Maryland Historical Trust

Maryland Inventory of Historic Properties number: AA-2181

Name: MD 176 OVER AMTRAK

The bridge referenced herein was inventoried by the Maryland State Highway Administration as part of the Historic Bridge Inventory, and SHA provided the Trust with eligibility determinations in February 2001. The Trust accepted the Historic Bridge Inventory on April 3, 2001. The bridge received the following determination of eligibility.

MARYLAND HISTORICAL TRUST

Eligibility Recommended _____ Eligibility Not Recommended __X____

Criteria: ____A ____B __X__C ____D Considerations: ___A ___B ___C ___D ___E ___F ___G __None

Comments: _____

_____

_____

Reviewer, OPS: Anne E. Bruder _____ Date: 3 April 2001____

Reviewer, NR Program: Peter E. Kurtze _____ Date: 3 April 2001____

MARYLAND INVENTORY OF HISTORIC BRIDGES
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

MHT No. AA-2181

SHA Bridge No. 2051 Bridge name MD 176 over AMTRAK

LOCATION:

Street/Road name and number [facility carried] MD 176 (Dorsey Road)

City/town Harmans Vicinity _____

County Anne Arundel

This bridge projects over: Road____ Railway X Water _____ Land ____

Ownership: State X County _____ Municipal _____ Other _____

HISTORIC STATUS:

Is the bridge located within a designated historic district? Yes _____ No X

National Register-listed district ____ National Register-determined-eligible district __

Locally-designated district _____ Other _____

Name of district _____

BRIDGE TYPE:

Timber Bridge _____:

Beam Bridge _____ Truss -Covered ___ Trestle ___ Timber-And-Concrete ___

Stone Arch Bridge _____

Metal Truss Bridge _____

Movable Bridge ____:

Swing _____ Bascule Single Leaf __ Bascule Multiple Leaf _____

Vertical Lift _____ Retractile_____ Pontoon _____

Metal Girder X :

Rolled Girder X Rolled Girder Concrete Encased _____

Plate Girder _____ Plate Girder Concrete Encased _____

Metal Suspension _____

Metal Arch _____

Metal Cantilever _____

Concrete _____:

Concrete Arch_____ Concrete Slab_____ Concrete Beam ___ Rigid Frame _____

Other _____ Type Name _____

DESCRIPTION:
Setting: Urban ____X____ **Small town** _____ **Rural** _____

Describe Setting:

Bridge No. 2051 carries MD 176 (Dorsey Road) over AMTRAK in Anne Arundel County. MD 176 runs east-west and the AMTRAK railroad extends north-south. The bridge is located in Harmans, and is surrounded by commercial property, single family dwellings and open space.

Describe Superstructure and Substructure:

Bridge No. 2051 is a single-span, 4-lane, metal girder bridge. The bridge was originally built in 1936 and was widened with 4 additional girders in 1989. The structure is 68.16 feet long and has a clear roadway width of 56 feet between concrete curbs. The superstructure consists of 14 rolled girders which support a concrete deck and solid parapet topped by an aluminum pedestrian barrier. The girders are 1.6 feet x 7 inches and are spaced 4 feet apart. The roadway is carried on the girders. The concrete deck is 7 inches thick without a wearing surface. The structure has solid jersey barrier parapets topped by a pedestrian barrier. The substructure consists of concrete abutments and flared concrete wing walls. The bridge is not posted, and has a sufficiency rating of 83.8.

According to the 1996 inspection report, this structure was in satisfactory to good condition with fine transverse cracks and light rusting. The deck has scattered fine transverse cracking, as do the abutments. Both east and west abutments have a fine crack at the intersection between the old and the widened abutment.

Discuss Major Alterations:

The bridge was widened and rehabilitated in 1989. The roadway width was increased from 30 feet to 56 feet by eliminating the sidewalk and adding four girders to the north side of the bridge. The alteration included the widening of the abutments and addition of a new concrete deck, parapets and bearings. The original steel girders were encased in concrete, which was removed in 1989 when the bridge was widened.

HISTORY:

WHEN was the bridge built: 1936
This date is: Actual X **Estimated** _____
Source of date: Plaque ____ **Design plans** ____ **County bridge files/inspection form**
Other (specify): State Highway Administration bridge files/inspection form

WHY was the bridge built?

The bridge was constructed in response to the need for more efficient transportation network and increased load capacity.

WHO was the designer?

Unknown

WHO was the builder?

Unknown

WHY was the bridge altered?

The bridge was altered to correct functional or structural deficiencies.

Was this bridge built as part of an organized bridge-building campaign?

There is no evidence that the bridge was built as part of an organized bridge building campaign.

SURVEYOR/HISTORIAN ANALYSIS:

This bridge may have National Register significance for its association with:
A - Events _____ B- Person _____
C- Engineering/architectural character _____

The bridge does not have National Register significance.

Was the bridge constructed in response to significant events in Maryland or local history?

Metal girder bridges were most likely introduced and first popularized in Maryland by the state's major railroads of the nineteenth century including the Baltimore and Susquehanna, its successor the Northern Central, and the Baltimore and Ohio Railroad. Bridge engineering historians have documented the fact that James Milholland (or Mulholland) erected the earliest plate girder span in the United States on the Baltimore and Susquehanna Railroad in 1846 at Bolton Station, near present-day Mount Royal Station. The sides (web) and bottom flange of Milholland's 54-foot-long span were wholly of wrought iron and included a top flange reinforced with a 12x12-inch timber. Plates employed in the bridge were 6 feet deep and 38 inches wide, giving the entire bridge a total weight of some 14 tons. Milholland's pioneering plate girder cost $2,200 (Tyrrell 1911:195). By December 31, 1861, the Northern Central Railroad, which succeeded the Baltimore and Susquehanna, maintained an operating inventory in Maryland of 50 or more bridges described simply as "girder" spans, in addition to a number of Howe trusses. Most of these were probably iron girder bridges; the longest were the 117-foot double-span bridge over Jones Falls and the 106-foot double-span girder bridge at Pierce's Mill (Gunnarson 1990:179-180).

As in the nation, girder bridge technology in Maryland was quickly adapted to cope with the increasingly heavy traffic demands of the twentieth century caused by automobile and truck traffic. The 1899 Maryland Geological Survey report on highways noted that "there are comparatively few I-beam bridges, one of the cheapest and best forms for spans less than 25 or 30 feet" (Johnson 1899:206). Interestingly, the report also urged construction of a composite metal, brick, and concrete bridge, noting that "no method of construction is more durable than the combination of masonry and I-beams, between which are transverse arches of brick, the whole covered with concrete, over which is laid the roadway" (Johnson 1899:206). Whether any such bridges (transitional structures between I-beams and reinforced concrete spans) were built is unknown.

Official state and county highway reports—issued between 1900 and the early 1920s through the Highway Division of the Maryland Geological Survey and its successor, the State Roads Commission—generally do not reference or describe girder construction. An analysis of the current statewide listing of county and municipal bridges (a listing maintained by the State Highway

Administration) reveals that 48 county bridges, out of the total of 141 approximately dated to "1900" by county engineers, were listed as steel girder, steel stringer, or variants of such terms. (It should be noted that the "1900" date is often given when no exact date is pinpointed for a bridge that is clearly old). A grand total of 200 bridges (including "steel culverts"), out of 550 bridges dated on the county list between 1901 and 1930, were described as steel beam, steel girder, or steel stringer and girder varieties. The total suggests that among the various highway bridge types built in the early twentieth century metal girder bridges in Maryland between 1900 and 1930 were second in popularity only to reinforced concrete bridges. However, these numbers must be interpreted with caution, as they do not necessarily include all county and municipal bridges.

When the bridge was built and/or given a major alteration, did it have a significant impact on the growth and development of the area?

There is no evidence that the construction of this bridge had a significant impact on the growth and development of this area.

Is the bridge located in an area which may be eligible for historic designation and would the bridge add to or detract from the historic/visual character of the potential district?

The bridge is located in an area which does not appear to be eligible for historic designation.

Is the bridge a significant example of its type?

A significant example of a metal girder bridge should possess character-defining elements of its type, and be readily recognizable as an historic structure from the perspective of the traveler. The integrity of distinctive features visible from the roadway approach, including parapet walls or railings, is important in structures which are common examples of their type. In addition, the structure must be in excellent condition. This bridge, which is lacking such features as the original parapet walls, is an undistinguished example of a metal girder bridge.

Does the bridge retain integrity of important elements described in Context Addendum?

The bridge retains some character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including the girders and the abutments. The abutments, however, have been altered by significant widening in 1989.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?

This bridge is not a significant example of the work of a manufacturer, designer, and/or engineer.

Should the bridge be given further study before an evaluation of its significance is made?

No further study of this bridge is required to evaluate its significance.

AA-2181

BIBLIOGRAPHY:

County inspection/bridge files _____ **SHA inspection/bridge files** X
Other (list):

Gunnarson, Robert
1990 *The Story of the Northern Central Railway, From Baltimore to Lake Ontario*. Greenberg Publishing Co., Sykesville, Maryland.

Johnson, Arthur Newhall
1899 The Present Condition of Maryland Highways. In *Report on the Highways of Maryland*. Maryland Geological Survey, The Johns Hopkins University Press, Baltimore.

Tyrrell, Henry G.
1911 *History of Bridge Engineering*. Published by author, Chicago.

SURVEYOR:

Date bridge recorded 2/25/97
Name of surveyor Caroline Hall/Tim Tamburrino
Organization/Address P.A.C. Spero & Co., 40 W. Chesapeake Avenue, Baltimore, MD 21204
Phone number (410) 296-1685 **FAX number** (410) 296-1670

Maryland Historic Highway Bridges

Bridge Type METAL GIRDER

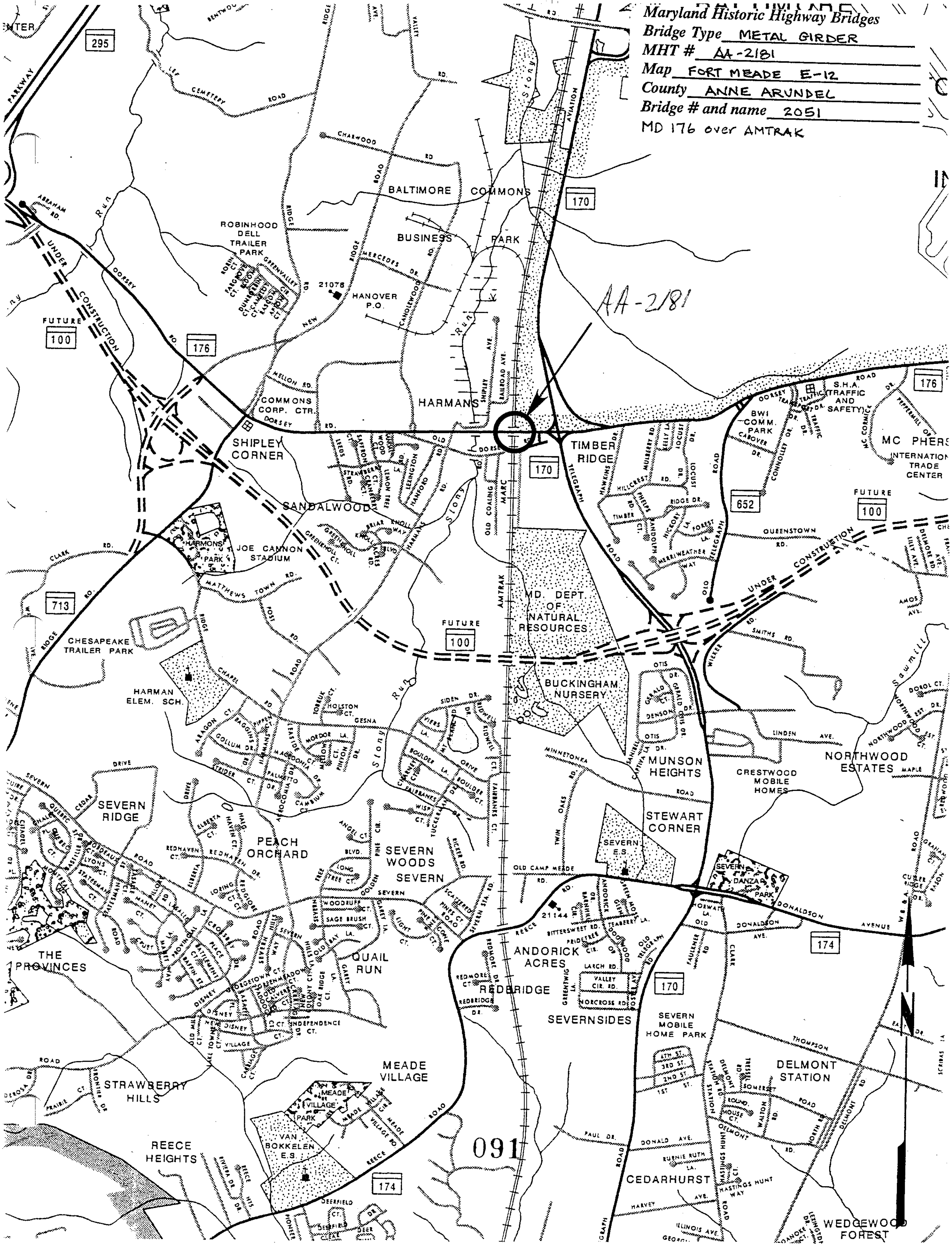
MHT # AA-2181

Map FORT MEADE E-12

County ANNE ARUNDEL

Bridge # and name 2051

MD 176 over AMTRAK


AA-2181
BALTIMORE COMMONS
BUSINESS PARK
ROBINHOOD DELL TRAILER PARK
HANOVER P.O.
21076
HARMANS
COMMONS CORP. CTR.
SHIPLEY CORNER
SANDALWOOD
TIMBER RIDGE
S.H.A. (TRAFFIC AND SAFETY)
BWI COMM. PARK
MC PHERSON INTERNATIONAL TRADE CENTER
HARMONS PARK
JOE CANNON STADIUM
CHESAPEAKE TRAILER PARK
HARMAN ELEM. SCH.
MD. DEPT. OF NATURAL RESOURCES
BUCKINGHAM NURSERY
MUNSON HEIGHTS
NORTHWOOD ESTATES
CRESTWOOD MOBILE HOMES
STEWART CORNER
SEVERN E.S.
SEVERN DANZA PARK
SEVERN RIDGE
PEACH ORCHARD
SEVERN WOODS
SEVERN
QUAIL RUN
THE PROVINCES
ANDORICK ACRES
REDBRIDGE
SEVERNSIDES
SEVERN MOBILE HOME PARK
DELMONT STATION
MEADE VILLAGE
MEADE VILLAGE PARK
VAN BOKKELEN E.S.
STRAWBERRY HILLS
REECE HEIGHTS
CEDARHURST
WEDGEWOOD FOREST
21144
FUTURE 100
UNDER CONSTRUCTION
AMTRAK
MARC
DORSEY RD.
DONALDSON AVENUE
295
176
170
100
713
652
174

1. AA 2181
2. (2051) MD 176 OVER AMTRAK
3. ANNE ARUNDEL CO, MD
4. TIM TAMBURRINO
5. 3-97
6. MD SHPO
7. SOUTH ELEVATION
8. 1 of 5

1. AA 216

2. (205) MD 176 OVER AMTRAK

3. ANNE ARUNDEL CO. MD

4. TIN TAMBURRINO

5. 3-97

6. MD ~~SHPO~~

7. NORTH ELEVATION

8. 2 of 5

1. AA 2181
2. (2051) MD 176 OVER AMTRAK
3. ANNE ARUNDEL CO MD
4. TIM TAMBURENO
5. 3-97
6. MD SHA
7. WEST ABUTMENT
8. 3 of 5

1 AA 2181

2. (2051) MD 176 OVER AMTRAK

3. ANNE ARUNDEL CO, MD

4 TIM TAMBURRINO

5. 3-97

6 MD SHPO

7. EAST APPROACH

8. 4 of 5

1. AA 2181

2 (2051) MD 176 OVER AMTRAK

3. ANNE ARUNDEL CO MD

4. TIM TAMBURRINO

5. 3-97

6. MD EXPO

7. NORTH PARAPET

8. 5 of 5