Maryland Historical Trust

Maryland Inventory of Historic Properties number: HO-680

Name: OLD COLUMBIA PIKE OVER TIBBOL RIVER / HO-132

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 ____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

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

MHT No. HO-680

SHA Bridge No. HO-132 **Bridge name** Old Columbia Pike over Tiber River

LOCATION:
Street/Road name and number [facility carried] Old Columbia Pike

City/town Ellicott City **Vicinity** _____

County Howard

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

Ownership: State _____ **County** X **Municipal** _____ **Other** _____

HISTORIC STATUS:
Is the bridge located within a designated historic district? Yes X **No** _____
National Register-listed district X **National Register-determined-eligible district** __
Locally-designated district _____ **Other** _____

Name of district Ellicott City Historic 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_____:
Rolled Girder _____ **Rolled Girder Concrete Encased** _____
Plate Girder _____ **Plate Girder Concrete Encased** _____

Metal Suspension _____

Metal Arch _____

Metal Cantilever _____

Concrete X:
Concrete Arch_____ **Concrete Slab** ____ **Concrete Beam** X **Rigid Frame** _____
Other _____ **Type Name** _____

HO-680

DESCRIPTION:

Setting: Urban ___X___ **Small town** _____ **Rural** _____

Describe Setting:

Bridge No. HO-132 carries Old Columbia Pike over Tiber River in Howard County. Old Columbia Pike extends south from Main Street and crosses Tiber River just south of the intersection. The Tiber River flows west-east. The bridge is located in a heavily developed section of Ellicott City, and is surrounded by commercial and residential structures. The Tiber River has a stone wall embankment and travels under buildings and parking lots through most of Ellicott City. The stream is not visible from Old Columbia Pike, as structures are located on all sides of the intersection of Old Columbia Pike and Main Street. The stream travels under adjacent buildings before passing under Old Columbia Pike.

Describe Superstructure and Substructure:

Bridge No. HO-132 is a 1-span, 2-lane concrete beam bridge. The bridge was originally built in 1921, and widened in 1964. The structure span length is 24 feet long, with a total structure length of 26 feet. Immediately adjacent to the west side of the bridge is a steel-framed section supported by masonry abutments and concrete columns previously used to support an automobile service station. In 1964, the station was demolished and the roadway over the T-beam section was extended over the steel-frame section. The roadway width varies from 24 feet on the south approach to 104 feet at the intersection with Main Street. The superstructure consists of five (5) concrete beams which support an integral concrete deck with a bituminous wearing surface. The substructure consists of masonry abutments. There are no wing walls. The bridge is posted for 3/4 tons on the north approach and 14 tons on the south approach. The bridge has a Howard County sufficiency rating of 63.6.

According to the 1996 inspection report, this structure was in fair condition with spalling and section loss. Spalling with exposed reinforcement bars are evident on some T-beam flanges and stems. The steel beams have areas of corrosion with five (5) to fifteen (15) percent section loss. The stone masonry abutments are in generally good condition.

Discuss Major Alterations:

The bridge was first widened onto a steel frame supporting structure in 1964. In 1983, and again in 1993, extensive repairs were made to the concrete and stone masonry of the bridge.

HISTORY:

WHEN was the bridge built: 1921

This date is: Actual ___X___ **Estimated** _____

Source of date: Plaque ____ **Design plans** ___ **County bridge files/inspection form** X

Other (specify)

WHY was the bridge built?

The bridge was constructed in response to the need for a 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 ensure its structural integrity.

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. The bridge was reviewed by the Maryland Historical Trust on an Internal NR-eligibility Review Form in 1996. It was determined that the bridge does not retain sufficient integrity to be considered a contributing resource within the Ellicott City Historic District. The bridge has had two periods of significant alteration which have compromised its integrity.

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

The earliest concrete beam bridges in the nation were deck girder spans that featured concrete slabs supported by a series of longitudinal concrete beams. This method of construction was conceptually quite similar to the traditional timber beam bridge which had found such widespread use both in Europe and in America. Developed early in the twentieth century, deck girder spans continued to be widely used in 1920 when noted bridge engineer Milo Ketchum wrote *The Design of Highway Bridges of Steel, Timber and Concrete* (Ketchum 1920).

Although visually similar to deck girder bridges, the T-beam span features a series of reinforced concrete beams that are integrated into the concrete slab, forming a monolithic mass appearing in cross section like a series of upper-case "T"s connected at the top. Thaddeus Hyatt is believed to have been the first to come upon the idea of the T-beam when he was studying reinforced concrete in the 1850s, but the first useful T-beam was developed by the Belgian Francois Hennebique at the turn of the present century (Lay 1992:293). The earliest references to T-beam bridges refer to the type as concrete slab and beam construction, a description that does not distinguish the T-beam design from the concrete deck girder. Henry G. Tyrrell was perhaps the first American bridge engineer to use the now standard term "T-beam" in his treatise *Concrete Bridges and Culverts*, published in 1909. Tyrrell commented that "it is permissible and good practice in designing small concrete beams which are united by slabs, to consider the effect of a portion of the floor slab and to proportion the beams as T-beams" (Tyrrell 1909:186).

By 1920, reinforced concrete, T-beam construction had found broad application in standardized bridge design across the United States. In his text, *The Design of Highway Bridges of Steel, Timber and Concrete*, Milo S. Ketchum included drawings of standard T-beam spans recommended by the U.S. Bureau of Public Roads as well as drawings of T-beam bridges built by state highway departments in Ohio, Michigan, Illinois, and Massachusetts (Ketchum 1920). By the 1930s the T-beam bridge was widely built in Maryland and Virginia.

Maryland's roads and bridge improvement programs mirrored economic cycles. The first road improvement of the State Roads Commission was a 7 year program, starting with the Commission's establishment in 1908 and ending in 1915. Due to World War I, the period from 1916-1920 was one of relative inactivity; only roads of first priority were built. Truck traffic resulting from war related factories and military installations generated new, heavy traffic unanticipated by the builders of the early road system. From 1920-1929, numerous highway improvements occurred in response to the increase in Maryland motor vehicles from 103,000 in 1920 to 320,000 in 1929, with emphasis on the secondary system of feeder roads which moved traffic from the primary roads built before World War I. After World War I, Maryland's bridge system also was appraised as too narrow and structurally inadequate for the increasing traffic , with plans for an expanded bridge program to be handled by the Bridge Division, set up in 1920. In 1920 under Chapter 508 of the Acts of 1920 the State issued a bond of $3,000,000.00 for road construction; the primary purpose of these monies was to meet the state obligations involving the construction of rural post roads. The secondary purpose of these monies was to fund (with an equal sum from the counties) the building of lateral roads. The number of hard surfaced roads on the state system grew from 2000 in 1920 to 3200 in 1930. By 1930, Maryland's primary system had been inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930's. Most improvements to local roads waited until the years after World War I.

In the early years, there was a need to replace the numerous single lane timber bridges. Walter Wilson Crosby, Chief Engineer, stated in 1906, "the general plan has been to replace these [wood bridges] with pipe culverts or concrete bridges and thus forever do away with the further expense of the maintenance of expensive and dangerous wooden structures." Within a few years, readily constructed standardized bridges of concrete were being built throughout the state.

In 1930, the roadway width for all standard plan bridges was increased to 27 feet in order to accommodate the increasing demands of automobile and truck traffic (State Roads Commission 1930). The range of span lengths remained the same, but there were some changes designed to increase the load bearing capacities. The reinforcing bars increased in thickness. Visually, the 1930 design can be distinguished from its predecessors by the pierced concrete railing that was introduced at this time.

In 1933, a new set of standard plans were introduced by the State Roads Commission. This time their preparation was not announced in the Report; new standard plans were by this time nothing special - they had indeed become standard. Once again accommodating the ever-increasing demands of traffic, the roadway was increased, this time to 30 feet. The slab span's reinforcing bars remained the same diameter but were placed closer together to achieve still more load capacity.

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?

This bridge is located within the Ellicott City Historic District, which is listed on the National Register of Historic Places. It was determined by the Maryland Historical Trust that the bridge does not retain sufficient integrity to be considered a contributing resource within the Ellicott City Historic District.

Is the bridge a significant example of its type?

A significant example of a concrete beam 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 is not identifiable as a significant crossing from the perspective of the traveler. The bridge lacks such features as parapet walls and wing walls, has considerable deterioration and is an undistinguished example of a concrete beam bridge.

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

The bridge lacks the character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including parapets and wing walls.

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.

BIBLIOGRAPHY:

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Other (list):

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Luten, Daniel B.
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Taylor, Frederick W., Sanford E. Thompson, and Edward Smulski
1939 *Reinforced-Concrete Bridges with Formulas Applicable to Structural Steel and Concrete.* John Wiley & Sons, Inc., New York.

Tyrrell, H. Grattan
1909 *Concrete Bridges and Culverts for Both Railroads and Highways.* The Myron C. Clark Publishing Company, Chicago and New York.

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

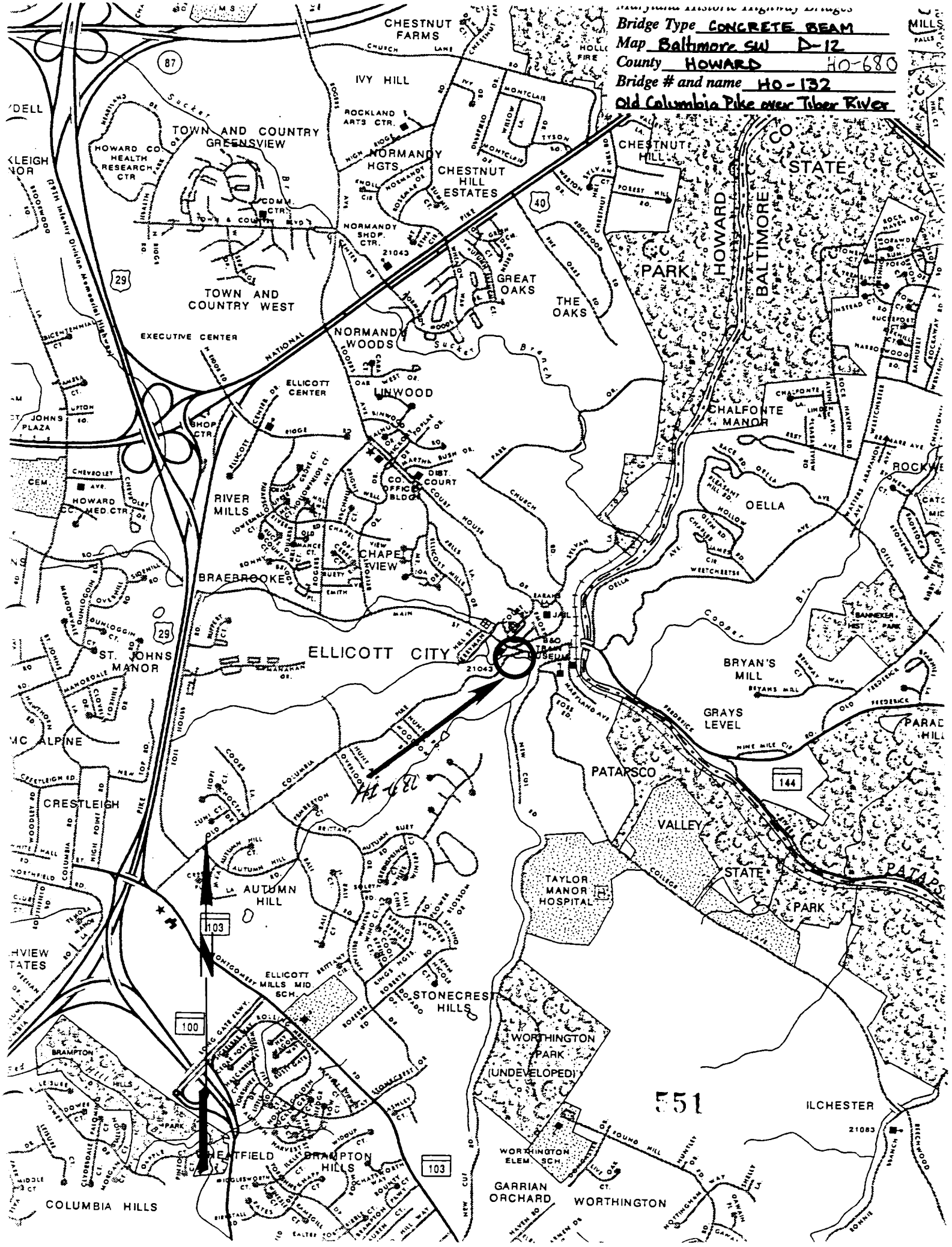
Bridge Type CONCRETE BEAM

Map Baltimore SW D-12

County HOWARD HO-680

Bridge # and name HO-132

Old Columbia Pike over Tiber River



Ellicott Theatre
More
MORE

1. [illegible]
2. (No-132) Old Columbia Pike over Tiber River
3. Howard Co. M.D.
4. T.M. Tamburrino
5. 3-47
6. MD SHPO
7. North approach
8. 1 of 1

LUXURY APTS

1 HO-6RC

2 (HO-132) Old Columbia Pike over Tiber River

3 Howard Co. MD

4 Tim Tomborino

5 7-97

6 MD SHPO

Same approach

8 Cut 4

1 [illegible]

2 ([illegible]) old Columbia Pike over Tiber River

3 Howard Co. M.D.

4 Tim Tamburrino

5 3-97

6 MD SHPO

7 West elevation

8 [illegible]