M. Fulmer, Manager, Environmental Studies, DelDOT



STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
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DEPT. OF TRANSPORTATION
DIVISION OF PLANNING

TELEPHONE (302) 739-5685

FAX (302) 739-5660

December 30, 1996

MEMORANDUM TO: Michael C. Hahn, Senior Highway Planner, DelDOT

FROM: Gwen Davis, Archaeologist *GD*

SUBJECT: Bridge 698 (Van Buren St./Brandywine R.) Rehabilitation Project; State Contract No. 92-074-04; Federal Aid Project No. EBH-698(1); draft case report and MOA

We have reviewed the case report and MOA. We will provide final comments on the documentation after we meet with DelDOT. However, I would like to offer some preliminary remarks at this time to help expedite the review process. In particular, we suggest some revisions to MOA, as noted below. A revised draft should be circulated to the parties which have been invited to concur in the Agreement as soon as possible.

MEMORANDUM of AGREEMENT

Stipulation 2: What will DelDOT's "work plan" be included in? Perhaps this statement could be simplified, e.g., "DelDOT shall photograph various phases of the Bridge deck removal, and will document, in place, the 48" water main contained within the Bridge. Copies of the photographs will be included with the final HABS/HAER documentation to be prepared under Stipulation 1."

This is probably all that's needed in the MOA. DelDOT would then devise a plan for the contractor, or include a special provision in the final plans, as necessary, that would ensure the contractor provides appropriate access to the job site to allow this work.

Stipulation 3: This important stipulation provides for additional discussion among the consulting parties on project design plans and specifications. The statement needs to clarify who is responsible for what, however. We currently have the semi-final plans, and will be commenting on a number of details. I believe that other consulting parties plan to comment as well. If final plans are not developed prior to FHWA's sending the documentation to the Council, the MOA stipulation should cover the next steps of review, such as:

3. Design Plans.

a. DelDOT will take into account the comments of the DE SHPO, the City, and the County on the semi-final project plans concerning design, methods, and materials to be employed in the rehabilitation of the Van Buren Street Bridge;

b. DelDOT will provide a copy of the final project plans and specifications to the DE SHPO, City, and County, and take into account any further comments prior to letting the contract;

Memorandum to M. Hahn
December 30, 1996
Page 2

c. DelDOT shall submit any subsequent changes in the project plans or specifications to the DE SHPO, City and County for their review and comment prior to implementing such changes.

Stipulation 4: The first part of this statement is really covered under Stipulation 3, and could be deleted here. Concerning the preservation of the balustrade, has it been confirmed that the City and County wish to pursue this? The stipulation says "several sections" will be saved; will the City and/or County choose which sections, or will it be a matter of which parts survive the removal? I suggest you request some input from these agencies before finalizing this stipulation.

There are a few other minor suggestions noted on the enclosed copy of the MOA. We may request the addition of two other stipulations. First, the contractor should provide sample sections (actual-size) of the proposed balustrade for review by the DE SHPO, City, County and other interested parties prior to installation. If the consulting parties are still considering variations of the design, several sections should be constructed to allow comparison. Similar provisions were made for the Rtes. 92 and 100 project a few years ago. Second, as stated in my previous memo to you, we need more information on the temporary bridge that will be used by the contractor during the rehab. If it appears the installation, use or removal of the structure could affect the mill race or other elements of the Park, the MOA would have to stipulate appropriate protection and/or mitigation measures.

CASE REPORT:

Detailed comments on this document will not be provided at this time. One thing I would like to suggest, however, is that additional diagrams be included to more clearly represent the existing conditions of the bridge, and the alternatives that have been considered in our consultation. Such information should be readily available, as was used for the public hearing.

Thank you for your consideration of these comments. If you have any questions, please do not hesitate to call me.

Enclosure

cc: Joseph Wutka, Assistant Director, Planning, DelDOT



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DEC 27 1996

STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS: TRANSPORTATION
HISTORIC PRESERVATION OFFICE: PLANNING
15 THE GREEN

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December 20, 1996

MEMORANDUM TO: Michael C. Hahn, Senior Planner, DelDOT

FROM: Gwen Davis, Archaeologist *GD*

SUBJECT: Bridge 698 (Van Buren St./Brandywine R.) Rehabilitation Project; State Contract No. 92-074-04; Federal Aid Project No. EBH-698(1); semi-final plans

Dan, Gary and I met today to go over the semi-final plans for the above-referenced project. In general, the plans are progressing well, but there are a number of details that we would like to discuss further. Dan suggested that we meet with you on-site, so as to facilitate comparison of existing and proposed bridge features. We would appreciate it if DelDOT's engineering consultant (KCI) were represented at the field review, as well as other appropriate consulting parties. The following identifies some of the issues we would like to address.

1. temporary trestle (plan sheet no. 5)--need description of the structure, how and where it will be installed; possible need for protective measures for the millrace.
2. bridge dimensions (plan sheet no. 12)--proposed out-to-out width of structure is .570m (ca. 22") wider than the original (our understanding was that the total widening would be no more than 12").
3. surface coating (plan sheet no. 12, note no. 5)--effect of "water based penetrating coating".
4. reconstruction of rubble masonry wall (plan sheet no. 12)--appropriate methods/materials for reconstruction need to be specified in the plans.
5. spandrel wall design (plan sheet nos. 28 and 29)--compare proposed detail profile with existing.
6. staircase repairs (plan sheet nos. 30-33)--railing details (compare with existing).
7. parapet design/railing details (plan sheet no. 45)--The proposed shape of posts is much improved over that presented in September. However, the shape of cap is not consistent throughout plans (that depicted in "rail attachment detail" is close to what was suggested by the design subcommittee). The panel profile still needs modification; the subcommittee recommended a full inset, not grooved outline.

Memorandum to M. Hahn
December 20, 1996
Page 2

8. lighting (plan sheet no. 51)--proposed ornamental light pole is not appropriate to the period and setting of the bridge and park.

We look forward to meeting with you. In the meantime, if you have any questions, please do not hesitate to call me.

cc: Robert Kleinburd, Federal Highway Administration, Dover
Carl Highsmith, Federal Highway Administration, Baltimore
Joseph Wutka, Assistant Director, Planning, DelDOT
Chao Hu, Assistant Director, Design, DelDOT
Muhammad Chaudhri, Bridge Design Engineer, DelDOT
Kash Srinivasan, Dept. of Public Works, City of Wilmington
Lori Salganicoff, Preservation Planner, City of Wilmington
Valerie Cesna, Preservation Planner, New Castle County
Susan Mulchahey Chase, Friends Society of Brandywine Park



STATE OF DELAWARE
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October 29, 1996

MEMORANDUM TO: Michael C. Hahn, Senior Planner, DelDOT

FROM: Gwen Davis, Archaeologist *GD*

SUBJECT: Rehabilitation of Bridge 698, Van Buren St./Brandywine River, Wilmington, DE; public workshop of Sept. 25, 1996

Thank you for inviting the DE SHPO to attend the public workshop on the above-referenced project. The preliminary plans presented indicate that plans for the project are progressing. However, as we discussed, there are a number of balustrade details which were identified by the design subcommittee in June that need to be included in the next set of plans.

First, the recommended design consisted of an entirely recessed horizontal panel for the base, topped by a ledge on which the balusters would rest, punctuated by intermediate pedestals running from beneath the rail to the base of the parapet. This was identified as "option 5" on the concept plans you faxed to Gary on June 5. What was presented at the workshop was actually "option 3", consisting of an interior recessed rectangle in each panel section. The plans should be revised to reflect the details decided upon in option 5.

Second, the design for the balustrade cap should be closer to the existing profile and section. The top should be like a very low pitched gable, and should overhang an indented section which abuts the top of the balusters.

Third, the baluster shape needs to be adjusted. The neck should be somewhat elongated. The rounded portion would occur near the very bottom of the post, not near the center as shown on the current plans. Also, the subcommittee suggested that the overall size of the post be "slimmed down". They apparently noted the possibility that these changes to the balusters could affect the spacing of the posts. We request that the revised plans show a couple of mock-ups depicting how the spacing would look with the redesigned posts. Based on the new dimensions of the posts, the consultant should review the length of each balustrade section and determine how the new size posts would be placed within them: (1) if the current number of posts was maintained; and (2) if more posts were added.

On several occasions, we have discussed the issue of lighting on the rehabilitated bridge. As I recall, the concept plans showed lights placed in the original locations on the parapet, on the pedestals over the two main piers. However, you have indicated that there may be problems with this

Memorandum to M. Hahn
October 29, 1996
Page 2

approach, given current requirements or guidelines for proper illumination. It would be helpful if the revised plans could include different options for lighting on the bridge. The interested parties could then review the options and hopefully come to some consensus.

We thank you for your continued diligence toward developing an appropriate rehabilitation plan for the Van Buren Street Bridge. We look forward to seeing the revised plans. If you have any questions concerning these comments, please do not hesitate to call me.

cc: Robert Kleinburd, Federal Highway Administration, Dover
Carl Highsmith, Federal Highway Administration, Baltimore
Joseph Wutka, Assistant Director, Planning, DelDOT
Chao Hu, Assistant Director, Design, DelDOT
Muhammad Chaudhri, Bridge Design Engineer, DelDOT
Kash Srinivasan, Dept. of Public Works, City of Wilmington
Lori Salganicoff, Preservation Planner, City of Wilmington
Valerie Cesna, Preservation Planner, New Castle County
Susan Mulchahey Chase, Friends Society of Brandywine Park



STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
HALL OF RECORDS
DOVER, DELAWARE 19901
(302) 739 - 5314

OFFICE OF THE DIRECTOR

April 12, 1996

Mr. Michael C. Hahn
Senior Highway Planner
Office of Planning
Department of Transportation
P. O. Box 778
Dover, Delaware 19903

Dear Mike:

Thank you for the update on the design options for Bridge 698 (Van Buren Street Bridge). I am encouraged by the progress to date on efforts to both accommodate community concerns about safety traffic flow and design and your efforts to design the rehabilitation in a manner that is sensitive to the historic character of the bridge and its park setting.

The key issue as I see it now is the parapet design. In our opinion, the closer the final parapet design is to the original, the more compatible the rehabilitation will be to the historic design qualities of the bridge, as we stated in our April 25, 1995 memo (enclosed for your reference), replacement of the parapet with a style similar to "Detroit Superior" would constitute an adverse effect. In this scenario, the Section 106 compliance process will require a full case report and Memorandum of Agreement. Stipulations in such an agreement would include recordation and rehabilitation in a manner consistent with the Secretary of Interior's Standards for Rehabilitation. The Case Report would need to demonstrate that there was no reasonable alternative to the replacement of the parapet as proposed.

In our discussions on April 11, you indicated that DelDOT was exploring an option that would retain the existing parapet by providing the crack protection with a cabling system within the parapet. If such a system is workable from your point of view and it preserves the significant qualities of the parapet, we would consider a No Adverse Effect approach to the Section 106 compliance for this project.

Mr. Michael C. Hahn
April 12, 1996
Page Two

We look forward to continuing consultation on this project.
Please do not hesitate to contact us to discuss design
alternatives as your planning proceeds.

Sincerely yours,



Daniel R. Griffith
Director/State Historic Preservation Officer

Enclosure

cc: Robert Kleinburd; FHWA
Raymond D. Harbeson; Chief Engineer/Dir. of Preconst.
Eugene Abbott; Director of Planning
Joseph T. Wutka; Asst. Director of Planning
Muhammad T. Chaudhri; Bridge Design Engineer
Therese M. Fulmer; Manager Environmental Studies
Gwen Davis; State Historic Preservation Office
Valerie Cesna; Preservation Planner



Delaware Department of Transportation
Anne P. Canby
Secretary

PUBLIC WORKSHOP
REHABILITATION OF VAN BUREN
STREET BRIDGE, WILMINGTON
CONTRACT #92-074-04

The Delaware Department of Transportation (DeIDOT) announces a public workshop on rehabilitation options for the Van Buren Street Bridge in downtown Wilmington. A variety of conceptual designs with alternative treatment options have been developed in consultation with government agencies. Area residents, commuters, and interested community members are invited to participate in the design and engineering process. Various historic preservation perspectives and concerns will also be addressed within the alternative scenarios. The public is encouraged to voice their opinions on the materials presented, ask questions, and offer helpful insight into the initial planning stages in the restoration of this bridge.

The designs will be available for review and discussion at the Warner School Cafeteria located at 801 W. 18th Street, Wilmington on December 13, 1995 between 4:00 PM and 8:00 PM. DeIDOT staff members will be on hand to discuss the project on an individual basis.

Interested persons are invited to express their views, in writing or on a provided questionnaire form, regarding the options for the project. Comments will be received at DeIDOT's External Affairs Office, P.O. Box 778, Dover, DE 19903. If requested in advance, DeIDOT will make available the services of an interpreter for the hearing impaired. If an interpreter is desired, please make the request by phone or mail.

For further information contact the Office of External Affairs at 1-800-652-5600 (in DE) or 302-739-4313 or write to the Office of External Affairs at the above address.

PUBLIC NOTICE



Delaware Department of Transportation
Anne P. Canby
Secretary

PUBLIC WORKSHOP
REHABILITATION OF VAN BUREN
STREET BRIDGE, WILMINGTON
CONTRACT #92-074-04

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SEP 11 1996
DEPT. OF TRANSPORTATION
DIVISION OF PLANNING

The Delaware Department of Transportation (DelDOT) announces a public workshop on rehabilitation of the Van Buren Street Bridge in downtown Wilmington. Plans to be displayed have been developed based on public, and various governmental agency input received over the passed year. Area residents, commuters, and interested community members are invited to participate in the design and engineering process. Various historic preservation perspectives and concerns have been addressed. The public is encouraged to voice their opinions on the materials presented, ask questions, and offer helpful insight into the restoration of this bridge.

The designs will be available for review and discussion at the Pierre S. duPont Elementary School cafeteria, 701 West 34th St., Wilmington on September 25, 1996 between the hours of 4:00pm and 8:00pm. DelDOT staff members will be on hand to discuss the project on an individual basis.

Interested persons are invited to express their views, in writing. Comments will be received on site or can be mailed to DelDOT's External Affairs Office, P.O. Box 778, Dover, DE 19903. If requested in advance, DelDOT will make available the services of an interpreter for the hearing impaired. If an interpreter is desired, please make the request by phone or mail.

For further information contact the Office of External Affairs at 1-800-652-5600 (in DE) or 302-739-4313 or write to the Office of External Affairs at the above address.

PUBLIC NOTICE

FRIENDS SOCIETY OF
Brandywine Park



18 September 1995

Mr. Michael Hahn
Environmental Studies Office
Department of Transportation
P. O. Box 778
Dover, Delaware 19903

Dear Mike,

Thanks very much for including the Friends Society in the continuing discussions regarding the work to be done on the Van Buren Street Bridge. I am sure we will eventually arrive at a course of action that is agreeable to all the interested parties. Of course, in the coming weeks if there is any way I may be of assistance, do not hesitate to contact me. You may feel free to call me at home [429-0646] since that is where I do most of my work.

On a personal note, I wanted to let you know of my interest in doing consulting work for DelDOT should the opportunity arise. My work for the Friends Society as historian is done basically as a consultant and is not full-time. What is the procedure by which one registers with the Department of Transportation to be considered for future projects? I would be grateful if you could let me know.

Again, thank you for the consideration you have shown our organization. We look forward to working with you on the public meetings to inform local groups and park neighbors of impending repairs.

Sincerely,

Susan Mulchahey Chase
Park Historian

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Transportation Planning



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DEPARTMENT OF STATE
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DEPT. OF
TRANSPORTATION

TELEPHONE: (302) 739 - 5685

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June 28, 1995

MEMORANDUM TO: Michael C. Hahn, Senior Highway Planner, DelDOT
FROM: Gwen Davis Coffin, Archaeologist *GD*
SUBJECT: Bridge 698 Rehab.; Van Buren Street over Brandywine River;
Wilimington, New Castle Co., Delaware; Contract No. 92-074-04;
Federal Aid Project No. BH-698(1)

I would like to thank you and DelDOT's Bridge Design section for coordinating the June 3, 1995, scoping meeting for the above-referenced project. It was helpful to have diverse state, county, and local interests represented for discussion of this important and complicated project.

During the field review, we observed that the "Van Buren Street Bridge" is clearly in need of major repairs. The severity of the historic structure's deterioration is not yet fully documented. We learned that DelDOT's consultant, KCI, Inc., will conduct test borings of the concrete arches to determine their stability. The results of these tests will, of course, guide determinations as to the extent and nature of necessary repairs. Nevertheless, the DE SHPO would like to address some of the specific measures currently proposed by DelDOT, as presented at the meeting.

KCI, Inc., is to prepare a structural inspection report and feasibility study for the project. As I understand it, DelDOT's Bridge Design section is proposing to explore two options in the study, essentially involving: (A) rebuilding/rehabilitating the structure to its existing dimensions; and (B) reconstructing both the super and substructure to widen the bridge. It is expected that both options would include replacing the deck, parapets, and two arches on the south side. For the design of the replacement parapets, DelDOT suggested a type known as the "Texas T" design, similar to that employed on the 16th Street Bridge. The waterline and earthen fill within the bridge would also be removed.

We have several comments and recommendations concerning the proposed content and direction of the feasibility study.

DelDOT has cited safety concerns and current road design standards as reasons for exploring "Option B". However, as we have discussed on several occasions, the DE SHPO does not consider this option desirable. The Van Buren Street Bridge is located in, and is an integral part of, an historic park setting. The structure was not intended to serve as a major City thoroughfare. Based

Memorandum to M. Hahn
June 28, 1995
Page 2

on comments made at the meeting, it is my impression that neither the City nor the County wish to encourage increased use of, or higher speeds on the bridge. Widening the structure may inadvertently result in such undesirable changes. Therefore, we feel that the feasibility study must include a comprehensive analysis of traffic volumes (including current level of service), traffic patterns, and accident data. This information will allow reviewers to fully assess the need for Option B. The potential effects that construction of a wider structure might have on surrounding landscape or structural features (e.g., the historic millrace and stairways) should be considered as well. The study should clearly demonstrate the advantages and disadvantages of this option.

If safety problems on the bridge are demonstrated to exist, DelDOT must consider whether or not widening the structure is the only effective solution. DelDOT should closely coordinate the feasibility study with the City's planning and transportation departments to determine if options such as closing the bridge to automobile traffic, or allowing only one-way traffic over the bridge, are possible. The use of "traffic calming" measures should also be examined.

In previous correspondence, the DE SHPO has also expressed concern over the proposed design for the replacement parapets. We feel strongly that DelDOT should study the possibility of replacing the parapets in-kind, understanding that this might require an exception to the federal road standards. It is our opinion that the location and function of the Van Buren Street Bridge may warrant such an exception. However, at the scoping meeting, DelDOT indicated no plans to explore this option in the feasibility study, apparently on the assumption that the Federal Highway Administration would not accept it. As I stated at the time, I think it is imperative that DelDOT seek clarification on this issue from FHWA before proceeding with the study.

Other potential aspects of the superstructure design discussed at the meeting include replacing the lighting fixtures with a type similar to historic light designs, and using "Belgian block" in resurfacing the deck. It could be useful to include cost estimates for these features in the feasibility study. These data may guide recommendations for the final rehabilitation design, regardless of the selected option.

As a side note, issues concerning the timing of construction on the project, and the problems of coordinating this work with the City's plan to construct a new waterline adjacent to the Bridge were also discussed at the scoping meeting. The possibility of DelDOT taking on the first stage of the waterline project, either as a financial obligation or in actual implementation, was mentioned. In the Meeting Minutes, however, DelDOT is not clear about how/if this issue has been resolved (see item number 2, memo dated June 12). If DelDOT does undertake the implementation of the project, please be aware that our existing Memorandum of Agreement with the City, the U.S. Army Corps of

Memorandum to M. Hahn
June 28, 1995
Page 3

Engineers, and the Advisory Council on Historic Preservation stipulates specific measures to be carried out by the construction contractor(s). The City would be required to ensure that DelDOT executes these measures as stipulated.

Thank you for inviting our input on the proposed feasibility study. We hope you find these comments useful. If you have any questions, please do not hesitate to contact me.

cc: John Gilbert, Div. Administrator, Federal Highway Administration, Dover
Robert Kleinburd, Federal Highway Administration, Dover
Carl Highsmith, Federal Highway Administration, Baltimore
Joseph Wutka, Manager, Project Planning, DelDOT
Muhammad Chaudhri, Bridge Design Engineer, DelDOT
Kash Srinivasan, Dept. of Public Works, City of Wilmington
MaryAnna Ralph, Preservation Planner, City of Wilmington
Valerie Cesna, Preservation Planner, New Castle County
Susan Mulchahey Chase, Friends Society of Brandywine Park



**DEPARTMENT OF PLANNING
2701 CAPITOL TRAIL
NEWARK, DELAWARE 19711**

RECEIVED
JUN 23 1995
Dept. of Transportation Planning

(302) 366-7780
FAX (302) 366-7866

June 22, 1995

Michael C. Hahn
Location & Environmental Studies Office
Department of Transportation
P.O. Box 778
Dover, Delaware 19903

RE: Van Buren Street Bridge Feasibility Study

Dear Mike:

Thank you for inviting us to participate in the scoping meeting held on June 8, 1995. In follow-up we would like to offer some comments on the bridge and its relationship to the park, and to request that certain issues be addressed in the feasibility study.

As you know, New Castle County and the City of Wilmington are in the midst of developing a master plan for Brandywine Park. Named, the "Century Plan," the goal is to establish recommendations and policies to manage growth and change in a way that will protect, enhance, and restore the historic, environmental, and scenic resources in the park. The first phase of the plan, the "Essential Plan," provides an inventory and assessment of features in the park, a survey of user preferences, and goals and objectives for future use and development of the park. Work on the remaining components of the Century Plan continues. This is an extensive planning effort involving two local governments, the park "Friends" group, city residents, and a consultant team representing five areas of expertise. We want to see DelDOT work within our ongoing planning process as the proposed repairs to the Van Buren Street Bridge move forward.

Letter to M. Hahn

June 22, 1995

Page 2

Preservation and restoration of historic features are among the primary goals established in the Essential Plan. Because of its central location within the park and the beauty of its design, the Van Buren Street Bridge is identified as one of the most important historic features in the park. Any changes to it will affect not only the bridge itself, but also the appearance and circulation pattern of the rest of the park. Therefore, our desire is to see the design and scale of the bridge preserved as is.

At the meeting, there was some discussion about widening the bridge. We are opposed to this idea. The purpose of the bridge is to provide access within the park. We are aware that it is also used by some as a route to cut across the city. However, we do not want to encourage through traffic in this area of the park. There are several other larger bridges on the Brandywine designed to carry high volume traffic. A wider bridge would encourage more traffic and consequently put unwanted pressure on other sensitive areas of the park. Low volumes of traffic are all that can be accommodated on historic Monkey Hill, located on the northeast side of the bridge.

We would like to encourage discussion of an appropriate arrangement of vehicular lanes and sidewalks on the bridge within the existing 24 foot wide dimension. Various circulation plans are being considered as part of the park Century Plan. Major bicycle/pedestrian routes have been proposed on the north and south banks of the river, using the Van Buren Street Bridge as the central crossing point. Because the condition of the bridge is as yet unknown, we also ask that use of the bridge exclusively for pedestrians be explored as an option.

The railing is a very important design feature for the bridge. Any replacement in a different design is unacceptable. This is a case where an exception from the Federal design standards should be requested. We are prepared to make or support such a request. The railing is an integral part of this historic bridge and the accident rate here is extremely low. Conditions at either end of the bridge and the narrowness of the bridge discourage high travel speeds. Repaving the bridge to its original material, Belgian block, would serve to calm traffic further.

It is our understanding that the bridge was originally equipped with light fixtures. We ask that you consider replacing this safety feature in a design appropriate to the historic period of the bridge.

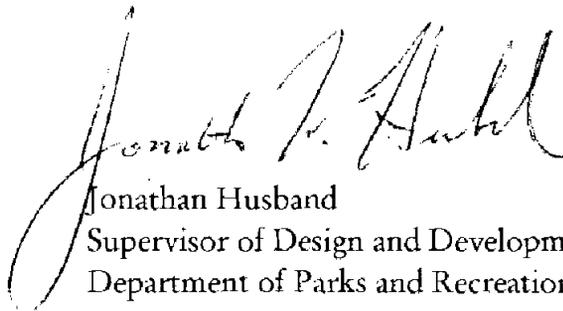
Letter to M. Hahn
June 22, 1995
Page 3

We recognize the bridge needs urgent attention to its deteriorated condition and we welcome the study being undertaken by DelDOT and its consultants. Because the Van Buren Street Bridge is such a beloved city monument and it is a prominent feature in a historic park, care must be given to the way it is treated. We look forward to further discussion.

Sincerely,



Valerie Cesna
Historic Preservation Planner
Department of Planning



Jonathan Husband
Supervisor of Design and Development
Department of Parks and Recreation

cc: Maryanna Ralph, Wilmington Planning Department
Susan M. Chase, Friends Society of Brandywine Park
Gwen Coffin, SHPO



STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
HISTORIC PRESERVATION OFFICE
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April 25, 1995

MEMORANDUM TO: Joseph Wutka, Manager, Project Planning, DelDOT

FROM: Daniel R. Griffith, State Historic Preservation Officer 

SUBJECT: Bridge 698 Rehabilitation Project (Van Buren St., Wilmington)
State Contract No. 92-074-04; Federal Aid No. BH-698(1).

I would like to offer some initial comments on the above-referenced, federally funded project. The DE SHPO is in the process of resolving issues concerning the previous Memorandum of Agreement among the City of Wilmington, the Corps of Engineers, and the Advisory Council on Historic Preservation for a related project, i.e., the construction of the new water main in the Brandywine River. We can now focus our attention on DelDOT's proposal to rehabilitate the Van Buren Street Bridge.

The "Van Buren Street Bridge" is listed in the National Register as a contributing element of Brandywine Park, and has also been determined eligible as a significant structure in its own right. According to DelDOT's letter of January 3, 1995, the extensive rehabilitation project will result in significant alterations of this property. As proposed, the project will likely have Adverse Effects on the bridge, and possibly Brandywine Park as well. The proposed permanent removal of the historic waterline (contained in the bridge) and the replacement of the parapets are of particular concern.

The removal of the waterline will eliminate an historic function of the bridge. This and other aspects of the deck replacement (i.e., removal of earthen fill, addition of new structural supports) will also constitute alteration of the bridge's original design. However, based on the information provided by DelDOT thus far, it appears that these changes are necessary to ensure the survival of the structure. These losses may be somewhat mitigatable through appropriate recordation.

The replacement of the parapets will result in the loss of one of the character defining visual aspects of the structure. The ornate balustrade is noted as an important feature of the bridge itself (Spero et al, 1991). The overall aesthetic qualities of the Van Buren Street Bridge also contribute to the setting of the surrounding Park. Currently, DelDOT proposes to replace the balustrade with a "Texas T-type" parapet; this design meets current Federal road standards. Although this parapet type is certainly more appropriate than others, and has been considered an acceptable alternative for other bridges, I do not feel it is adequate for this particular structure in

Memorandum to J. Wutka
April 25, 1995
Page 2

this particular setting. I urge DelDOT and the FHWA to consider replacing the parapets in kind.

Other rehabilitation measures indicated in your previous letter appear relatively minor (e.g., parging the headwalls, cleaning/repairing the steps). Provided that appropriate materials and methods are employed, these measures can be accomplished to meet the Secretary of Interior's Standards for Rehabilitation. We can discuss additional features, such as the replacement of lighting on the bridge, as DelDOT develops its design plans.

We look forward to continuing our consultation with DelDOT and FHWA on this important rehabilitation project. If you have any questions concerning these initial comments, please do not hesitate to contact me.

cc: Robert Kleinburd, FHWA
Michael Hahn, DelDOT



DEPARTMENT OF PLANNING
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Transportation Planning

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May 24, 1995

Gwen Davis Coffin
State Historic Preservation Office
15 The Green
Dover, Delaware 19901-3611

Re: Van Buren Street Bridge

Dear Gwen:

In response to your letter of May 2, 1995, I want to let you know that New Castle County will participate in the Section 106 review process for the Van Buren Street Bridge rehabilitation project. We are in the midst of preparing a master plan for the park, which includes priorities for preserving historic features. Jonathan Husband, Parks Planner, is heading that effort. He and I will participate in the review. Our initial comments on the project will be transmitted later.

A private group called The Friends Society of Brandywine Park is very active in promoting the park and they have been involved in our planning process. I would suggest they be invited to participate in the review. Susan Mulchahey Chase, the Park Historian employed by The Friends, has conducted quite a bit of research on the Van Buren Street Bridge and on other aspects of the park. Because the National Register nomination for

Letter to G. Coffin
May 24, 1995
Page 2

Brandywine Park is short on information, her ideas would be especially valuable.

Thank you for bringing me up to date on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Valerie Cesna". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Valerie Cesna
Historic Preservation Planner

cc: Jonathan Husband
Robert Kleinburd, FHWA
Joseph Wutka, DelDOT ✓
Michael Hahn, DelDOT
Sandra Poppiti, Executive Director, Friends Society of Brandywine
Park, 1801 N. DuPont St., Wilmington DE 19806
William Cohen, President, Friends Soc. of Brandywine Park, 1801
N. DuPont St.. Wilm. DE 19806
Susan Chase, Park Historian, 923 Lovering Ave., Wilm. DE 19806