CAPSULE SUMMARY
Bridge No. 10069
MIHP # F-4-111
Myersville vicinity
Frederick County, Maryland
1930
Public

Bridge No. 10069 is a two-lane, two-span, concrete T-beam bridge that carries Wolfsville Road (MD-17) over Middle Creek. The bridge is located at the intersection of Wolfsville Road and Highland School Road. The State Roads Commission built the bridge in 1930. The bridge has a total length of 107'-7" and a roadway width of 24'. The bridge is built on a 47° skew (Hall and McKay 1997). The structure features concrete abutments, flared wingwalls, and piers. The superstructure features five poured-in-place concrete beams and a concrete deck overlaid with asphalt. The structure features incised concrete parapets. The bridge deck has begun to fail. Wood railroad ties have been placed on top of the pier between each beam.

As part of a statewide bridge inventory by the Historic Bridge Inventory Committee, Bridge No. 10069 was determined National Register eligible under Criterion C as an example of concrete beam construction (Interagency Review Committee 1998; Hall and MacKay 1997). Bridge No. 10068 is scheduled for replacement in 2004. The current documentation was prepared to fulfill stipulation of the Memorandum of Agreement between the Maryland State Highway Administration and the Maryland Historical Trust to mitigate the effects of the project upon the historic property.

Maryland Historical Trust
Maryland Inventory of
Historic Properties Form

Inventory No. F-4-111

1. Name of Property (indicate preferred name)

historic	Bridge No. 10069
other	Wolfsville Road (MD-17) over Middle Creek

2. Location

street and number	Wolfsville Road over Middle Creek at intersection with Highland School Road	__ not for publication
city, town	Myersville	X vicinity
county	Frederick County	

3. Owner of Property (give names and mailing addresses of all owners)

name	Maryland State Highway Administration				
street and number	707 North Calvert Street			telephone	(410) 545-8540
city, town	Baltimore	state	MD	zip code	21202

4. Location of Legal Description

courthouse, registry of deeds, etc.	Frederick County Courthouse			liber	folio
city, town	Frederick	tax map	tax parcel		tax ID number

5. Primary Location of Additional Data

_____ Contributing Resource in National Register District
_____ Contributing Resource in Local Historic District
__X__ Determined Eligible for the National Register/Maryland Register
_____ Determined Ineligible for the National Register/Maryland Register
_____ Recorded by HABS/HAER
_____ Historic Structure Report or Research Report at MHT
_____ Other:_____

6. Classification

Category
_____district
_____building(s)
__X__structure
_____site
_____object

Ownership
__X__public
_____private
_____both

Current Function
_____agriculture
_____commerce/trade
_____defense
_____domestic
_____education
_____funerary
_____government
_____health care
_____industry
_____landscape
_____recreation/culture
_____religion
_____social
__X__transportation
_____work in progress
_____unknown
_____vacant/not in use
_____other:

Resource Count

Contributing	Noncontributing	
_____	_____	buildings
_____	_____	sites
1	_____	structures
_____	_____	objects
1	_____	Total

Number of Contributing Resources previously listed in the Inventory
1

7. Description

Inventory No. F-4-111

Condition

___ excellent X_ deteriorated
___ good ___ ruins
___ fair ___ altered

Prepare both a one paragraph summary and a comprehensive description of the resource and its various elements as it exists today.

Bridge No. 10069 carries Wolfsville Road (MD-17) over Middle Creek near Myersville, Maryland. Farms and low-density residential development characterize the rural area in the vicinity of the road. Wolfsville Road, the primary artery for the upper Middletown Valley, follows the course of the Middle Creek. The road traverses the stream valley along the easiest gradient from Meyersville north through the hamlets of Ellerton, Middle Point, and on to Wolfsville in northwestern Frederick County. Wolfsville was the northern terminus for state maintenance on the road until ca. 1950, when maintenance was extended northwest to the county line (Maryland State Roads Commission 1934-1961).

Bridge No. 10069 is a two-lane, two-span, concrete T-beam bridge that carries Wolfsville Road (MD-17) over Middle Creek. The bridge is located at the intersection of Wolfsville Road and Highland School Road. The State Roads Commission built the bridge in 1930. The bridge has a total length of 107'-7" and a roadway width of 24'. The bridge is built on a 47° skew (Hall and McKay 1997). The structure features concrete abutments, flared wingwalls, and piers. The superstructure features five poured-in-place concrete beams and a concrete deck overlaid with asphalt. The structure features incised concrete parapets. The bridge deck has begun to fail. Wood railroad ties have been placed on top of pier between each beam.

Bridge No. 10069 is based on a 1924 standardized plan, which featured a roadway deck width of 24'. The 1920-1923 Report of the Maryland State Roads Commission stated that "new standard plans have been prepared for slab and girder spans and that type of the latter has been changed from the beam to the T-beam design, with a resulting saving in material" (Spero 1995:180). T-beam designs were first advocated by Tyrell in 1909 and promoted by the U.S. Bureau of Roads between 1910 –1919. The design was adopted by several states by 1920.

Maryland's 1924 standard plan for T-beam bridges specified that the bridge was to be poured in place without joints between the girders and the slab (Spero 1995:180). The 1924 standard plans were specified in bridge construction until 1930, when the increasing size and weight of automobiles and trucks necessitated increasing the roadway width for all standard plan bridges to 27 feet. In 1933 the width was increased to 30 feet (Spero 1995:181). By the 1930s, concrete bridges were one of the most popular bridge types in Maryland (Legler and Highsmith 2002:22).

8. Significance

Inventory No. F-4-111

Period	Areas of Significance	Check and justify below		
__ 1600-1699	__ agriculture	__ economics	__ health/medicine	__ performing arts
__ 1700-1799	__ archeology	__ education	__ industry	__ philosophy
__ 1800-1899	__ architecture	__ engineering	__ invention	__ politics/government
X 1900-1999	__ art	__ entertainment/ recreation	__ landscape architecture	__ religion
__ 2000-	__ commerce		__ law	__ science
	__ communications	__ ethnic heritage	__ literature	__ social history
	__ community planning	__ exploration/ settlement	__ maritime history	X transportation
	__ conservation		__ military	__ other:

Specific dates	1930	**Architect/Builder**	Maryland State Roads Commission
Construction dates	1930		

Evaluation for:

__X__ National Register __X__ Maryland Register _____ not evaluated

Prepare a one-paragraph summary statement of significance addressing applicable criteria, followed by a narrative discussion of the history of the resource and its context. (For compliance projects, complete evaluation on a DOE Form – see manual.)

Summary

Bridge No. 10069 carries MD 17 (Wolfsville Road) over Middle Creek (Figure 1). Wolfsville Road has existed since the first half of the nineteenth century and provided access for farmers in the Middletown Valley to the National Road. The National Road was a main transportation artery that provided access to Frederick and Baltimore (Figure 2).

Bridge No. 10069 is a concrete beam structure constructed in 1930 according to survey documentation prepared in 1997 (Hall and MacKay 1997). Concrete beam bridges are one of the simplest bridge forms. Concrete beam bridges were first constructed in the middle of the nineteenth century. Their use became widespread in the early twentieth century when standardized designs were promoted by leading bridge engineers, the American Society of Civil Engineers, the American Concrete Institute, and the U.S. Bureau of Public Roads (Spero 1995:154, 160-161).

Historic Context

Nineteenth Century Roads

At the turn of the nineteenth century, Marylanders depended upon the road infrastructure for access to markets and demanded better roads. Consequently, the beginning of a nineteenth century saw the building of the first all-weather roads, the turnpikes, and the National Road.

In 1808, Albert Gallatin, Secretary of the Treasury, made a through report of the internal improvements of the United States. His report as relating to turnpikes stated:

> A great number of artificial roads have been completed in the eastern and middle States, at the expense varying from less than $1,000 to $14,000 a mile. The labor bestowed on the least expensive species consists of shortening the distance, diminishing the ascent of hills, removing rocks, levelling [sic], raising,

> and giving a proper shape to the bed of roads, draining them by ditches, and erecting bridges over the intervening streams. But the natural soil of the road is used, instead of covering it with a stratum of gravel or pounded stones (Wood 1919:14).

The National Road. The Federal government's first road construction project was the National Road, which extended from Cumberland, Maryland to the Ohio River at Wheeling, West Virginia. President Jefferson signed a $30,000 appropriation for surveying and laying out the route in March 1806. The bill directed the President to appoint a three-person commission to lay out the road, which was to be four rods wide; was to have a "raised carriage-way in the middle of stone, earth, gravel or sand, with ditches along the side; while the inclinations were not to exceed five degrees" (Wood 1919:19).

Due to political deliberations, construction of the road did not begin until 1811. The first contract for ten miles was let in the spring at an average price of $7,500 a mile. Further contracts were awarded as appropriations allowed, until the road was completed to Wheeling in December 1820 (Wood 1919:19).

Even well built roads, such as the National Road, needed maintenance. Locking wagon wheels cut deep ruts in the gravel dressing. In 1815, $1,200 was used to repair the first sixteen miles from Cumberland. By 1826, the loose stones on the rock base were almost entirely washed away, or sunk under the foundation, leaving the large stones on top. In places, even the foundation was deteriorated. Vandalism also affected the roads. Bridge walls had been pried off, gravel from the road was stolen for personal use, fences, yards and gardens were built inside the right-of-way, and the course of the road was changed by adjoining property owners (State Roads Commission 1958:22-23).

Unwilling to maintain the National Road, the Federal government passed an act in 1832 transferring control of the road to the states through which it passed. Maryland and Pennsylvania accepted the road on the condition that the Federal government repair the road and build tollhouses and gates. In 1834, Congress accepted the terms and gave the job of rebuilding to the Army Corps of Engineers (State Roads Commission 1958:23).

Maryland's Governor James Thomas insisted that the new road be rebuilt using the macadam process, which, had been used for the first time in the United States a few years earlier in the construction of the Boonsboro-Hagerstown Turnpike (State Roads Commission 1958:23).

In addition to macadamizing the road, the engineers widened it from twenty to thirty feet. The engineers removed all the stone from the roadbed. They drained and graded the new bed so it crowned three inches higher in the middle than at the sides. Ditches were dug so that the highest level water levels were eighteen inches below the lowest portion of the road surface. The stones, composed of limestone, flint or granite, were broken by hand so each passed through a three-inch ring and weighed less than four ounces. The stone then was spread by horse-rakes over the graded earth roadbed to a uniform depth of three inches. Road traffic compacted the layer. A second layer was spread and compacted before a third layer was added. This resulted in a surface composed of nine-inch small stones rolled hard by the weight of numerous Conestoga wagons.

The difference between the macadam method and the earlier construction was in the exclusive use of the small stones, which were so thoroughly compacted that they formed a solid base. By 1837, when the road was macadamized throughout its length, the National Road supported the densest traffic in the nation (State Roads Commission 1958:25).

Road Making Equipment. The nineteenth century saw the first developments in road making equipment, which included a few light horse-drawn implements. In 1831, a sulky scraper was patented. This was little more than drag to scrap the dirt from the ditch to the center of the road. A roller drawn by horses was built as early as 1843. Little improvement in equipment was made until 1848, when Eli Whitney Blake's stone crusher was introduced. Blake's machine used a strong, steam-powered, mechanical jaw to crush the stone. No successful grading machinery was introduced until many years later (Oliver 1956:176).

Industrial/Urban Dominance 1870 - 1930.

Following the Civil War. Frederick County farmers, benefiting from high-quality farmland and good transportation routes, quickly regained their previous prominence, which had been interrupted during the war (Whitmore and Cannon 1981:62). Agricultural output increased; by 1870, more than one million bushels of corn and wheat were produced countywide (Scharf 1882). Interest in agricultural improvement also resumed, and the first County Fair was held in Frederick in 1878 (Whitmore and Cannon 1981:64).

The land outside the city limits of Frederick contained little industrial development as farming continued to dominate the community. Lake's *Atlas of Frederick County* indicated that in 1873 the fertile lands of the Middletown Valley were open farmland. Wheat and corn were significant crops. By the early twentieth century, more corn was grown than wheat, and tobacco production dropped (Wesler et al. 1981:144).

Early in the twentieth century, a significant shift occurred in local agricultural practices. Dairy production came to dominate agriculture in Frederick County. At the end of the nineteenth century, Louis Pasteur discovered that partial sterilization or pasteurization neutralized harmful bacteria in dairy products. This scientific discovery, along with refrigeration and efficient transportation, made milk a safer drink, which raised demand for the product. The scale of dairy production historically was limited by food preservation and transportation technologies. Milk spoiled quickly. As a result, the sources of production were close to consumers. Increased population in nearby Baltimore and Washington, D.C. metropolitan areas was reflected in greater demand for milk. As a result, Frederick County became a major dairy producer in Maryland (Schmidt 1988).

Frederick County farmers sold their milk to dairies, such as the Baltimore and Washington White Cross Milk Company, which opened near Frederick's B&O Railroad freight depot in 1909. The operation could handle and store 10,000 gallons of milk daily. An earlier dairy, the Excelsior Sanitary Dairy, began in the late 1800s, was located on Frederick's East Seventh Street (Heidenrich 2003:130). Dairy's requirement for efficient transportation stimulated the push for better roads in Frederick County.

Farming continued to be lucrative until the end of World War I, when foreign markets closed. A surplus of agricultural products resulted and many farmers were forced out of business (Whitmore and Cannon 1981:100). Rising costs induced by increased mechanization and by new government health regulations also caused additional hardship for some farmers. However, Frederick County maintained its level of agricultural output. Between 1920 and 1930, Frederick County was the sole Maryland county to escape a drop in agricultural production (Wesler et al. 1981:144).

The county experienced the effects of stagnation at the beginning of the twentieth century. Increased mechanization replaced manual labor and reduced the number of jobs (Whitmore and Cannon 1981:63). In addition, the number of industries operating in the county dropped as conglomerates became more common (Wesler et al. 1981:144). As a result, many people moved to nearby cities in search of work. This problem increased after World War I, as those forced out of farming also sought work (Whitmore and Cannon 1981:100).

Despite the difficulties in agriculture and industry, new transportation routes were constructed and old ones were improved during this period. Rail transportation continued to be critical for the marketing of agricultural and industrial goods. The Monocacy Valley Railroad, first established between Mechanicstown (Thurmont) and Catoctin Furnace in 1886, was extended south to Frederick by 1908 (Whitmore and Cannon 1981:122; Miller 1886:136-25). A

branch of the Western Maryland Railroad reached Emmitsburg in 1875; and a spur of the Pennsylvania Railroad reached Frederick in 1872 (Miller 1886:1136-15; Harwood 1970:10).

New forms of transportation accelerated infrastructure development. Several trolley lines were established in Frederick during the 1890s; these became part of a system of electric inter-urbans that eventually connected Frederick to Hagerstown, and that spurred the development of resort areas like Braddock Heights west of Frederick (Harwood 1970).

Twentieth Century Roads

In the 1880s, Frederick County contained ten macadam turnpikes and 1,200 miles of county roads. By 1910, automobiles had become common, and car owners demanded additional improvements in road conditions (Whitmore and Cannon 1981:101,119). In 1900, there were 14,483 miles of roads in Maryland of which 13,118 miles were dirt. Of the remaining 1,365 miles of improved roads in the state, 890 were "stone" roads, 225 were surfaced with gravel, and 250 miles were surfaced with oyster shells (State Roads Commission 1958:39).

Interest in the upkeep of roads was revitalized in the late 1800s by the introduction of the bicycle. At first, bike riding was confined to city streets. In 1887, the League of American Wheelmen with 30,000 Maryland members was formed, and became a propaganda agency for good roads (Oliver 1956:427-28). The Frederick Bicycle Club led local efforts. Through the efforts of the Dr. W.B. Clark, Maryland State Geologist, and the Maryland branch of The League of American Wheelmen, the Maryland legislature was persuaded to fund a study of Maryland's roads (State Roads Commission 1930:10). The Maryland Geological Survey's *Report of the Highways of Maryland* contained a comprehensive survey of the state's road conditions. The report recommended a ten-year program to build all-weather roads and to improve bridges within the state; thus replacing existing wooden bridges with iron or concrete bridges (Parsons Brinckerhoff Quade & Douglas, Inc. 1997:2-9). The first concrete bridges in Maryland were built in 1903 (Spero 1995:175-76).

The first important breakthrough for Maryland's good roads movement was the 1904 Shoemaker Act. The act provided $200,000 annually in state financial aid to build modern macadam roads. Matching county monies dollar for dollar, this was the first time the state subsidized road construction. In 1908, the state formed the State Roads Commission to oversee an inter-county seat trunk-line road system to be improved and maintained with state funds. Maryland's road system was the first to place both construction and maintenance under state control (State Roads Commission 1958:45, 47).

In 1904, the Maryland Legislature passed the first "Maryland State Aid for Highways" law. The results were so effective that, in 1908, the legislature enacted the State Road Act, which provided for the creation of a State Roads Commission and authorized the construction and maintenance of a system of state roads interconnecting the county seats within the state (State Roads Commission 1930:10-11). In 1912, the State Roads Commission reorganized into eight districts, each with its own resident engineer, and also issued its standardized plans for bridges (Spero 1995:178).

The Impact of Motorized Traffic. It wasn't until the advent of the automobile that new road surfacing technologies saw widespread use. Three technologies, concrete, asphalt, and tar roads, evolved during the nineteenth century, but came into common use only after 1900. The Romans first built concrete roads, but their system was forgotten until William Hobson took out an English patent for concrete roads in 1827. Modern concrete roads were not developed until after Portland cement became widely used in the latter half of the nineteenth century. The first concrete road in the United States was poured at Bellefontaine, Ohio in 1892 (Singer et al. 1965:448-49, 539).

The second technology was the asphalt road. Innovators had made three types of asphalt roads by 1900: compressed asphalt, mastic asphalt, and sand-asphalt. Compressed asphalt was made by rolling rock-asphalt disintegrated by heating and spread on a base. Mastic asphalt, a mixture of mastic, sand, and filler, was poured on a road and spread by a trowel. Sand-asphalt, a hot mixture of bitumen, sand, filler, and stones, was designed to leave no voids after compaction. It was spread and rolled after mixing at a temperature of 150-200 °C. The invention of the steamroller was a vital factor in the making sand-asphalt roads. In 1871, asphalt was applied in front of Newark City Hall for the first time in the United States. This trial stretch was built of compressed asphalt (Singer et al. 1965:539-41).

Tar roads utilized heavy tars and pitches. The first tar roads in the United States were built in Cleveland in 1873. In this case, a mixture of coal tar and gravel was applied to a macadam road. Although this trial was not very successful, tar roads came of age after the introduction of the automobile (Singer et al. 1965:541).

Until the introduction of automobiles, the hammering action of hoof and wagon wheels had been the main form of impact upon the roads. The automobile's rubber tires, however, exerted a suction on the road surface that deteriorated macadam road surface and created large clouds of dust. The problem of dust was the first problem tackled on the extensive network of older macadam roads. Therefore, tarring roads was the earliest choice for improving the roads.

In 1904, only eighteen miles of rural roads in the United States were treated with hot bitumen, tar, or emulsified forms of these materials, all in Massachusetts and Ohio. By 1914, this mileage had increased to 10,500 miles. Although tar roads were fine for automobiles, their use began to decline with the introduction of trucks (MacDonald and Fairbank 1926:115).

The heavier weight of trucks necessitated the use of rigid roadbeds. Although the first concrete road was laid in 1893, there were less than five miles of rural highways in the country paved with concrete in 1909. This number grew exponentially in the following years when four miles were added in 1910, twenty miles in 1911, forty miles in 1912, 250 miles in 1913, and 1,500 miles in 1914. By 1924, 31,146 miles of rural roads were paved with concrete with 6,000 miles a year being added (MacDonald and Fairbank 1926: 115-16).

The increased use of motor trucks also led to the increased use of bricks and asphalt. In 1914, 1,600 miles were paved with brick with this increasing to 4,319 miles ten years later. In 1924, there were 9,700 miles of asphalt, which were nearly nonexistent tens years previously (MacDonald and Fairbank 1926:116).

Federal Aid Fuels Road Construction. The Federal Aid road act of 1916 stimulated the development of trunk line roads. One of the first acts of the Bureau of Public Roads requested that all states to submit a 5-year development plan. This act focused attention on the designation and improvement of a highway system. In 1926, the National Road was included in the new Federal highway system of national auto routes and was designated U.S. Route 40 (Heidenrich 2003:137).

America's entry into World War I, highlighted the strategic importance of a good highway system. When World War I broke out in 1914, Maryland's principal highways were paved and were capable of handling the traffic of the period. During the war, the roads were heavily used with damaging results. After the war, the state undertook a large-scale building campaign to rebuild the roads damaged by the defense-related traffic. Concurrently, an appraisal of Maryland's bridge system found that most bridges were too narrow and weak for the increasing traffic resulting from the automotive revolution. In addition, steamrollers increasingly were used for roadwork, but few existing bridges were unable to support the new equipment. As a result, the State Roads Commission developed a program of bridge replacement and reconstruction that was carried out through the 1920s and 1930s (Parsons Brinckerhoff Quade & Douglas, Inc. 1997:2-12).

The bridge building and reconstruction program was concurrent with an effort to enlarge the state road network to provide a state road within two miles of each resident (State Roads

Commission 1930:20). The state road through the Middletown Valley was originally designated MD 33 in the 1920s, but was changed to MD-17 in the 1930s (Maryland State Roads Commission 1927; Pruett 2004).

During World War II, labor and material shortages led to the curtailment of road construction and maintenance. As a result, the State Roads Commission developed plans during the war for an extensive construction and repair program during the post war years (Parsons Brinckerhoff Quade & Douglas, Inc. 1997:2-15). By the 1950s, the section between Middletown and US 40 was dropped from state maintenance and the section north of US 40 was designated MD 153 (Maryland State Roads Commission 1958). Around 1985, the lost stretch was reclaimed and the MD 17 returned to original length (Maryland State Highway Administration 1985).

Modern Period 1930 - present.

As a result of the absence of a significant industrial base in Frederick County, the depression years were followed by a longer than normal recovery period (Whitmore and Cannon 1981:100). Consequently, the county's population increased slowly during the 1930s (Wesler et al. 1981:144).

Frederick County entered a new era after World War II. The construction of one of the first segments of President Dwight Eisenhower's highway program influenced the county. During the early 1950s, the Baltimore to Frederick Road (Rte. 70) was completed, reducing transportation time between the two cities by thirty minutes (Jones 1974:11).

The proximity of Frederick to Washington, D.C. and to Baltimore has increased its appeal as a bedroom community, and major roadways have been constructed to accommodate growing commuter traffic. However, much of the county has retained an agricultural character. The town of Meyersville is a typical example of a town that has changed little since its original establishment.

Conclusion

As part of a statewide bridge inventory by the Historic Bridge Inventory Committee, Bridge No. 10069 was determined National Register eligible under Criterion C as an example of concrete beam construction (Interagency Review Committee 1998; Hall and MacKay 1997).

Under Project No. FR377B21, Bridge No. 10069 is scheduled for replacement in 2004 as part of a program to replace structurally deficient and functionally obsolete bridges. The current documentation was prepared to fulfill stipulation of the Memorandum of Agreement between the

Maryland State Highway Administration and the Maryland Historical Trust to mitigate the effects of the project upon the historic property.

Bridge No. 10069 is based on a 1924 standardized plan, which featured a roadway deck width of 24'. The State of Maryland utilized standardized concrete bridges since 1912. T-beam bridges were introduced by 1924 (Spero 1995:180). The 1924 standard plans were in use until 1930, when increased size, weight, and volume of automobiles and trucks necessitated increasing the roadway width for all standard plan bridges to 27 feet. In 1933, the width was increased to 30 feet (Spero 1995:181). By the 1930s, concrete bridges were one of the most popular bridge types in Maryland (Legler and Highsmith 2002:22). Bridge No. 10069, exemplifies concrete beam construction for bridges during the early twentieth century in Maryland overall and in Frederick County.

9. Major Bibliographical References

Inventory No. F-4-111

See continuation sheet

10. Geographical Data

Acreage of surveyed property <1 acre
Acreage of historical setting <1 acre
Quadrangle name Myersville, Md Quadrangle scale: 1:24,000

Verbal boundary description and justification

The present MD 17 right-of-way including the bridge and aprroaches.

11. Form Prepared by

name/title	Brian Cleven, Industrial Archaeologist		
organization	R. Christopher Goodwin and Associates, Inc.	date	9/2004
street & number	241 East Fourth Street, Suite 100	telephone	(301) 694-0428
city or town	Frederick	state	Maryland

The Maryland Inventory of Historic Properties was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
DHCD/DHCP
100 Community Place
Crownsville, MD 21032-2023
410-514-7600

Maryland Historical Trust
Maryland Inventory of
Historic Properties Form

Inventory No. F-4-111

Name
Continuation Sheet

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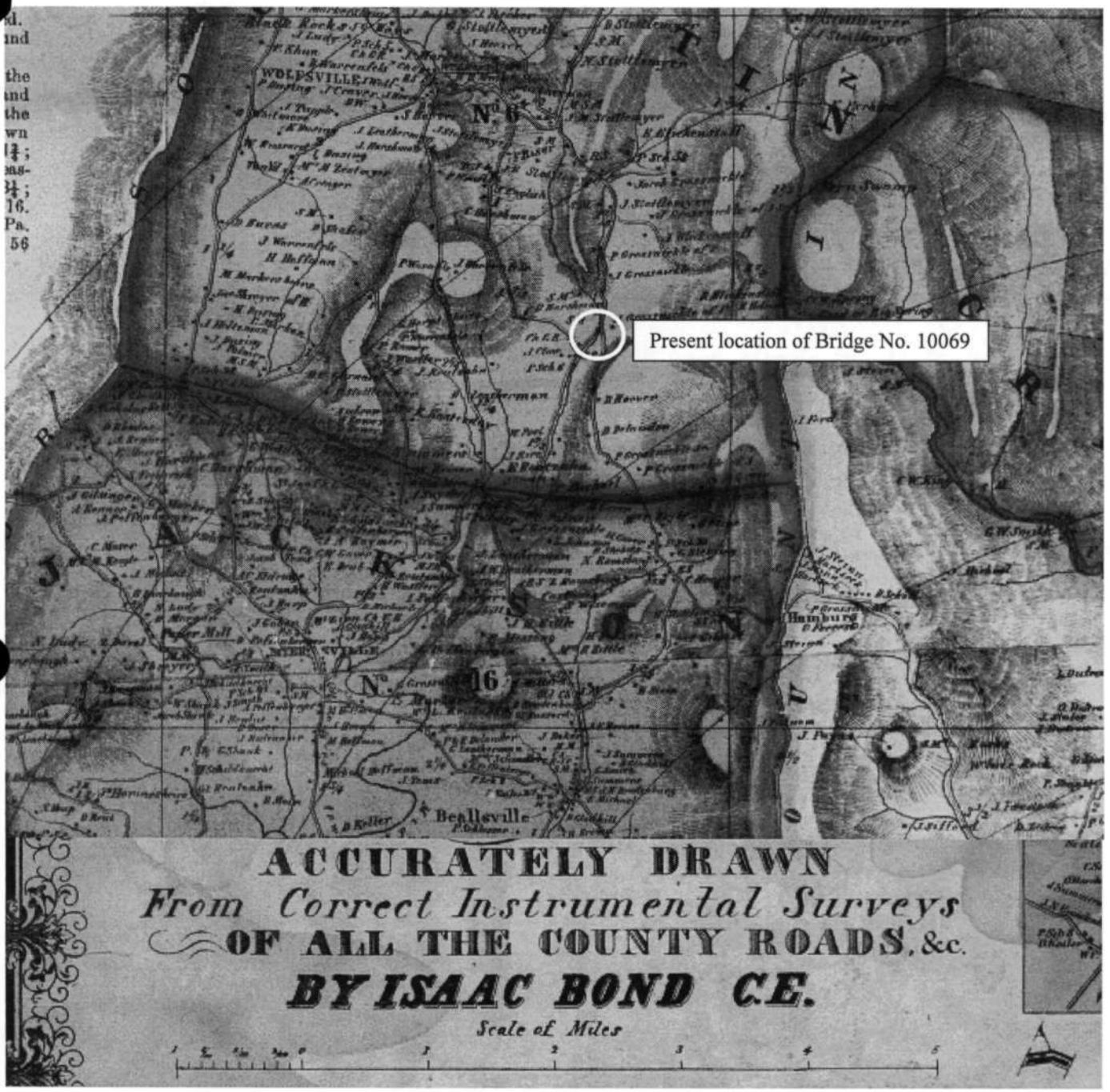
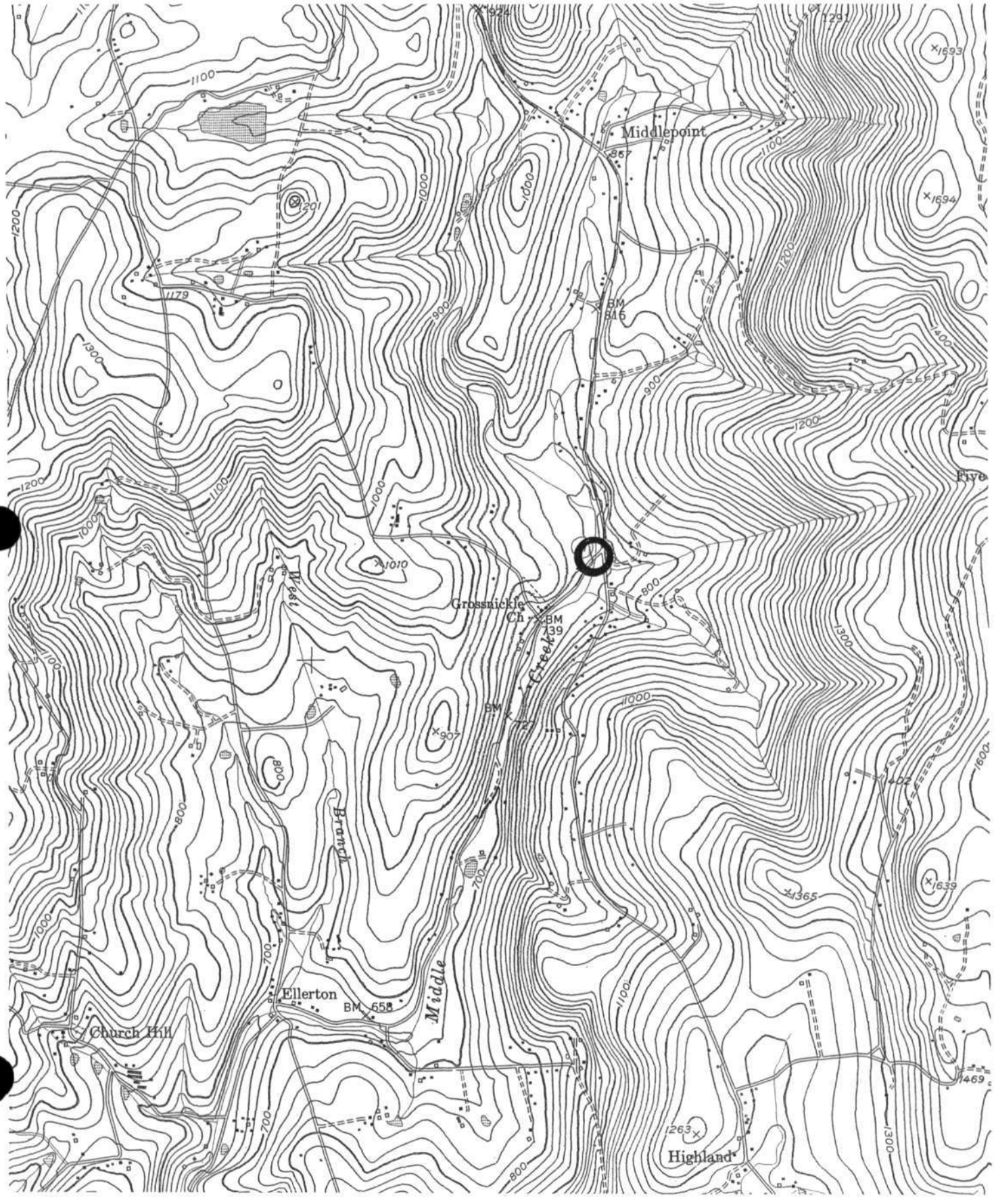


Figure 2. Map of Frederick County, Md. Issac Bond C.E. Lithographed by E. Sachse & Co. c1858

F-4-111
Bridge 10069
Frederick Co, MD
~~Meyersdale~~ 7.5' USGS Quad
Myersville




MIDDLE
CREEK

F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negative @ MD SHPO

View of the ~~northeast~~ southwest approach & balustrade of Bridge No. 10069 (looking south on MD 17)

1 of 10


MIDDLE
CREEK

F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

View of the ~~southeas~~ Bridge No. 10069
looking southeast.

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F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

View - closer view of the southern approach of Bridge No. 10069 (going south on MD17)

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F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

View of the northern approach (going north on MD 17) of Bridge No. 10069

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F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

Interior view of the eastern balustrade - looking north on MD 17.

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F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

View of interior eastern balustrade -
looking south

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F-4-111
SHA Bridge No. 100069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

View of the interior western balustrade - looking north on MD 17.

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F-4-111

SHA Bridge No. 10069

Frederick County, MD

B. Kermes, photographer

8/2004

Negatives @ MD SHPO

View of the interior western balustrade looking South on MD17.

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F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MDSHPO

View of the exterior of the eastern balustrade

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F-4-111
SHA Bridge No. 10069
Frederick County, MD
B. Kermes, photographer
8/2004
Negatives @ MD SHPO

View of the western exterior balustrade - looking east.

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Maryland Historical Trust

Maryland Inventory of Historic Properties number: F-4-11

Name: 10069/MD17 over Middle Creek

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 ___X___ Eligibility Not Recommended _____

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____

MARYLAND INVENTORY OF HISTORIC BRIDGES **MHT No.** F-4-111
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

SHA Bridge No. 10069 **Bridge name** MD 17 over Middle Creek

LOCATION:
Street/Road name and number [facility carried] MD 17 (Wolfsville Road)

City/town Myersville **Vicinity** X

County Frederick

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

F-4-111

DESCRIPTION:

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

Describe Setting:

Bridge No. 10069 carries MD 17 (Wolfsville Road) over Middle Creek in Frederick County. Wolfsville Road runs east-west and Middle Creek flows north-south. The bridge is located in the vicinity of Myersville and is surrounded by farmland and single family dwellings.

Describe Superstructure and Substructure:

Bridge No. 10069 is a 2-span, 2-lane, concrete beam bridge. The bridge was originally built in 1930 and there have been no major alterations. The structure is 107 feet, 7 inches long and has a clear roadway width of 24 feet; there are no sidewalks. The out-to-out width is 26 feet 11 inches. The bridge was built on a 47° skew. The superstructure consists of five (5) T-beams which support a concrete deck and concrete parapets. The beams measure 15 inches x 36 inches and are spaced 5 feet, 2 inches apart. The concrete deck, an integral part of the T-beams, is 12 inches thick and it has a bituminous wearing surface. The structure has solid concrete parapets and the roadway approaches have steel guard rails and no shoulders. The substructure consists of two (2) concrete abutments and a concrete intermediate pier at mid-length. There are flared concrete wing walls. The bridge is not posted, and has a sufficiency rating of 61.0.

According to the 1996 inspection report, this structure was in fair condition with areas of scaling, spalling, and rusting. The asphalt wearing surface has numerous cracks. The concrete is cracked, scaling and spalling on both the substructure and superstructure. The concrete beams have numerous spalls and exposed, rusted reinforcing bars, especially beams near drain openings. The east abutment has large areas of efflorescence. Also, the concrete parapet is scaling and spalling in places and has areas of exposed, rusted reinforcing bars on the upstream side.

Discuss Major Alterations:

There have been no major alterations to the bridge. Inspection reports from 1992 and 1996 detail the repair of the concrete abutments and beams. Wood railroad ties have also been placed on the top of the pier between each beam.

HISTORY:

WHEN was the bridge built: 1930
This date is: Actual X **Estimated** _____
Source of date: Plaque _____ **Design plans** X **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?

State Roads Commission

WHO was the builder?

State Roads Commission

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 ____X____

The bridge is eligible for the National Register of Historic Places under Criterion C, as a significant example of concrete beam bridge construction. The structure has a high degree of integrity and retains such character-defining elements of the type as the original concrete beams, abutments, wing walls, and parapets. The bridge is a representative example of a 1930s concrete beam bridge that has not been altered.

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?

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

F-4-111

Is the bridge a significant example of its type?

The bridge is a potentially significant example of a concrete beam bridge, possessing a high degree of integrity.

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

The bridge retains the character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including the original concrete beams, abutments, wing walls, and parapets; however, some deterioration is evident.

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

This bridge is a significant example of the work of the State Roads Commission in the 1930s.

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:

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

Ketchum, Milo S.
1908 *The Design of Highway Bridges and the Calculation of Stresses in Bridge Trusses.* The Engineering News Publishing Co., New York.

1920 *The Design of Highway Bridges of Steel, Timber and Concrete.* Second edition. McGraw-Hill Book Company, New York.

Lay, Maxwell Gordon
1992 *Ways of the World: A History of the World's Roads and of the Vehicles That Used Them.* Rutgers University Press, New Brunswick, New Jersey.

Luten, Daniel B.
1912 Concrete Bridges. *American Concrete Institute Proceedings* 8:631-640.

1917 *Reinforced Concrete Bridges.* National Bridge Company, Indianapolis, Indiana.

Maryland State Roads Commission
1930a *Report of the State Roads Commission for the Years 1927, 1928, 1929 and 1930.* State of Maryland, State Roads Commission, Baltimore.

1930b *Standard Plans.* State of Maryland, State Roads Commission, Baltimore.

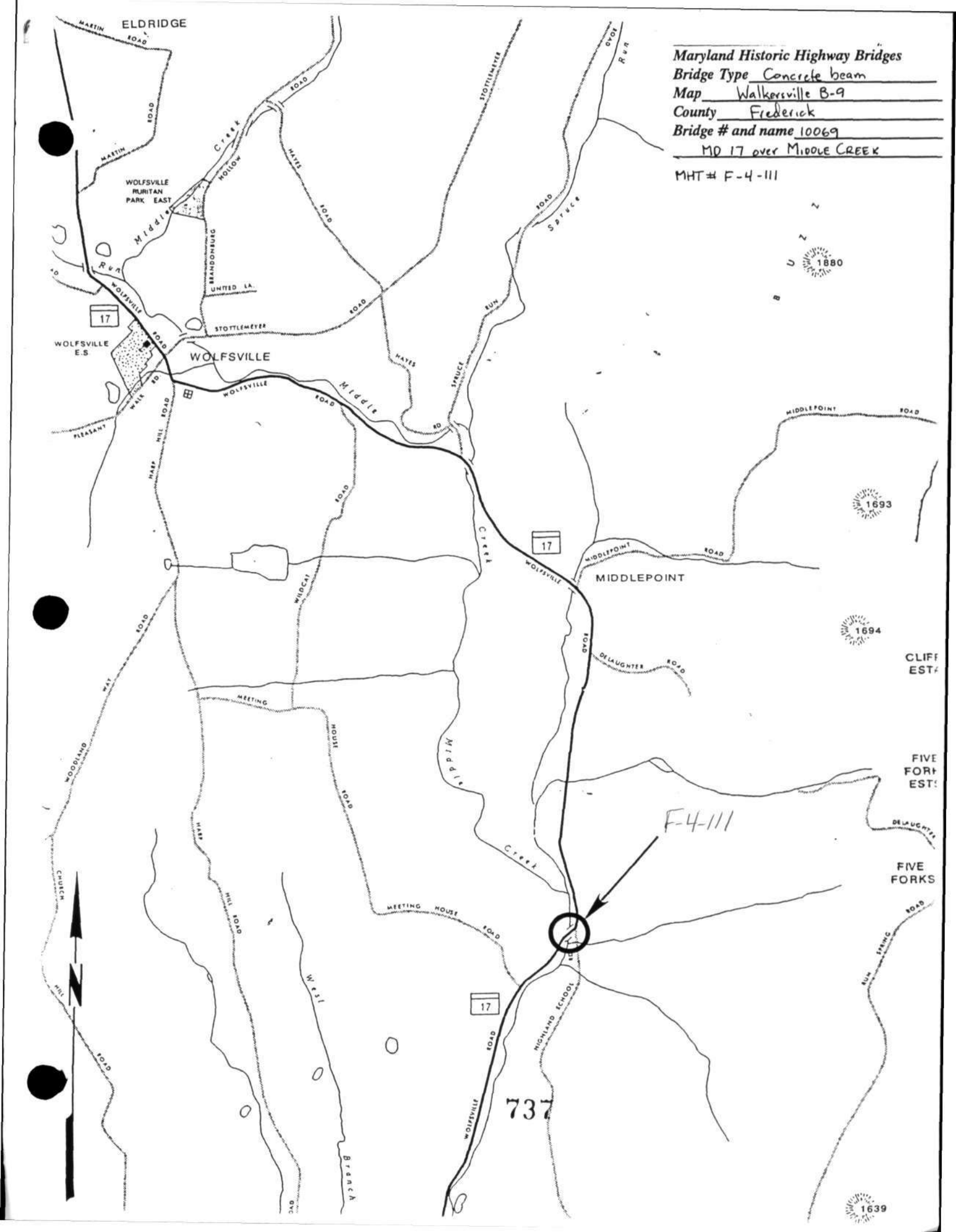
Taylor, Frederick W., Sanford E. Thompson, and Edward Smulski
1939 *Reinforced-Concrete Bridges with Formulas Applicable to Structural Steel and Concrete.* John Wiley & Sons, Inc., New York.

F-4-111

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 2/26/97
Name of surveyor Caroline Hall/Ryan McKay
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 Walkersville B-9
County Frederick
Bridge # and name 10069
MD 17 over MIDDLE CREEK
MHT # F-4-111
ELDRIDGE
WOLFSVILLE
MIDDLEPOINT
FIVE FORKS
F-4-111
737
1880
1693
1694
1639
17

9203379

INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: Bridge 10069 Survey Number: F-4-111

Project: MD 17 over Middle Creek, Frederick County Agency: [redacted]/SHA

Site visit by MHT Staff: X no ___ yes Name _____ Date _____

Eligibility recommended ____ Eligibility not recommended X

Criteria: ___A ___B X C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G ___None

Justification for decision: (Use continuation sheet if necessary and attach map)

Based on the information provided by SHA, Bridge 10069 does not meet the National Register criteria for individual listing. The concrete girder bridge was built to a standard design and has no engineering or historical significance. In addition, the bridge is not located in any known historic district.

Documentation on the property/district is presented in: Project File

Preparedby: RitaSuffness

Elizabeth Hannold — January 12, 1992
Reviewer, Office of Preservation Services — Date

program concurrence: ✓ yes ___ no ___ not applicable

R Lundvall — 11/13/93
Reviewer, NR program — Date

DT

Survey No. F-4-111

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

____	Eastern Shore	(all Eastern Shore counties, and Cecil)
____	Western Shore	(Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
__X__	Piedmont	(Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
____	Western Maryland	(Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

____	Paleo-Indian	10000-7500 B.C.
____	Early Archaic	7500-6000 B.C.
____	Middle Archaic	6000-4000 B.C.
____	Late Archaic	4000-2000 B.C.
____	Early Woodland	2000-500 B.C.
____	Middle Woodland	500 B.C. - A.D. 900
____	Late Woodland/Archaic	A.D. 900-1600
____	Contact and Settlement	A.D. 1570-1750
____	Rural Agrarian Intensification	A.D. 1680-1815
____	Agricultural-Industrial Transition	A.D. 1815-1870
____	Industrial/Urban Dominance	A.D. 1870-1930
__X__	Modern Period	A.D. 1930-Present
____	Unknown Period (___ prehistoric	___ historic)

III. Prehistoric Period Themes:

____	Subsistence
____	Settlement
____	Political
____	Demographic
____	Religion
____	Technology
____	Environmental Adaption

IV. Historic Period Themes:

____	Agriculture
__X__	Architecture, Landscape Architecture, and Community Planning
____	Economic (Commercial and Industrial)
____	Government/Law
____	Military
____	Religion
____	Social/Educational/Cultural
____	Transportation

V. Resource Type:

Category: Structure

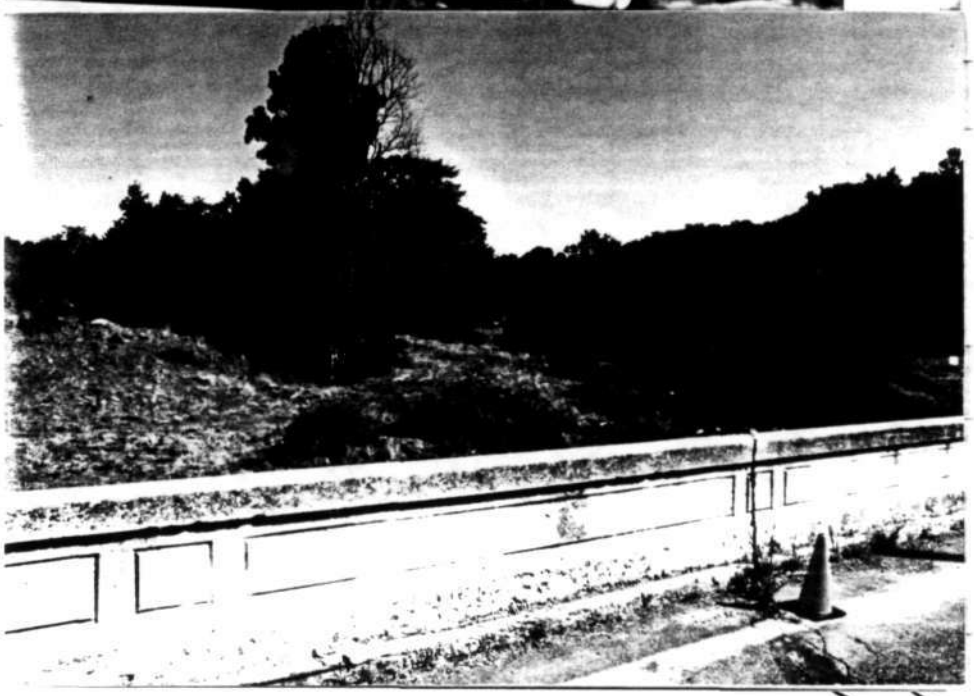
Historic Environment: rural

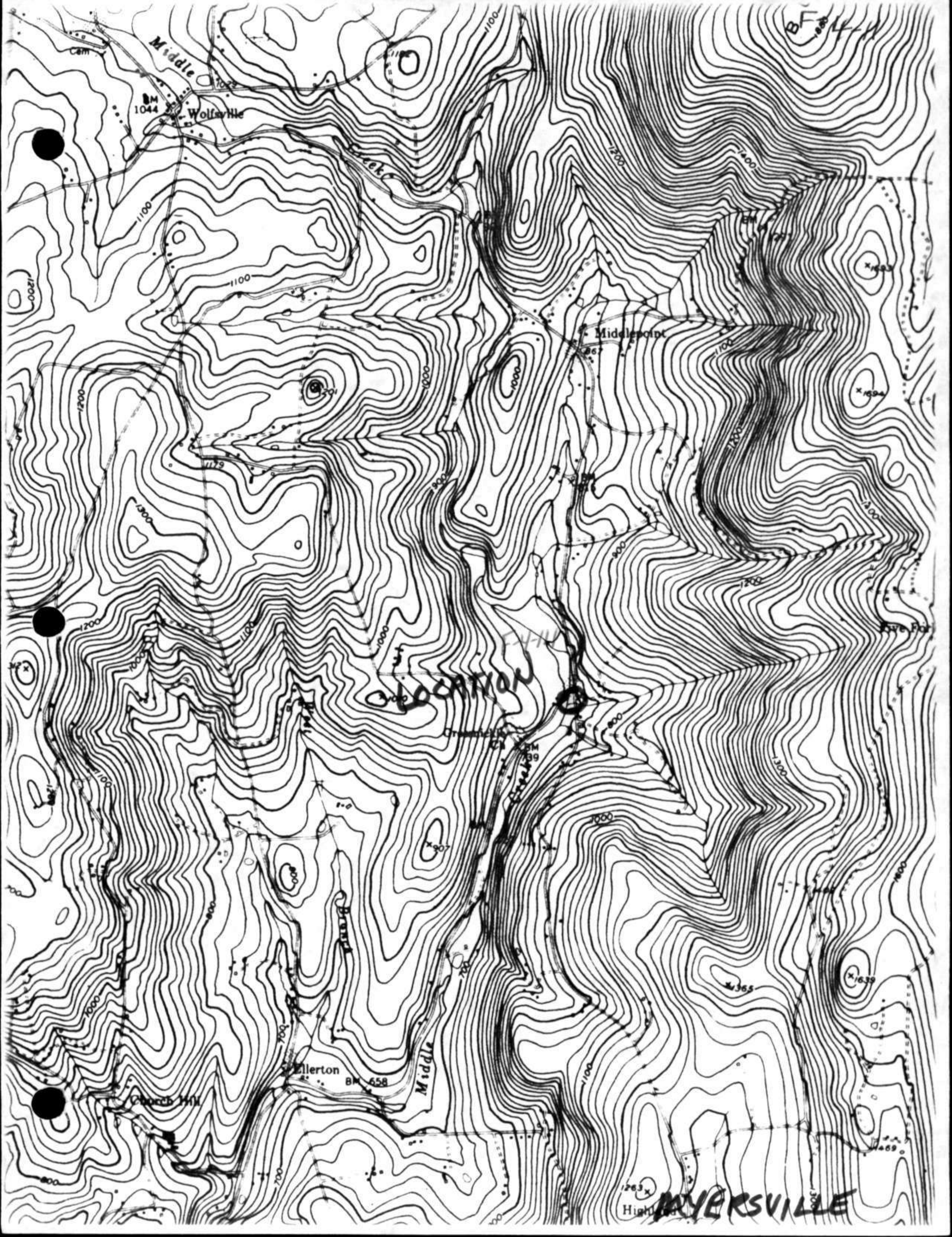
Historic Function(s) and Use(s): transportation

Known Design Source: Unknown

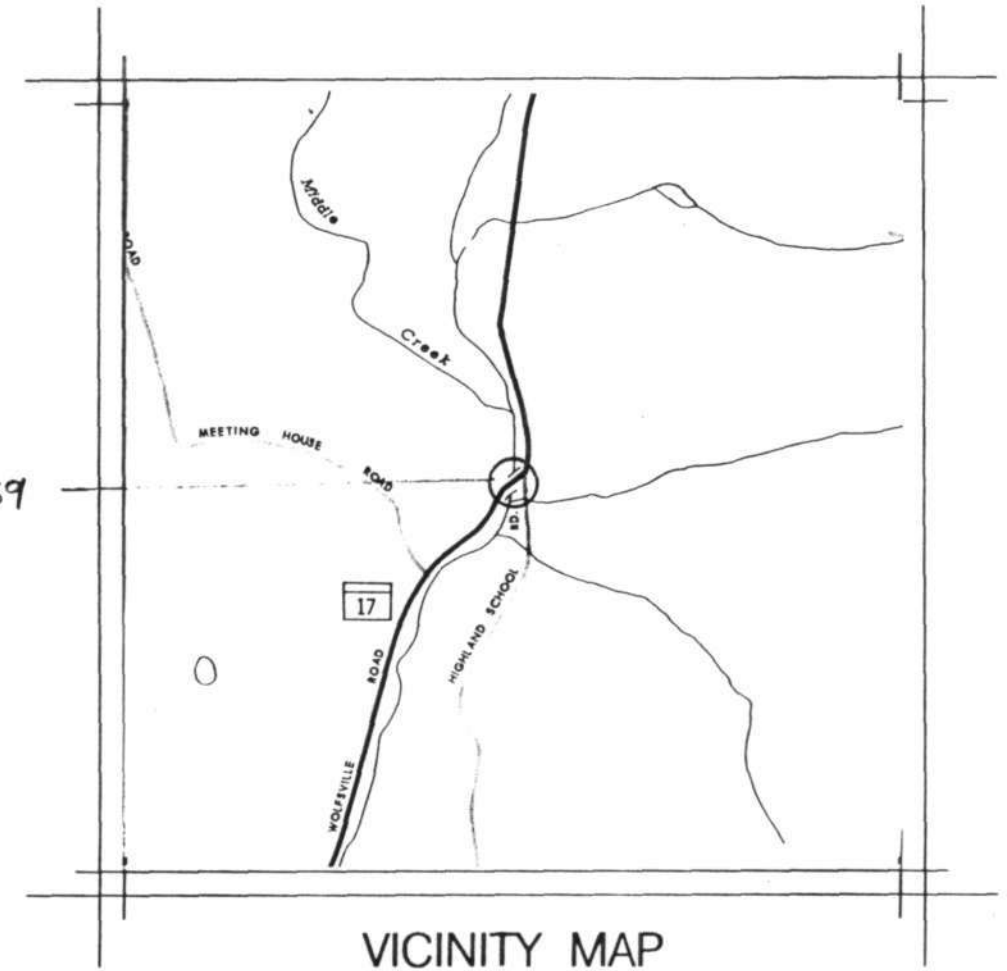
Bridge No. 10069
MD 17/Middle Cr.

F-4-111




BF 4-11
Middle Creek
BM 1044
Wolfsville
Middlepoint
867
LOCATION
BM 739
Middle Creek
Ellerton
BM 658
Church Hill
MYERSVILLE
1263
1639
1365
1694
1693
907
1179
1300
1200
1100
1000
900
800
700

BRIDGE No. 10069



VICINITY MAP

SCALE: 1"=2000'

FROM GENERAL HIGHWAY MAP, FREDERICK COUNTY, MD

SHEET NO. 1 OF

MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BRIDGE INSPECTION AND REMEDIAL ENGINEERING	REPAIRS TO BRIDGE No. 10069 MD RTE. 17 OVER MIDDLE CREEK

SCALE: AS SHOWN DATE: FEB., 1993 CONTRACT NO.: AW 542-701-014 APPROVED: _____

DESIGNED BY: R. M. M. DRAWN BY: R. M. M. CHECKED BY: D. M. H.

CHIEF, BRIDGE INSPECTION AND REMEDIAL ENGINEERING DIVISION

F-4-111

1. F-4-111
2. MD 17 over Middle Creek
3. Frederick County
4. Ryan McKay
5. 3-97
6. MD SHPO
7. Upstream Elevation
8. 1 of 5

1. F-4-111
2. MD 17 over Middle Creek
3. Frederick County
4. Lyan McKay
5. 3-97
6. MD SHPO
7. Beams and Pier
8. 2 of 5

1. F-4-111
2. MD 17 over Middle Creek
3. Frederick County
4. Ryan McKay
5. 3-97
6. MD - SHPO
7. Downstream Elevation
8. 3 of 5


MIDDLE
CREEK

1. F-4-111
2. MD 17 over Middle Creek
3. Frederick County
4. Ryan McKay
5. 3-97
6. MD SHPO
7. West Approach
8. 4 of 5

1. F-4-111
2. MD 17 over Middle Creek
3. Frederick County
4. Ryan McKay
5. 3-97
6. MD SHPO
7. Upstream Parapet
8. 5 of 5