United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions

1. Name of Property

Historic name: Western Maryland Railway, Cumberland Extension Right-of-Way, Mile 126 to Mile 159.8 (Additional Documentation, 2014)

Other names/site number: [former NR Name] Western Maryland Railway Right-of-Way, Milepost 126 to Milepost 160 Maryland Inventory of Historic Properties (MIHP) # AL-I-B-074

Name of related multiple property listing:
_N/A_

(Enter "N/A" if property is not part of a multiple property listing

2. Location

Street & number: Part of **Chesapeake & Ohio National Historical Park (CHOH)**

City or town: Woodmont to North Branch State: MD, WV County: MD: Washington, Allegany; WV: Morgan

Not For Publication: [ ] Vicinity: [X]

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

_X_ national **_X_ statewide** **__local**

Applicable National Register Criteria:

_X_A **_B** **_X_C** **_D**

Ronald Martin Deputy NPS FPO 11/10/2014

Signature of certifying official/Title: **Date**

National Park Service

State or Federal agency/bureau or Tribal Government

In my opinion, the property _x_ meets ___ does not meet the National Register criteria.

Elizabeth Hughes 9.16.14

Signature of commenting official: **Date**

Elizabeth Hughes

Title : Deputy SHPO, Maryland Historical Trust

State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

_✓_ other (explain:) Additional Documentation Approved

for Edson H. Beall 12.22.14

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	
Public – Local	
Public – State	
Public – Federal	x

In my opinion, the property ✓ meets ___ does not meet the National Register criteria.

Susan M Pierce 8/27/14

Signature of commenting official: **Date**

Deputy State Historic Preservation Officer WV SHPO

Title : **State or Federal agency/bureau or Tribal Government**

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4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) ____________________

____

Signature of the Keeper Date of Action

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5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private: ☐

Public – Local ☐

Public – State ☐

Public – Federal [X]

Category of Property

(Check only **one** box.)

Building(s)	☐
District	☒
Site	☐
Structure	☐
Object	☐

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
1	2	buildings
2	0	sites
50	2	structures
19	0	objects
72	4	Total

Number of contributing resources previously listed in the National Register 32

6. Function or Use

Historic Functions
(Enter categories from instructions.)
TRANSPORTATION/rail-related: railbed, railroad bridges

Current Functions
(Enter categories from instructions.)
OTHER/abandoned railroad grade
RECREATION AND CULTURE/outdoor recreation

7. Description

Architectural Classification
(Enter categories from instructions.)

No style
OTHER: Pratt through truss

Materials: (enter categories from instructions.)
Principal exterior materials of the property:

OTHER: Earth, Steel, Concrete, Stone

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

INTRODUCTION

In 1980 the federal government acquired a 34.9-mile abandoned section of the Western Maryland Railway's Cumberland Extension that was built between 1903 and 1906. The National Park Service (NPS) acquired the land as an addition to the Chesapeake & Ohio Canal National Historical Park. Twenty-four miles of the extension runs adjacent to the canal. The 1981 National Register (NR) nomination documented the railway's important associations with the last major phase of trans-Allegheny railroad expansion in the early 1900s at the regional level[1] in the areas of engineering and transportation. The 1981 nomination generally identifies the extension's railbed with its retaining walls and about 160 culverts. It further individually identifies 13 culverts measuring 6 feet or more in diameter, 16 bridges, 3 tunnels, and a "deep cut." This Additional Documentation form updates and expands the 1981 National Register nomination. It compiles information and findings gained from cultural resource management projects undertaken by the NPS since 1981, and also brings the registration form itself to current National Register standards. To better reflect the property, this documentation adds "Cumberland Extension" to the NR property name. It further reclassifies its NR category from "Structure" to "District" to reflect new contributing resources that are not contained within the railbed.

Two post-1981 documentation projects form the cornerstones for this additional documentation. The first, a Determination of Eligibility (DOE) project completed by NPS between 1995 and 1996—with concurrence from the Maryland and West Virginia State Historic Preservation Officers—identified new resources and further delineated resources contained in the 1981 nomination. Specifically, the DOEs grouped the previously identified culverts and retaining walls into construction types and identified new resources including 2 battery boxes, 16 mileposts, a section foreman's dwelling, a tell-tale (low clearance indicator), and a telegraph office. Two sheds and a retaining wall were evaluated as noncontributing, while nine culverts

[1] The 1981 NR, in the first sentence of the statement of significance, identifies a "regional" level of significance (LOS). Since "regional" is not a recognized level in the NR, this additional documentation clarifies the areas and levels of significance.

and two structures were identified as "obliterated" and therefore ineligible for the National Register. In 1990, a deteriorated wooden bridge was replaced by a metal culvert that is a noncontributing structure. A second project completed in 2010, the Historic American Engineering Record (HAER No. MD-175) documentation for the Western Maryland Railway, Cumberland Extension, details the railway's early 20th century significance associated with its westward expansion, civil engineering, and its innovators. Beyond resource identification, the NPS List of Classified Structures (LCS) database—an evaluated inventory of all historic and prehistoric resources that have historical and architectural significance within the National Park System—systematically updates the condition and NPS activity undertaken at every resource. Therefore, this documentation updates resources that are either no longer extant or no longer contribute since the 1981 nomination.

The physical narrative in Section 7 describes the railbed corridor and resources related to its significance in the areas of engineering, transportation, and commerce. A resource inventory, organized by mile location along the right-of-way, combines the newly identified contributing, non-contributing, and non-extant resources with the 32 contributing structures listed in the 1981 nomination. Lastly, because over three decades have passed since the 1981 nomination, Section 7 revaluates the district's level of integrity.

The historical narrative in Section 8 revises the period of significance and adds an area of significance. The original 1903 to 1906 period of significance is revised to 1904 to 1964. These years encompass the period during which the portion of the Cumberland Extension nominated was constructed (1904-1906), major improvements (1913), and the system's most profitable period that lasted from 1906 until the early 1960s. The new area of significance, commerce, reflects the important role the Western Maryland's Cumberland Extension played in stimulating and supporting commerce along its route at the height of its operation. Lastly, this updated documentation recognizes that the potential exists for eligible archeological sites exists along the Western Maryland Railway Cumberland Extension; however, no potential sites have been evaluated for eligibility, thus in this document, the district is not evaluated for eligibility under Criterion D.

Also included in this documentation are updated maps and photos. A revised boundary map, based on GIS technology, records a refined historic district boundary. An entirely new historic district resource map locates all of the district's contributing and non-contributing resources.

Current photographs represent major resource types and typical structures and sites that define the extension's character.

Summary Paragraph

The Western Maryland Railway Cumberland Extension is located in Western Maryland along the C&O Canal between Woodmont and North Branch, Maryland. The majority of the extension's right-of-way, which ranges from 75 to 150 feet wide, closely parallels the Potomac River and the C&O Canal along the forested north (Maryland) bank of the river. The corridor strays from the north bank downstream from Paw Paw, West Virginia, where it crosses the Potomac from Maryland to Morgan County, West Virginia through six U-shaped river bends and tunnels through the three mountainous fingers of land on the Maryland side. Shortly after the railroad abandoned the line in 1975, the track and most of the ties were removed. Visible now are a series of cuts and fills, a "deep cut" that leveled the grade, and a readily defined railbed. Along the railbed are 19 stone and/or concrete retaining walls, 153 culverts (one is a non-contributing replacement of a former bridge: Culvert 23, WM-131A) of various sizes and material, 3 tunnels, and 11 of the 16 bridges identified in the 1981 nomination. These resources represent the extensive infrastructure built to overcome the mountain ridges, valleys, and river bends of the region. Located beside the railbed are other resources associated with the rail line's operation: several mileposts, signal boxes and switches, telephone poles, battery boxes, the foundation of a foreman's dwelling, a tell-tale (low clearance indicator), and a telegraph office.

Together, these resources form a linear district that reflect the last major phase of trans-Allegheny railroad expansion in the early 1900s and the era's most sophisticated railroad engineering and construction techniques. Some aspects of material, feeling, and setting have diminished due to vegetative growth along the railbed, the loss of the rail track and ties, and non-extant railroad support buildings. However, the extension retains overall integrity through its original location, association, rural setting, and the engineering design and workmanship evidenced in its grading and infrastructure.

Narrative Description[2]

The 34-mile segment of the 60-mile Western Maryland Railway Cumberland Extension covered in this document extends between Western Maryland milepost 126 at the intersection of the Chesapeake and Ohio (C&O) Canal and Long Ridge Road in Woodmont, Washington County, Maryland, and approximately 2/10th of a mile east of milepost 160 just west of Maryland Route 51 in North Branch, Allegany County, Maryland.[3] Between 1857 and 1892, the Western Maryland (WM) built its main line between Baltimore, Maryland and Connellsville, Pennsylvania, by way of Hagerstown, Hancock, and Cumberland, Maryland. Between 1903 and 1906, the railroad completed the 60-mile-long Cumberland Extension from Big Pool Junction, 18 miles west of Hagerstown, to Cumberland. This documentation nominates a 34-mile-long segment of the extension that since 1980 has been owned by the federal government and administered as part of the Chesapeake & Ohio Canal (C&O Canal) National Historical Park.[4] The railroad mile markers are measured from the WM's zero mile which was in Baltimore, Maryland, so the mile markers do not align with the C&O Canal mile markers, since the canal originated in Georgetown, Washington, D.C.

The WM built its Cumberland Extension as a single-track railroad with passing sidings at periodic locations.[5] The route's rugged and hilly terrain necessitated a substantial series of cuts and fills. At hundreds of points along the line, the natural topography extends above and below the railroad grade an average of 50 to 75 feet, and at points, rises above the track level several hundred feet. A huge amount of earth work established as straight a run as practical and a flat, high-level grade that would not be susceptible to floods.

This narrative divides the Cumberland Extension into four geographical sections to describe its route and engineering achievements. The sections include the Eastern End (miles 126 to 128),

[2] This section is based in large part on the research and analysis found in Historic American Engineering Record, "Western Maryland Railway, Cumberland Extension," HAER No. MD-175, prepared by David A. Vago, with J. Lawrence Lee, Christopher H. Marston, and Justine Christianson (Washington, DC: National Park Service, 2010). Sections of this text are extensively reused here. The Historic American Engineering Record is hereafter referred to as HAER.

[3] Milepost numbers designate the westward distance from where the line originated in Baltimore, Maryland.

[4] The easternmost 20 miles of the Cumberland extension (milepost 105-125) is now owned and managed by the state of Maryland and functions as a hiker-biker trail.

[5] A few online industries and wayside freight stations were served by stub-end sidings. Sidings are a short stretch of track connected to the main track where trains on the same line could pass or rolling stock could be stored.

the Paw Paw Bends Area (miles 129 to 142), the Retaining Wall Area (miles 143 to 146), and the Western End (miles 147 to 159.8). Contributing resources are underlined and followed by their LCS number. A General Resource Description further describes the route's infrastructure and operational resources. The narrative ends with an integrity assessment and a resource inventory table.

The Eastern End, Miles 126 to 128

The district begins at Milepost 126 (WM-126) in Woodmont, home to a hunting club and a former flag stop station.[6] Here the railbed functions as the Western Maryland Rail Trail, a Maryland Department of Natural Resources asphalt-paved bike trail. At Milepost 127 (WM-127), the railbed enters the community of Pearre, once a tiny flag stop near a collection of farmhouses and a lock on the C&O Canal. Today Pearre is primarily a parking lot for the recreational trail. A short distance past Pearre, the bike trail ends.[7] Here the right-of-way is in various stages of reversion to nature. The railbed is at a fairly low grade here and nearly level with the canal towpath. It quickly begins ascending, however, in order to clear bends in the Potomac River a few miles to the west. A few hundred yards beyond the end of the trail the WM built a 145-foot-long bridge 50 feet above Sideling Hill Creek (Railroad Bridge No. 1276 over Sideling Hill Creek (WM-127). This is the first of two bridges the WM built to span creeks.

East of the creek, the railbed sits on a cut-and-fill bench (terrace) and crosses an approximately 300-foot-long fill before returning to the bench.[8] A series of bench cuts through shale and other rock of substantial size—as high as 50 feet or more—punctuate the landscape on the uphill side of the bed, particularly west of Milepost 128 (WM-128). Substantial rock falls and slides exist at several of these cuts, some of which have also filled the C&O canal prism almost all the way across and left only a narrow walking trail on the downhill edge of the railbed. On the downhill side, retaining walls (Railroad Retaining Walls 1 through 9, WM-128B, D, E, H-L, & WM-129C) of varying height support a large portion of the filled side of the bench, keeping the railbed stable and out of the canal. Between the community of Pearre and Keifer's, Maryland,

[6] WM-127 refers to a contributing resource's LCS number. WM stands for Western Maryland and 127 is the mile location on the Cumberland Extension.
[7] The bike trail occupies the old Cumberland Extension right-of-way for 19 miles between Big Pool Junction and Pearre, Maryland on state land. At Pearre, a parking lot conceals the extant foundation of the Western Maryland depot. HAER, "Western Maryland Railway," 17.
[8] Cut and fill is a labor saving earthmoving process whereby material cut from one place becomes fill to create nearby embankments.

the railbed's elevation drops approximately 100 feet over a straight-line distance of about 11 miles northeast toward the Paw Paw Bends.

The Paw Paw Bends Area, Miles 129 to 142

The river bends known as the "Paw Paw Bends," dictated extensive construction work and the greatest engineering challenge of the railroad east of Cumberland. Here the river flows through a series of oxbows (U-shaped bends) for almost 25 miles. Along this meandering path engineers located and designed six major bridges, three tunnels, and significant earthworks to achieve a 14-mile-long alignment with a maximum grade of 0.5 percent (26.4 feet per mile).

At the eastern end of the Paw Paw Bends, approximately 1½ miles west of Sideling Hill Creek, the railroad diverges slightly north from the river. Here the grade passes through a short cut on three curves of 5°, 3° 30', and 6° to reach the east portal of the Indigo Tunnel (WM-129D), the longest on the railroad.[9] This 4,350-foot single-track tunnel with concrete portals at each end bores through a spur of High Germany Mountain. The tunnel brings the railroad across the base of the upper Potomac River's first oxbow. At the tunnel's west end, the railroad passes through another short cut and gradually gets closer to the canal. Like the portion east of the tunnel, the railbed is on a bench directly adjacent to the canal on the uphill side, but only for a short distance. High Germany Road comes down the mountain beside the railroad grade and crosses it at grade about 1½ miles west of Indigo Tunnel. The first few feet beyond the crossing contain partially exposed wooden rail ties buried in fine, muddy gravel. The road quickly drops 10 to 15 feet below the railroad grade, which crosses this small valley on a heavily vegetated fill. High Germany Road turns north here and passes below the railbed through the 17-foot wide High Germany Road culvert to reach Orleans Road in Little Orleans, Maryland (Railroad Culvert 21 at Little Orleans, WM-130B). A short distance west of the village, the double concrete arch Fifteen Mile Creek Culvert (Railroad Culvert 22, WM-130C) penetrates the railbed berm.

From Fifteen Mile Creek, the gravel road runs southwest along the former railbed. The creek at this point bends slightly to the west against a steep, almost vertical, rock face. This rock formation continues uphill beyond the track level as the railbed enters a deep cut. It traverses

[9] Railroad curves are measured in degrees, meaning the track's direction changes every 100'. Thus, the greater the number of degrees, the sharper the curve, and the slower a train must travel through it. Where possible, most railroads prefer curves of 3 degrees or less to minimize operational problems. Four 6 degree curves exist on the Cumberland Extension. HAER, "Western Maryland Railway," 52, footnote 90; 19, footnote 23.

this cut on a 4° curve and passes through a parabolic arched, corrugated-metal culvert at mile 131. This fill-and-culvert system (Culvert 23, WM-131A, noncontributing structure), which replaced an earlier wooden bridge in 1990, carries Pleasant Plains Road over the railroad grade. A few yards past this point the cut ends, once again putting the railbed on a fill, through which a small, unnamed stream passes via a small pipe culvert. The railbed then crosses yet another small road at grade, and enters a low cut about 60 feet long that leads to Railroad Bridge No. 1317 (WM-131C), the first of six Potomac crossings contained in this district.[10]

Immediately west of the first crossing, trains had to negotiate a 5° curve on a fill around Doe Gully Bend in West Virginia to align with the river between the first and second Potomac crossings. Shortly after the end of the curve, the railbed widens to accommodate a siding slightly over 1 mile long. Concrete foundations for signals and concrete battery cellars are extant near both ends of this siding. From a grade crossing at Doe Gully Lane to the west side of the bend, the road parallels the track that sits just downhill from it. The railbed in this area is on a low bench that is only 6 to 8 feet above the flood plain. Many of the rail ties in this section are still in place.

At the west end of Doe Gully Lane, on the southwest side of the river bend, the railbed cuts through the adjacent hills and crosses hollows of gradually increasing size on earthen fills drained by pipe culverts. A concrete signal foundation and a battery cellar remain on one fill. At the end of this stretch, the gravel drive that extends atop the railbed diverges uphill, while the railroad continues across a fill and around the second of four 6° curves to reach Railroad Bridge No. 1348 over the Potomac River and the C&O Canal (WM-134E).[11]

At the west end of the second Potomac crossing, the railroad crosses a substantial fill and then enters a hollow and cut that lead to the east portal of the Stickpile Railroad Tunnel (WM-135C), the second of the three tunnels in this serpentine stretch of the Potomac and the shortest at 1,705 feet. The tunnel provides a straight route through one of the oxbows, thus eliminating the sharp curves otherwise needed to follow the river in this area. Between the bridge and the tunnel, the line is on a 5 percent ascending grade westbound for approximately 1/4 mile.

[10] The full length of Western Maryland Cumberland Extension from Milepost 105 to Cumberland, Maryland contains a total of ten Potomac crossings.

[11] A unique gate located outside the district boundary, approximately 200' east of the bridge, could be called "railroad scrap art." Apparently fabricated by a Western Maryland field crew during or shortly after the post-abandonment rail removal, the gate appears to have been erected to stop those who may have just missed the sharp left-hand turn for the nearby hunting club from reaching the bridge." HAER, "Western Maryland Railway," 24.

West of the tunnel, the railbed passes through a short fill no taller than the tunnel portal, and then briefly encounters a broad, flat area that railroad employees knew as Green Ridge. Nothing remains of the village or the railroad facilities originally located here which included a bunk house, waiting shed, and tunnel maintenance apparatus.[12] Between mileposts 135 and 136, the railbed crosses a substantial cut-and-fill to reach Railroad Bridge No. 1360 over the Potomac River and the C&O Canal (WM-136A).

The railroad, once again in West Virginia, follows the river around another oxbow bend called Magnolia Bend, from miles 136 to 140 (includes Mileposts 137 to 139, WM-137 to 139). This route required another 6° curve to turn parallel with the river before encountering a rocky hillside. A bench interspersed with some fills and cuts provided the railbed's route around this oxbow, but the engineers had to overcome two challenges to reach it. For approximately 1/4 of a mile west of the third Potomac crossing, the track had to be supported roughly 50 feet above a flood plain. According to construction photos, the railroad initially accomplished this by rapidly erecting a timber trestle, but in the ensuing years, the railroad dumped many carloads of earth in and on both sides of this trestle to build a large fill that left the trestle intact within it. The trestle is no longer visible, but substantial portions—if not all of it—likely remain entombed.

The WM's first encounter with the Baltimore and Ohio Railroad's route along the Cumberland Extension in this direction presented the second challenge. Here WM built a bridge across that railroad (Railroad Bridge No. 1363 over the B&O Railroad, WM-136B). West of this bridge, the railbed continues on the 6° curve that directs it along the river and around Magnolia Bend. Between mile 136 and Milepost 139 (WM-139), the railbed is again mostly on a bench set into the sides of several hills. However, four significant fills were needed to maintain the grade across the valleys in between. The railbed widens in this area—known to railroad employees as Jerome—to accommodate a double-ended, signaled siding. This approximately two-mile-long siding occupies most of the distance between the first Baltimore & Ohio crossing and Railroad Bridge No. 1396 over the Potomac River and the B&O Railroad (WM-139B). Near mid-point of this siding is the one-room Jerome Telegraph Office (WM-137I).

[12] Kasecamp Road, which led to the railroad facilities and village here, now serves as a Maryland Forest Service access road. An orchard operation was located in this village.

West of the bridge and again in Maryland, the railbed traverses a fill-and-cut to reach the east portal of Kessler Tunnel (WM-140A), which was built across a notch in Tunnel Hill formed by a natural stream. As the cut proceeds west, the natural terrain rapidly rises on both sides. Owing to the angle of the bedding planes, which travel uphill from south to north, and the easily-fractured rock, the north and south sides of the cut are very different in character. The south face of the cut is jagged where workmen building the grade blasted directly across the rock planes, whereas on the north face, the rock could be more easily removed along the planes. Consequently, the rock on the north face has broad, smooth surfaces. There are collapses on both sides. On the jagged south side, the rock has crumbled and fallen onto the railbed in small piles of talus, while on the north side, large chunks simply separated along the parallel planes and slid downhill.

The west portal opens into a deep cut, but the railbed transitions onto an earthen fill as the mountainside drops down to the river. This fill serves as the approach to Railroad Bridge No. 1407 over the Potomac River (WM-139B). Located between Kessler Tunnel's west portal and this crossing, is a fallen two-pole gantry for telegraph/telephone lines. An intact pole still stands at the opposite end of the bridge, as do several elsewhere. A few wooden telegraph arms also remain cantilevered from the bridges.

West of Railroad Bridge No. 1407, the railbed sits atop another of the line's many high earthen fills. The fill extends about 150 feet to meet the side of the hill that forms Bevan's Bend. The railbed then travels briefly across a level spot in the hillside, which then rises again to a low peak about 20 feet above track level. The railbed passes through this hill in a cut and then emerges onto a short fill as the hillside drops to the river. This fill forms the eastern approach to Railroad Bridge No. 1413 over the Potomac River (WM-141A). The railbed continues west of this crossing on a two-tenths-mile-long earthen fill over a high flood plain to Railroad Bridge No. 1416 over the C&O Canal (WM-141B), the last bridge that crosses the canal.[13] Over the next mile, the line negotiates three moderate curves. Near the west end of the third curve, a 14-foot wide culvert (Railroad Culvert 86 at Purslane Run, WM-142B) carries the railbed over Purslane Run.[14] This culvert is a railroad extension of an 1848 culvert built by the canal company to span Purslane Run.

[13] There are a total of 7 C&O Canal bridge crossings on the Western Maryland extension. Within the district, the canal is also crossed on the Railroad Bridges 2, 3 and 4 which are the 1st, 2nd, and 3rd Potomac crossings respectively.

[14] The Western Maryland only built 83'-8" of the single-arch concrete structure. The eastern portion is a stone

The Retaining Wall Area, Miles 143 to 146

After passing through the Paw Paw Bends area, the railbed curves gently along the river. For the next three miles, the route encounters sharp curves and steep hillsides necessitating the construction of 14 retaining walls. At the beginning of this section, a waiting shed and signal siding once stood at Kiefer's near mile 142, so the railbed is wider here. The siding's east end was less than one-tenth mile west of Purslane Run, and the double track extended for another 1-1/3 miles, most of which forms a compound curve to the right that realigned the railbed with the north bank of the Potomac River. This location was known as Fairplay. From this point, the railbed runs along the canal's uphill (north) side for another 7 miles.

After ascending a slight hill on the west end of Fairplay, the grade is level for 4 miles. However, over half of the line between Mileposts 145 and 149 (WM-145 and WM-149) contains moderate to sharp curves between 1° and 4°. The extremely steep hillside for the first two miles necessitated the construction of concrete, cut stone, and timber retaining walls over half the length to prevent the railroad's collapse into the canal (Railroad Retaining Walls 11 through 24, WM-144D, F-I, K-L, N; WM-145F-G; WM-146B, D, F, H). In some cases, there was so little space between the hillside and the canal for a bench that the retaining walls were built directly above the canal bed with telegraph and signal line poles located below the retaining walls and mere inches from the water's edge, while the rock faces were cut away to provide a right-of-way with the minimum practical horizontal clearance.

At mile 146, the railbed ascends a short grade as it approaches Town Creek, which was originally home to a siding that was lengthened in 1913, eight years after the Cumberland Extension opened. A small depot that once operated here has since been removed. About a mile of the railbed now serves as a recreational access road to the Town Creek Aqueduct on the canal, approximately 100 feet downstream from the WM's Town Creek Crossing (Railroad Bridge No. 1474 over Town Creek, WM-153A). To support an extension of the Town Creek siding, a second bridge was erected in 1913, making this the only place on the Cumberland Extension where abutments and piers originally sized for two tracks actually received a second parallel bridge.

culvert built under the Chesapeake and Ohio Canal ca. 1848. The Western Maryland's western portion extends the contour of this older culvert under the railroad. HAER, "Western Maryland Railway," 31.

The Western End, Miles 147 to 159.8

West of the Town Creek Crossing, the line is on a fill that separates the canal basin and Town Creek, which flows parallel to the railroad for a short distance. The WM built a concrete-arch culvert (Railroad Culvert 144 at Town Creek, WM-147C) through its new fill at mile 147.5. This 10-foot diameter concrete arch culvert measures 35 feet, 11 inches high above the creek on its north side, creating a picturesque artificial waterfall into Town Creek.

As the creek turns uphill to the north, the adjacent ground rises gradually to meet the railroad, which ends the fill and puts the railbed back on a bench above the canal. For the approximately 3-mile approach to Oldtown, the canal widens considerably, but the hillsides are not as steep here as those around Fairplay. The railbed rests largely on benches cut into the hillside, but it is only 5 or 6 feet above the canal. The railbed diverges from the canal 2 miles before it enters Oldtown and passes through a cut about 20 feet deep and a half-mile long, curving to the north.

Between Mileposts 149 and 150 (WM-149 and WM-150) the railbed crosses Long Farm Road and negotiates a 4° curve back toward the west. The beds of the main and side tracks are stepped with the siding a few feet lower than the main track on the south side. The curved portions of both tracks are super-elevated or banked. For approximately 1 mile east of Oldtown, the railbed is on a fill across a broad, cultivated flood plain. This fill becomes shallow at its west end and then cuts across the side of a hill on a bench, with its downhill side facing south. Following this is another fill with a 6-foot-diameter concrete arch culvert (Railroad Culvert 128 at Old Town, WM-150E) that allows a small stream to pass beneath the railroad at mile 150.8.

Long before the construction of the railroad, Oldtown, Maryland was a prominent stop on the C&O Canal, with a large basin for canal boats and two locks. For WM, Oldtown was the only location on the Cumberland Extension between Pearre and South Cumberland to have a full-service station building. The Oldtown depot at mile 151 was on the south side of the railbed, along with several other railroad buildings that are no longer standing. Their locations are now marked by piles of wood studs, joists, and a siding surrounded by heavy vegetation that approximates the edges of the buildings. Several ties remain in place at the site of the station's team track, a spur line that runs to an area where local merchants and farmers could ship or receive freight.

Through Oldtown the railbed is on a berm of varying height from about 4 to 12 feet above a gently rolling landscape. Here the line runs parallel to Maryland Route 51. At the west end of town, Oldtown's main thoroughfare, Opessa Street crosses the railbed at grade. The railbed continues across a field on an overgrown fill. Route 51 diverges to the north, paralleling the railroad for a short distance. The railroad grade curves slightly to the southwest for approximately 1 mile before rounding a 4° curve to turn almost due west at mile 152.5, where it once again encounters the C&O Canal. This is also the location where the railroad, which has been on an ascending grade most of the distance from Town Creek, first exceeds 600 feet in elevation. From this point about 2 miles west of Oldtown, all the way to Spring Gap, the railroad is on a bench cut above or beside the canal. It is directly adjacent to the canal and only a few feet above the water's surface for about 2 miles. Details of infrastructure are less distinct here than at other places along the route. Only a couple of the telegraph poles are visible from the canal towpath; the remainder have fallen over or been removed.

The Potomac River and the canal turn west-northwest, and the railbed follows, gradually climbing uphill. It remains on a bench above the canal in many places and makes four or five digressions of gradually increasing length to cut through the noses of adjacent hills. A mile or so west of Spring Gap the hillside above the canal is so steep that the railroad cut is only a few feet away from the canal. Canal engineers exposed a sheer rock face decades earlier to make way for the artificial waterway, and railroad engineers carved a two-sided cut (Railroad Deep Cut through Rock, WM-153A) through the same formation, leaving a high, narrow rock wall between the two. The railbed here is approximately 25 feet above the canal, and it climbs even higher approaching Spring Gap.

At Spring Gap, the railroad turns to the northwest, crossing Maryland Route 51. The overpass that carried the railroad over the highway here is no longer extant, but the remains of its skewed concrete abutments—following the sharp curve in the highway—still exist as knee-high retaining walls along the highway shoulder. A larger concrete span replaced this in 1932. This span was removed circa 1995 as part of a highway widening project.[15]

[15] See HAER, "Western Maryland Railway Bridge (Spring Gap Underpass)," HAER No. MD-115 (Washington, DC: National Park Service, 1995.

From Spring Gap to North Branch, the railroad is a considerable distance uphill from both the canal and the highway, although a series of locks on the canal bring the waterway closer to the railroad's elevation. The railroad, meanwhile, cuts through the noses of three major hills west of Spring Gap and several smaller ones. In between, it crosses the hollows on high fills, including one at Brice Hollow and again at the somewhat wider cove formed by Collier Run. Culverts at the bottom of each fill (Railroad Culvert at Brice Hollow Run, WM-156E, and Railroad Culvert at Collier Run, WM-158A) and at several smaller watercourses, allow the hillside streams to pass through.[16]

Approaching North Branch around mile 159, the line parallels Maryland Route 51 on a bench cut into the steep hillside directly above the highway. A road widening project in the early 1980s cut into the railroad grade so that in places the railbed is only a few feet wide. Here, the railbed is headed almost due north, parallel to the river. It proceeds on an abbreviated, carved-away bench, briefly crossing Moore Hollow on another high fill. Beyond Moore Hollow, the highway diverges from the railroad enough to afford the railbed its full width again. At North Branch, the railroad grade originally curved west on a fill where Pittsburgh Plate Glass Road joins Route 51. Major reconstruction at this intersection resulted in much of the fill being obliterated on the curve and the last approximately 2/10th of a mile of the right-of-way being removed from the park. It is in this curve that the NPS property ends approximately 2/10th of a mile east of Milepost 160.[17]

General Resource Descriptions

The section is divided into those resources associated with the railbed infrastructure itself and those resources that are more operational in nature. Each structure type followed standard designs issued by the Western Maryland Engineering Department in Baltimore with some variations. Accordingly, most descriptive details apply to several structures with only minor differences. Together, these resources reflect the district's national significance in the area of engineering and transportation and were essential to operating the line as a regional transportation system. Further detailed descriptions of individual structures, along with engineer drawings, are available in the HAER report.

[16] Based on Google Earth and the LCS, the HAER report appears to refer to the Brice Hollow culvert as the Kirk Hollow culvert.

[17] For the next 5 miles, the Cumberland Extension passed through greater Cumberland on both private and public land, crossing the B&O, the C&O Canal, and the Potomac River several times.

Rail Route Infrastructure Resources

Primary among the route's infrastructure is the railbed composed of a limestone sub-base about 2 feet deep with a layer of packed cinders or pea gravel on top. Numerous cuts and fills maintain a fairly level grade through hilly terrain. Missing from the railbed are the tracks while ties remain in a few locations. Essentially integrated into the berm are culverts, retaining walls, bridges, and tunnels.

Culverts

Culverts are an integral part of the right-of-way; their maintenance is essential for preservation of the extant railbed. Exact dates for the materials are unknown, but the general location of almost every culvert has been verified on 1919 right-of-way maps (revised to 1948). This subsection divides culverts into two groups by size: major culverts over 6 feet in diameter and minor culverts less than 6 feet in diameter.

Major Culverts

Of 153 culverts extant in the district, 12 are classified as major culverts that have openings between 6 and 20 feet in diameter (or width for the two major box culverts). All but two of these are concrete culverts comprised of horseshoe arches, headwalls, portals, and wing walls that were poured in place using wooden forms erected on-site. Dirt and rock fill was added after the concrete had cured and the forms had been removed to build the sub-railbed to the desired grade, thus filling the space between the concrete members. Side walls are battered with a l-to-12 outward slope. The two substantial box culverts are also constructed of poured-in-place concrete, but they have rectangular or square openings for water to pass under the railbed.

Minor Culverts

Minor culverts, categorized as either pipe or box culverts, are all most likely original to the rail line. However, some headwalls may have been added or modified during or after the initial construction as needed.

Pipe culverts are composed of pipes between 12 inches and 36 inches in diameter. Some have no headwalls (76) while others have masonry (27) or timber (32) headwalls. The masonry headwalls are made of local cut or natural blocks of medium size, dry-laid or mortared. The timber headwalls are formed by railroad ties stacked perpendicular to and above the culvert pipe. Masonry culverts count as 1 structure. The timber headwall culverts and those with no headwall count as 1 structure because it is thought that the timber headwalls are modifications to culverts that were initially designed with no headwalls.

Stone box culverts (5) range from 18 to 24 inches wide and have box-shaped openings framed by mortared or dry-laid stone. (One box culvert is a combination concrete on one end and stone on the other end.)

Retaining Walls

Retaining walls built with concrete, timber, stone or a combination thereof were constructed primarily where the railway right-of-way runs adjacent to the C&O Canal. They support the railway berm and prevent materials from falling into the canal prism. Concrete retaining walls were poured in place using wooden forms erected on-site. As with the culverts, dirt and rock fill was added after completion to establish the desired grade. Timber was used for smaller retaining walls by simply stacking railroad ties above a concrete or stone foundation. The walls vary from 3 to 15 feet high and range from 15 feet to two-tenths of a mile long. The stone walls are dry laid local flat and cut stones and reach within 5 or fewer feet from the base of the railbed. The concrete walls are occasionally capped with timber railroad ties or loose-laid local slate stones and reach to within 3 feet of the base of the railbed or may be located lower on the sides of the berm.

Bridges

Within the district, the Cumberland Extension's ten bridges travel over creeks, the Baltimore & Ohio Railroad, the C&O Canal, and the Potomac River. The type of span used depended on the distance covered and the clearance requirements. Deck plate girders were used for the shortest distances. Deck trusses with the ties on their top chords were used in medium-distance applications, and deck trusses with the ties on stringers between the top chords were used for the longest spans. Crossings over the river, a stream, or high-level canal crossings with deck plate girders and two styles of deck trusses were supplemented with deck plate girder approach spans.

The six railroad bridges crossing the Potomac River, (WM-131C, 134E, 136A, 139B, 140D, 141A), vary in length from 636 to 1,367 feet and are Pratt riveted deck trusses with deck plate girders on concrete piers and abutments. Crossings over the Baltimore & Ohio Railroad (123 feet, WM-136B) and the C&O Canal (138 feet, WM-141B) employed through trusses and through plate girder spans to provide the needed clearance. The crossing over Sideling Hill Creek (146 feet, WM-127H) is a two-deck plate girder, and over Town Creek (181 feet, WM-147B) is a three-deck plate girder. At the Town Creek Bridge (WM-147B), the planned-for second set of spans was installed in 1913.

Tunnels

The three tunnels in the district are the Indigo (4,350 feet, WM-129D), Stickpile (1,707 feet, WM-135C), and Kessler (1,843 feet, WM-140A) tunnels. All three were bored through rock to accommodate a straight single track. These tunnels all have timber framing throughout rather than masonry. Apparently, WM engineers assumed the tunnels would be enlarged for a second track in the future, at which point the tunnels would receive masonry linings.[18] Each tunnel has concrete arch portals.

Operational Resources

These resources reflect the activities necessary to operate the railroad and are important at the state level as part of a regional transportation system.

Jerome Telegraph Office (WM-137I)
This one-room frame 10- by 16-foot office is the only extant railway structure standing on the portion of the Cumberland Extension under NPS ownership and is a representative example of local railway architecture. It has a full-length front porch with an extended side-gable roof.

[18] While other double-track railroad tunnels existed at the time, most were built several years earlier. In the early 1900s, double-track tunnels were generally dug with two single-track bores. The reason for choosing a temporary wooden lining and future bore enlargement over a finished, masonry-lined tunnel that could later be supplemented with a second single-track tunnel is not now known, but the narrow cuts on some of the tunnel approaches may have made a separate bore for a second track unattractive. HAER, "Western Maryland Railway," 14.

Connected by telegraph, and later telephone, to the dispatcher's office in Hagerstown, the operator at Jerome received train orders from the dispatcher who controlled all train movements over this section of the railroad, typed the instructions on standard forms, and handed them to train crews as they arrived. This building was moved about ¼ mile in 1929 (most likely to its current location).

Telegraph/telephone communication system

Other remnants of the telegraph/telephone communication system remain scattered along the line, including many of the wooden poles that carried the telegraph and telephone lines. The valuable signal equipment was removed after the railway abandoned the line, but the concrete footings remain in several places, including one just outside the Jerome Telegraph Office. Manually controlled by the operator, the signals told train crews whether or not the operator had orders for them. Additional foundations in the area supported signals that indicated the presence of other trains and/or how the siding turnouts were set.

2 Battery Boxes (WM-150B&C)

Concrete battery boxes held backup batteries for the signal posts to prevent interruptions in the traffic and shipping routes. One box is circular with a metal lid, and the other, missing its lid, is rectangular and has a metal fastening strap.

16 Mileposts (WM-126 to 128, 132 to133, 137 to 139, 142 to 144, 147 to 150, and 158)

The mileposts designate the distance from the line's Baltimore terminus and are located next to the railway right-of-way (typically within 6 feet of the now-removed rails). The posts are made from sections of rail with a 6-inch-wide flange and stand about 5 feet above grade. Five-inch high metal numbers are riveted onto both flange sides of the I-beam.

Railroad Section Foreman's Dwelling, Foundation (WM-155F)

The concrete foundation of this dwelling demolished in 1920 is located 25 feet south of the tracks and measures 15 x 25 feet. It is about 6 feet deep with a 3-foot door cutout on the canal side. (A well, toilet, wood shed, and stable originally located here have all been demolished.)

1 Tell-Tale (low clearance indicator) (WM-157D)

Erected at the western end of a former timber bridge outside Spring Gap, this tell-tale consists of a 1-inch diameter steel cable supported over the tracks by two vertical poles. The cable holds 17 flexible steel rods, 1½ feet long and about 17 feet above the track, to warn of low-clearance ahead. Ruins of the second tell-tale exist at the former bridge's opposite (eastern) end.

Integrity

The NPS-owned portion of the Cumberland Extension now serves as road access to various properties, but the bridges have been barricaded to prevent vehicular access. With the exception of the removed rail ties and tracks, and the paved bike trail on the railbed over the first mile, the railbed remains essentially intact with some portions overgrown. The bridges on the route, some of which are deteriorated, remain structurally intact. Gone from the setting are railroad facilities such as waiting sheds, signal siding, and the Oldtown station building, as well as six bridges. A portion of railbed has been reduced in width due to modern road widening projects. Only four non-contributing resources exist: two sheds (WM-137J and 140C) lack integrity, one modern culvert (WM-131A) replaced a timber two-lane bridge, and one retaining wall (WM-137C) does not appear to be an important stabilizing railbed feature. Missing components include a few culverts and some small scale buildings and structures that once housed operational elements such as battery boxes, watchman sheds, and telephone switches.

Despite the loss of some resources, the Cumberland Extension right-of-way maintains its rural wooded setting and location along the Potomac River and the C&O Canal. Its railbed, culverts, bridges and tunnels convey its feeling and association with early 20th century rail expansion. Workmanship and design are readily evident in the railbed and its essential resources. Particularly important are the existing bridges, tunnels, major culverts, and grading at the Paw Paw Bends. Integrity is lastly enhanced by the vestiges of the railroad's extant operational resources.

RESOURCE INVENTORY

TABLE 1: CONTRIBUTING RESOURCES

Resources with an asterisk are bridges, tunnels, and culverts that were individually described as "principal features" in the 1981 National Register (NR) form. Of the 33 principal features included in the 1981 nomination, 26 remain extant (see Table 1), 7 have been lost (see Table 3).

Resource names, with the exception of the bridges, are those listed in the National Park Service's List of Classified Structures (LCS) database with the original NR name included in brackets. Bridge names are those used on the historic WM railroad right-of-way maps. The bridges each were assigned a bridge number that corresponds to the mile and the tenth of a mile along the WM route. Thus, Railroad Bridge No. 1276 is located at mile 127.6. Unless otherwise indicated in the "Name" column, all resources date to the 1904-1906 period of construction. The "Mile / Structure Number" refers to the milepost or the closest milepost to a resource. A letter after the mile number indicates that there are multiple resources along that mile stretch.

**Resources with an asterisk were individually described as principal features in the 1981 National Register (NR) form ["1981 Item #" refers to the number assigned to the feature in the 1981 nomination].*

Str = Structure
Obj = Object
Bld = Building

Mile / Structure #	LCS #	Resource Name	Type	Map & Photo No.
WM-126 to 159.8	45676	Western Maryland Railroad Right-of Way (Maryland & West Virginia) *This resource encompasses the linear railbed that is mostly located along a series of excavated and built-up cuts and fills. Integral to the railbed are a series of 151 culverts that provide drainage. There are 12 culverts of substantial size and construction that are counted as individual structures on this inventory. Otherwise, the culverts are considered features of the railbed that are not individually counted, but have been grouped by construction method and materials and described in the narrative description. TABLES 4 & 5 provide a complete inventory of the 12 major culverts and the 140 minor historic culverts with their appropriate structure numbers, LCS #s, and sub-category based on construction materials and design. The resource maps show the locations of the minor culverts with symbols, but they are not individually labeled.*	Str	Maps 1-6 Photos 16-19

Mile / Structure #	LCS #	Resource Name	Type	Map & Photo No.
Washington County, Maryland				
WM-126	47593	Railroad Milepost 126	Obj	Map 1
WM-126C	47596	*Railroad Culvert 3 at Pearre [1981 Item #2]	Str	Map 1
WM-127	47597	Railroad Milepost 127	Obj	Map 1
WM-127H	47605	*Railroad Bridge No. 1276 over Sideling Hill Creek [1981 Item #3; *Railroad Bridge 1*]	Str	Map 1
Allegany County, Maryland				
WM-128	47608	Railroad Milepost 128	Obj	Map 1
WM-128A	47609	Railroad Culvert 13 (concrete box culvert)	Str	Map 1
WM-128B	47610	Railroad Retaining Wall 1 (concrete)	Str	Map 1
WM-128D	47612	Railroad Retaining Wall 2 (concrete	Str	Map 1
WM-128E	47613	Railroad Retaining Wall 3 (stone)	Str	Map 1
WM-128H	47616	Railroad Retaining Wall 4 (concrete)	Str	Map 1
WM-128I	47617	Railroad Retaining Wall 5 (stone)	Str	Map 1
WM-128J	47618	Railroad Retaining Wall 6 (concrete)	Str	Map 1
WM-128K	47619	Railroad Retaining Wall 7 (stone)	Str	Map 1
WM-128L	47620	Railroad Retaining Wall 8 (concrete)	Str	Map 1
WM-129C	47624	Railroad Retaining Wall 9 (stone)	Str	Map 1
WM-129D	47625	*Indigo Railroad Tunnel [1981 Item #4]	Str	Map 1 Photo 21
WM-130B	47629	*Railroad Culvert 21 at Little Orleans [1981 Item #5]	Str	Map 1
WM-130C	45662	*Railroad Culvert 22 at Fifteen Mile Creek [1981 Item #6]	Str	Map 1 Photo 9
WM-131C	45635	*Railroad Bridge No. 1317 over the Potomac River and the Chesapeake & Ohio (C&O) Canal [1981 Item #8; *Railroad Bridge 2*]	Str	Map 1&2
Morgan County, West Virginia				
WM-132	47633	Railroad Milepost 132	Obj	Map 1&2
WM-133	47644	Railroad Milepost 133	Obj	Map 2
Allegany County, Maryland				
WM-134E	45637	*Railroad Bridge No. 1348 over the Potomac River and the C&O Canal Crossing [1981 Item #9]; *Railroad Bridge 3*]	Str	Map 2
WM-135C	45649	*Stickpile Railroad Tunnel [1981 Item #10]	Str	Map 2 Photo 22
WM-135D	45650	*Railroad Culvert 52 at Roby Run [1981 Item #11]	Str	Map 2
WM-136A	12841	*Railroad Bridge No. 1360 over the Potomac River and the C&O Canal [1981 Item #12; *Railroad Bridge 4*]	Str	Map 2 Photo 1

Mile / Structure #	LCS #	Resource Name	Type	Map & Photo No.
Morgan County, West Virginia				
WM-136B	45664	*Railroad Bridge No. 1363 over the Baltimore & Ohio (B&O) Railroad [1981 Item #13; *Railroad Bridge 5*]	Str	Map 2 Photos 2&3
WM-137	47670	Railroad Milepost 137	Obj	Map 2
WM-137I	47679	Western Maryland Railway, Jerome Telegraph Office (1904-1920)	Bld	Map 2 Photo 23
WM-138	47685	Railroad Milepost 138	Obj	Map 2
WM-139	47698	Railroad Milepost 139	Obj	Map 3
Allegany County, Maryland				
WM-139B	45648	*Railroad Bridge No. 1396 over the Potomac River and the B&O Railroad [1981 Item #14; *Railroad Bridge 6*]	Str	Map 3 Photo 4
WM-140A	45663	*Kessler Railroad Tunnel [1981 Item #15]	Str	Map 3
WM-140D	45665	*Railroad Bridge No. 1407 over the Potomac River [1981 Item #16; *Railroad Bridge 7*]	Str	Map 3 Photo 5
WM-141A	45660	*Railroad Bridge No. 1413 over the Potomac River [1981 Item #17; *Railroad Bridge 8*]	Str	Map 3
WM-141B	45625	*Railroad Bridge No. 1416 over the C&O Canal [1981 Item #18; *Railroad Bridge 9*]	Str	Map 3&4 Photo 6
WM-142	47707	Railroad Milepost 142	Obj	Map 3&4
WM-142B	45643	*Railroad Culvert 86 at Purslane Run [1981 Item #19]	Str	Map 3&4
WM-143	47713	Railroad Milepost 143	Obj	Map 4
WM-144	47718	Railroad Milepost 144	Obj	Map 4
WM-144D	47722	Railroad Retaining Wall 11 (concrete)	Str	Map 4
WM-144E	47723	Railroad Retaining Wall 12 (concrete)	Str	Map 4
WM-144G	47725	Railroad Retaining Wall 13 (concrete)	Str	Map 4
WM-144H	47726	Railroad Retaining Wall 14 (stone)	Str	Map 4 Photo 20
WM-144I	47727	Railroad Retaining Wall 15 (concrete)	Str	Map 4
WM-144K	47729	Railroad Retaining Wall 16 (stone)	Str	Map 4
WM-144L	47730	Railroad Retaining Wall 17 (stone)	Str	Map 4
WM-144N	47732	Railroad Retaining Wall 18 (stone)	Str	Map 4
WM-145F	47740	Railroad Retaining Wall 19 (stone & concrete)	Str	Map 4 Photo 24
WM-145G	47741	Railroad Retaining Wall 20 (concrete)	Str	Map 4
WM-146B	47744	Railroad Retaining Wall 21 (stone)	Str	Map 4
WM-146C	47746	Railroad Retaining Wall 22 (concrete)	Str	Map 4
WM-146F	47748	Railroad Retaining Wall 23 (concrete)	Str	Map 4

Mile / Structure #	LCS #	Resource Name	Type	Map & Photo No.
WM-146H	47750	Railroad Retaining Wall 24 (concrete)	Str	Map 4
WM-147	47754	Railroad Milepost 147	Obj	Map 4
WM-147B	45646	*Railroad Bridge No. 1474 over Town Creek [1981 Item #21; *Railroad Bridge 10*]	Str	Map 4 Photo 7
WM-147C	45672	*Railroad Culvert 114 at Town Creek [1981 Item #22]	Str	Map 4 Photo 12
WM-148	47758	Railroad Milepost 148	Obj	Map 4
WM-149	47763	Railroad Milepost 149	Obj	Map 4&5
WM-150	47768	Railroad Milepost 150	Obj	Map 5
WM-150B	47770	Railroad Battery Box 1	Obj	Map 5
WM-150C	47771	Railroad Battery Box 2	Obj	Map 5 Photo 25
WM-150E	45647	*Railroad Culvert 128 at Old Town [1981 Item #23]	Str	Map 5 Photo 13
WM-151A	45652	*Railroad Culvert 130 at Seven Springs Run [1981 Item #25]	Str	Map 5
WM-152B	45657	*Bridge No. 1523 over Mill Run [1981 Item #26; *Railroad Culvert 136 over Mill Run*] (1934 or 1938)	Str	Map 5
WM-153A	45658	*Railroad Deep Cut through Rock [1981 Item #27; Deep Cut through Rock]	Site	Map 5
WM-155D	45653	*Railroad Culvert 151 at Sloan [1981 Item #28]	Str	Map 5&6
WM-155F	47800	Railroad Section Foreman's Dwelling, Foundation	Site	Map 5&6 Photo 26
WM-156E	45654	*Railroad Culvert 159 at Brice Hollow Run [1981 Item #29]	Str	Map 6
WM-157D	45659	Railroad Tell-Tale (low clearance indicator)	Obj	Map 6 Photo 27
WM-158	47818	Railroad Milepost 158	Obj	Map 6
WM-158A	45656	*Railroad Culvert 168 at Collier Run [1981 Item #32]	Str	Map 6

TABLE 2: NONCONTRIBUTING RESOURCES [COUNTED]

Mile / Structure #	Resource Name	Reason
WM-131A	Culvert 23	In 1990, this structure replaced the timber two-lane road bridge noted as a nonextant resource in Table 3.
WM-140C	Shed at Kessler Tunnel (ca. 1920s)	Building has collapsed and lacks integrity

Mile / Structure #	Resource Name	Reason
WM-137C	Retaining Wall 10 (Between 1904-1976)	This stacked timber tie wall does not appear to have a significant structural function for the stabilization of the railway.
WM-137J	Shed at Jerome (Structure 2) (1904-1950)	This building, located 30' from the Jerome Telegraph Office, is in poor condition and lacks integrity.

TABLE 3: NONEXTANT RESOURCES (Lost Since 1981 National Register Nomination)
[NOT COUNTED] **Resources with an asterisk were individually described as principal features in the 1981 National Register (NR) form ["1981 Item #" refers to the number assigned to the feature in the 1981 nomination].*

Mile / Structure #	Resource Name
	West Virginia
WM-132C	Culvert 27
WM-132H	Culvert 32
WM-137K	Structure 3 (1995 Survey: photo R10, small concrete structure, 3' by 6')
WM-138J	Structure 4 (1995 Survey: photo R11, battery box ruin, red painted shed 3' high, 5' long, 2' wide)
WM-140E	Culvert 83
	Maryland
Mile 126	*Culvert carrying small branch beneath grade at Woodmont (west of Pearre Road) – 76-foot long, 6-foot diameter concrete arch culvert. Not found in 1995. 2009 field notes: collapsed and covered in vegetation. [1981 Item #1]
Mile 147	*Concrete arch culvert, 14' diameter and 79 feet long carried Big Run beneath grade east of Town Creek. Removed prior to 1995. [1981 Item #20]
WM-144M	Culvert 99
WM-155G	Culvert 153
WM-156D	Culvert 158
WM-156G	Culvert 161
WM-157H	Culvert 167
	*Timber two-lane road bridge crossing railroad cut SE of Little Orleans [1981 Item #7]
	*Bridge over county road on east side of Oldtown [1981 Item #24]
	*Timber single-lane private road bridge over grade [1981 Item #30]
	*Bridge over Maryland Route 15 at Spring Gap (1932) [1981 Item #31]
	*Bridge over Maryland Route 15 at North Branch (1925, replaced previous grade crossing) [1981 Item #33]

CULVERT TYPES[19]

[Note: Not Used for Counting Purposes]

TABLE 4: MAJOR CULVERTS [Counted in Table 1]

Mile/Structure #	LCS #	Preferred Resource Name	Culvert Type
WM-126C	47596	Railroad Culvert 3 at Pearre	concrete arch
WM-128A	47609	Railroad Culvert 13	concrete box
WM-130B	47629	Railroad Culvert 21 at Little Orleans	concrete box
WM-130C	45662	Railroad Culvert 22 at Fifteen Mile Creek	concrete box
WM-135D	45650	Railroad Culvert 52 at Roby Run	concrete box
WM-142B	45643	Railroad Culvert 86 at Purslane Run	concrete box
WM-147C	45672	Railroad Culvert 114 at Town Creek	concrete box
WM-150E	45647	Railroad Culvert 128 at Old Town	concrete box
WM-151A	45652	Railroad Culvert 130 at Seven Springs Run	concrete box
WM-155D	45653	Railroad Culvert 151 at Sloan	concrete box
WM-156E	45654	Railroad Culvert 159 at Brice Hollow Run	concrete box
WM-158A	45656	Railroad Culvert 168 at Collier Run	concrete box

TABLE 5: MINOR CULVERTS Organized By Sub-Groups [NOT COUNTED]

Mile/Structure #	LCS #	Preferred Resource Name	Culvert Type
WM-127J	47607	Railroad Culvert 12 (concrete & stone headwalls)	masonry headwall
WM-142A	45661	Railroad Culvert 85 (stone and concrete)	masonry headwall
WM-127B	47599	Railroad Culvert 5 (concrete headwall)	masonry headwall
WM-134D	47658	Railroad Culvert 49 (concrete headwall)	masonry headwall
WM-138B	47687	Railroad Culvert 71 (concrete headwall)	masonry headwall
WM-153E	47787	Railroad Culvert 141 (concrete headwall)	masonry headwall
WM-154F	47794	Railroad Culvert 147 (concrete headwall)	masonry headwall
WM-155E	47799	Railroad Culvert 152 (concrete headwalls)	masonry headwall
WM-136H	47668	Railroad Culvert 58 (stone headwall, timber hdr)	masonry headwall
WM-137M	47683	Railroad Culvert 68 (stone headwall, timber hdr)	masonry headwall
WM-144A	47719	Railroad Culvert 94 (stone box)	masonry headwall
WM-145A	47735	Railroad Culvert 101 (stone box)	masonry headwall
WM-145D	47738	Railroad Culvert 104 (stone box)	masonry headwall
WM-145E	47739	Railroad Culvert 105 (stone double box)	masonry headwall
WM-146A	47743	Railroad Culvert 106 (stone box)	masonry headwall

[19] Note Tables 4 & 5 are not for NR count purposes. The Major Culverts are already identified in Table 1 and the Minor Culverts are not individually counted; they are considered features of the railbed or berm that carries the route.

Mile/Structure #	LCS #	Preferred Resource Name	Culvert Type
WM-126B	47595	Railroad Culvert 2 (stone headwalls)	masonry headwall
WM-127A	47598	Railroad Culvert 4 (stone headwall)	masonry headwall
WM-129E	47626	Railroad Culvert 19 (stone headwall)	masonry headwall
WM-135A	47660	Railroad Culvert 50 (stone headwalls)	masonry headwall
WM-136I	47669	Railroad Culvert 59 (stone headwall)	masonry headwall
WM-137B	47672	Railroad Culvert 61 (stone headwall)	masonry headwall
WM-137F	47676	Railroad Culvert 64 (stone headwall)	masonry headwall
WM-137H	47678	Railroad Culvert 66 (stone headwall)	masonry headwall
WM-137N	47684	Railroad Culvert 69 (stone headwall)	masonry headwall
WM-145C	47737	Railroad Culvert 103 (stone headwall)	masonry headwall
WM-146D	47746	Railroad Culvert 107 (stone headwall)	masonry headwall
WM-146E	47747	Railroad Culvert 108 (stone headwall)	masonry headwall
WM-146I	47751	Railroad Culvert 110 (stone headwall)	masonry headwall
WM-147E	47757	Railroad Culvert 116 (stone headwall)	masonry headwall
WM-154C	47791	Railroad Culvert 144 (stone headwall)	masonry headwall
WM-157A	47811	Railroad Culvert 162 (stone headwall)	masonry headwall
WM-126A	47594	Railroad Culvert 1 (pipe)	pipe
WM-127C	47600	Railroad Culvert 6 (pipe)	pipe
WM-127F	47603	Railroad Culvert 9 (pipe)	pipe
WM-128C	47611	Railroad Culvert 14 (pipe)	pipe
WM-128F	47614	Railroad Culvert 15 (pipe)	pipe
WM-128G	47615	Railroad Culvert 16 (pipe)	pipe
WM-129A	47622	Railroad Culvert 17 (pipe)	pipe
WM-129B	47623	Railroad Culvert 18 (pipe)	pipe
WM-130A	47628	Railroad Culvert 20 (pipe)	pipe
WM-131B	47632	Railroad Culvert 24 (pipe)	pipe
WM-132A	47634	Railroad Culvert 25 (pipe)	pipe
WM-132D	47828	Railroad Culvert 28 (pipe)	pipe
WM-132E	47636	Railroad Culvert 29 (pipe)	pipe
WM-132F	47637	Railroad Culvert 30 (pipe)	pipe
WM-132G	47638	Railroad Culvert 31 (pipe)	pipe
WM-132J	47641	Railroad Culvert 34 (pipe)	pipe
WM-132L	47643	Railroad Culvert 36 (pipe)	pipe
WM-133D	47648	Railroad Culvert 40 (vertical pipe)	pipe

Mile/Structure #	LCS #	Preferred Resource Name	Culvert Type
WM-133E	47649	Railroad Culvert 41 (pipe)	pipe
WM-133F	47650	Railroad Culvert 42 (pipe)	pipe
WM-134A	47655	Railroad Culvert 46 (pipe)	pipe
WM-134C	47657	Railroad Culvert 48 (pipe)	pipe
WM-135B	47661	Railroad Culvert 51 (pipe)	pipe
WM-136D	47664	Railroad Culvert 54 (pipe)	pipe
WM-136E	47665	Railroad Culvert 55 (pipe)	pipe
WM-136F	47666	Railroad Culvert 56 (pipe)	pipe
WM-136G	47667	Railroad Culvert 57 (pipe)	pipe
WM-137A	47671	Railroad Culvert 60 (pipe)	pipe
WM-137D	47674	Railroad Culvert 62 (pipe)	pipe
WM-137E	47675	Railroad Culvert 63 (pipe)	pipe
WM-137G	47677	Railroad Culvert 65 (pipe)	pipe
WM-137L	47682	Railroad Culvert 67 (pipe)	pipe
WM-138A	47686	Railroad Culvert 70 (pipe)	pipe
WM-138C	47688	Railroad Culvert 72 (pipe)	pipe
WM-138D	47689	Railroad Culvert 73 (pipe)	pipe
WM-138E	47690	Railroad Culvert 74 (pipe)	pipe
WM-138F	47691	Railroad Culvert 75 (pipe)	pipe
WM-138H	47693	Railroad Culvert 77 (pipe)	pipe
WM-138I	47694	Railroad Culvert 78 (pipe)	pipe
WM-138K	47696	Railroad Culvert 79 (pipe)	pipe
WM-138L	47697	Railroad Culvert 80 (pipe)	pipe
WM-139A	47699	Railroad Culvert 81 (pipe)	pipe
WM-141C	47706	Railroad Culvert 84 (pipe)	pipe
WM-142C	47710	Railroad Culvert 87 (pipe)	pipe
WM-142E	47712	Railroad Culvert 89 (pipe)	pipe
WM-143A	47714	Railroad Culvert 90 (pipe)	pipe
WM-143B	47715	Railroad Culvert 91 (pipe)	pipe
WM-143C	47716	Railroad Culvert 92 (pipe)	pipe
WM-143D	47717	Railroad Culvert 93 (pipe)	pipe
WM-144B	47720	Railroad Culvert 95 (pipe)	pipe
WM-144F	47724	Railroad Culvert 97 (pipe)	pipe
WM-145B	47736	Railroad Culvert 102 (pipe)	pipe

Mile/Structure #	LCS #	Preferred Resource Name	Culvert Type
WM-146J	47752	Railroad Culvert 111 (pipe)	pipe
WM-146K	47753	Railroad Culvert 112 (pipe)	pipe
WM-147A	47755	Railroad Culvert 113 (pipe)	pipe
WM-148A	47759	Railroad Culvert 117 (pipe)	pipe
WM-148B	47760	Railroad Culvert 118 (pipe)	pipe
WM-148C	47761	Railroad Culvert 119 (pipe)	pipe
WM-148D	47762	Railroad Culvert 120 (pipe)	pipe
WM-149A	47764	Railroad Culvert 121 (pipe)	pipe
WM-149B	47765	Railroad Culvert 122 (pipe)	pipe
WM-149C	47766	Railroad Culvert 123 (pipe)	pipe
WM-150A	47769	Railroad Culvert 126 (pipe)	pipe
WM-150D	47772	Railroad Culvert 127 (pipe)	pipe
WM-150F	47773	Railroad Culvert 129 (pipe)	pipe
WM-151C	47776	Railroad Culvert 132 (pipe)	pipe
WM-151D	47777	Railroad Culvert 133 (pipe)	pipe
WM-152A	47780	Railroad Culvert 135 (pipe)	pipe
WM-152C	47782	Railroad Culvert 137 (pipe)	pipe
WM-153B	47784	Railroad Culvert 138 (pipe)	pipe
WM-153C	47785	Railroad Culvert 139 (pipe)	pipe
WM-153D	47786	Railroad Culvert 140 (pipe)	pipe
WM-154E	47793	Railroad Culvert 146 (pipe)	pipe
WM-155B	47797	Railroad Culvert 149 (pipe)	pipe
WM-155C	47798	Railroad Culvert 150 (pipe)	pipe
WM-155H	47802	Railroad Culvert 154 (pipe)	pipe
WM-157C	47813	Railroad Culvert 164 (pipe)	pipe
WM-127D	47601	Railroad Culvert 7 (timber header)	pipe
WM-127E	47602	Railroad Culvert 8 (timber header)	pipe
WM-127G	47604	Railroad Culvert 10 (timber header)	pipe
WM-127I	47606	Railroad Culvert 11 (timber header)	pipe
WM-132B	47635	Railroad Culvert 26 (timber header)	pipe
WM-132I	47640	Railroad Culvert 33 (timber header)	pipe
WM-132K	47642	Railroad Culvert 35 (timber header)	pipe
WM-133B	47646	Railroad Culvert 38 (timber header)	pipe
WM-133G	47651	Railroad Culvert 43 (timber header)	pipe
WM-133H	47652	Railroad Culvert 44 (timber header)	pipe

Mile/Structure #	LCS #	Preferred Resource Name	Culvert Type
WM-133I	47653	Railroad Culvert 45 (timber header)	pipe
WM-134B	47656	Railroad Culvert 47 (timber header)	pipe
WM-142D	47711	Railroad Culvert 88 (timber header)	pipe
WM-144J	47728	Railroad Culvert 98 (timber header)	pipe
WM-144O	47733	Railroad Culvert 100 (timber header)	pipe
WM-147D	47756	Railroad Culvert 115 (timber header)	pipe
WM-149D	47767	Railroad Culvert 124 (timber header)	pipe
WM-151B	47775	Railroad Culvert 131 (timber header)	pipe
WM-151E	47778	Railroad Culvert 134 (timber header)	pipe
WM-154A	47789	Railroad Culvert 142 (timber header)	pipe
WM-154B	47790	Railroad Culvert 143 (timber header)	pipe
WM-154D	47792	Railroad Culvert 145 (timber header)	pipe
WM-155A	47796	Railroad Culvert 148 (timber header)	pipe
WM-156A	47804	Railroad Culvert 155 (timber header)	pipe
WM-156B	47805	Railroad Culvert 156 (timber header)	pipe
WM-156C	47806	Railroad Culvert 157 (timber header)	pipe
WM-156F	47808	Railroad Culvert 160 (timber header)	pipe
WM-157B	47812	Railroad Culvert 163 (unknown material)	pipe
WM-157E	47815	Railroad Culvert 165 (timber header)	pipe
WM-157G	47816	Railroad Culvert 166 (timber header)	pipe
WM-158B	47819	Railroad Culvert 169 (timber header)	pipe

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register Listing.)

[x] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.

[ ] B. Property is associated with the lives of persons significant in our past.

[x] C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

[ ] D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

[ ] A. Owned by a religious institution or used for religious purposes

[ ] B. Removed from its original location

[ ] C. A birthplace or grave

[ ] D. A cemetery

[ ] E. A reconstructed building, object, or structure

[ ] F. A commemorative property

[ ] G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance
(Enter categories from instructions.)
Engineering
Transportation
Commerce

Period of Significance
1904-1964
1904-1925 (Criterion C: Engineering)
1906-1964 (Criterion A: Transportation & Commerce)

Significant Dates
1904: Construction started
1906: Construction finished

Significant Person
(Complete only if Criterion B is marked above.)
N/A

Cultural Affiliation
N/A

Architect/Builder
Barlow, John Quincy

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

As one of the last new mainline railroads constructed during the final era of major U.S. rail expansion between the Civil War and World War I, and as a representative example of the height of railroad civil engineering of the era, the Cumberland Extension of the Western Maryland Railway (WM) is nationally significant in the history of rail transportation and engineering [**Criteria A: Transportation and Criterion C: Engineering**]. Constructed rapidly between 1904 and 1906 using newly available power machinery and pre-fabricated materials, the WM demonstrated how modern construction techniques, labor-saving devices, and heavy land moving could create a straighter and shorter rail route that had the potential to decrease travel times and increase profits for railroad entrepreneurs. The design and operational efficiencies demonstrated by the WM inspired other U.S. railroads to institute improvements and realignments prior to World War II. Although the line struggled financially to cover the debt and maintenance costs linked to its innovative construction, the Western Maryland's Cumberland Extension operated continuously as a freight line and sometime passenger service from 1906 until 1975. The methods employed by the WM engineers to create a straighter and lower-grade transportation route in the first years of the 20^{th} century would become the norm for highway and high-speed rail projects of the mid-to-late-20^{th} century.

Known for its speedy freight service, the WM played an important role in the commercial development of the state during its first six decades of operation [**Criterion A: Commerce, Statewide, 1906-1964**]. Providing a rapid transportation route for major goods from the port of Baltimore to the Midwest through Pittsburgh, the line also stimulated and supported the establishment of multiple commercial enterprises along its line. In 1964, the WM began to lose its autonomy as an independent line when rival lines initiated a consolidation that led to the creation of the Chessie System and the 1975 abandonment of large portions of the former WM track, including the Cumberland Extension.

Period of Significance

The WM's period of significance extends from 1904 to 1964 and encompasses the years of its construction (1904-1906) and major improvements (1913), as well as the system's most profitable period that lasted until the early 1960s when efforts to gain control by competing railroads began to affect its business. After 1964, the WM began to decline as it became subsumed by rival railways in the consolidations that overhauled rail transportation in the United States in the 1960s and 1970s. The railroads engineering significance relates directly to the period of construction and major improvements from 1904-1925. The property reflects important national trends in transportation during the final major era of railroad expansion in the United States from 1900 until after World War II. During the height of its operation, between 1906 and 1964, the Western Maryland Cumberland Extension played an important role in stimulating and supporting commerce along its route.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Introduction

The Western Maryland Railway's Cumberland Extension is significant as a work of civil engineering that set regional and national precedents for advanced transportation corridor construction. Built between 1904 and 1906, the railway's extension was technologically influential, although largely a commercial disappointment. The Cumberland Extension stretched from Big Pool in central Maryland to the far western town of Cumberland. The line connected existing tracks to form a link between the Port of Baltimore in the east and industrialized Pittsburgh and the West Virginia coalfields in the west. The railroad's backers envisioned the Western Maryland as one link in a coast-to-coast railroad. Built much later than the established competing railroads of the region, including the Baltimore & Ohio Railroad and the Pennsylvania Railroad, the Western Maryland was able to take advantage of the latest and most advanced techniques of railroad planning and design. While its designers did not invent most of the techniques that they employed in its construction, many saw their first large-scale, repeated application on the Cumberland Extension project. By 1909, the high cost of these changes drove the project into receivership, but other railroads soon recognized the advantages and began to incorporate features of its design into construction and improvement projects.

Despite its technological success, the high cost of construction and expensive maintenance prevented the line from profiting, even after its construction debts were paid in 1935. Years later, after the Second World War, the Western Maryland finally became profitable, but compared to other carriers in the region, only marginally so. Because it passed through sparsely populated territory that generated little on-line business, its dividends and capital were not enough to prevent eventual takeover by its competitors.

Nevertheless, it was one of a small group of railways built in the first decade-and-a-half of the twentieth century that established new precedents for railway construction. In order to compete effectively with its well-established neighbors, the line's planners believed their trains would have to be faster, which required elimination of curves and grades in the track. The line made extensive use of tunnels, fills, cuts, and bridges to achieve unprecedented straightness and levelness in mountainous territory. In this way, the Western Maryland Railway was a benchmark project in the use of, and investment in, civil engineering technology, and was a direct antecedent to high-speed railroad and highway building projects in the United States and elsewhere throughout the twentieth century. New highway projects of the late 1930s, such as the Pennsylvania Turnpike and Germany's Autobahns, adopted the same aggressive use of fills and cuts, bridges and tunnels in order to achieve high speeds. Starting in the 1960s, high speed rail projects in Japan, and later in France and Germany, followed suit.

Railroad Competition in the Potomac Valley

Transportation competition in the Potomac Valley had been intensifying for more than a century before the Cumberland Extension, in no small part a product of extended political pressure for improved westward transportation. Politicians and business leaders, including the likes of George Washington and Thomas Jefferson, had urged industrial growth and westward expansion since the end of the American Revolution, arguing that they were essential to the new nation's survival. They focused in particular on the James and Potomac Rivers as natural corridors. For the Potomac route, high mountains lay northwest of Cumberland, but a natural gap known as The Narrows just outside the city provided an easy passage to the west. Thus, various transportation routes from the east funneled into Cumberland in order to access the narrows. By the start of the twentieth century, space in the Potomac Valley was at a premium, especially along the narrow flood plains. The Baltimore and Ohio[20]had the west riverbank to itself, whereas the valley floor on the east side of the river supported a turnpike road and the Chesapeake and Ohio Canal. Along the Potomac the turnpike to Cumberland came first, followed by the nearly-simultaneous

[20] The B&O was a collaborative effort between Virginia and Maryland. For more information, see John F. Stover, *History of the Baltimore and Ohio Railroad* (West Lafayette, IN: Purdue University Press, 1987), Chapter 5, and George H. Burgess and Miles C. Kennedy, *Centennial History of the Pennsylvania Railroad Company* (Philadelphia: The Pennsylvania Railroad Company, 1949), Ch.1.

construction of the Chesapeake and Ohio Canal (C&O Canal) and the Baltimore and Ohio Railroad.[21] The fact that they consumed so much of the narrow valley floor was significant. Western Maryland could possibly provide them direct competition in an already-saturated corridor, but to do so its engineers had to build high off the flat valley floor—necessitating the infrastructure that made the Western Maryland significant as a civil engineering work, but also very expensive.

The Baltimore and Ohio was the oldest of Western Maryland's rail competitors, having been the first common-carrier railroad company in the United States. Originally opened from Baltimore to Ellicott's Mills, Maryland in 1830, it reached Cumberland in 1842. From there extensions continued west through the middle and late 19th century to Wheeling, Pittsburgh, Cleveland, Detroit, Chicago, and St. Louis. It also extended its territory at its east end to Philadelphia. Between Hancock and Cumberland, the Western Maryland Railway followed the B&O route largely within less than half a mile, occasionally crossing over it. The Baltimore and Ohio followed the river very closely, laid mostly on the flood plain of the Potomac River in West Virginia. In some places where the Western Maryland entered West Virginia in order to shortcut across oxbows in the river, it also crossed the Baltimore and Ohio. It was only in the 1920s, inspired by the Western Maryland, that Baltimore and Ohio engineers constructed a straight cutoff past Magnolia bend, bypassing a part of its original, serpentine main line with a tunnel.[22]

Not quite as old as the Baltimore and Ohio, but a formidable competitor, was the Pennsylvania Railroad. Built roughly 60 to 70 miles north of the Potomac's Hancock-to-Cumberland stretch, more or less parallel, and crossing terrain that was similar if not somewhat more rugged, the Pennsylvania Railroad received its charter in 1846. Philadelphia business interests decided that the State of Pennsylvania's decision to grant a charter to the Baltimore and Ohio for a route to Pittsburgh was a threat to the Port of Philadelphia. These interests convinced the Legislature to construct its own railroad west from Philadelphia, and in 1847 authorized the governor to issue a

[21] The railroad and canal were planned and chartered around the same time, but the railroad reached Cumberland eight years prior to the canal. General survey history of the routes from the Atlantic coast across the mountains to the west, including through the Potomac Valley, is available in: Albert Perry Brigham, *From Trail to Railway: Through the Appalachians* (New York: Ginn & Company, 1907).

[22] Realizing the WM's operational advantage in this area, the B&O, whose Low Line through the area was hampered with even sharper curves, replaced it with the Magnolia Cutoff, or "High Line," a new alignment comparable to the WM's route, in 1914. Almost entirely south of the river, the Magnolia Cutoff needed to cross the Potomac only twice, and the total length of its four tunnels was 365' shorter than the WM's Indigo Tunnel alone. B&O built the Magnolia Cutoff as a double-track line with fewer curves and higher speed limits than the WM's alignment, thus negating any operational advantage the WM had achieved.

proclamation annulling any rights that would allow the Baltimore and Ohio to enter the state. This annulment was eventually reversed, but not until the Pennsylvania Railroad was finished. In fact, western Pennsylvania's coal, iron, and steel businesses were already rapidly growing, and an exclusive railroad to the Maryland port would pose a very real threat. When the Baltimore and Ohio did eventually reach Pittsburgh, the Pennsylvania noticed; for that and other reasons of interest in regional market control, it acquired a controlling interest in the Baltimore and Ohio in 1901. This ensured that both companies were allied against the Western Maryland Railroad.

The Pennsylvania Railroad became the nation's corporate leader by investing heavily in the primary and essential industries of coal and steel, and by pouring funds into growing its network and its infrastructural capacity. By the 1870s it owned a dense web of track from the Great Lakes to the Virginias and from the Atlantic to the Mississippi. It served every metropolis in its territory, and between the late 19^{th} century and the middle 20^{th}, became the largest corporation in the world with access to extensive political and financial capital. It too represented some of the most advanced construction of its day, including Horseshoe Curve, a large, curved valley fill designed to gain elevation as it crossed the confluence of two mountain streams. The bridge across the Susquehanna River at Rockville, northwest of Harrisburg, remains in use to this day as the world's longest multiple-masonry-arch structure. However, all of this was built by hand, simple machines like mule-carts and levers, and black powder blasting.

Prelude to Expansion

The Western Maryland (WM) originated as a corporation in 1852. Originally called the Baltimore, Carroll, and Frederick Rail Road, it was partially financed by the City of Baltimore to provide access to the agricultural regions west of the city, thus generating traffic for its port and a source of competition against the Baltimore and Ohio Railroad—which held a virtual monopoly on agricultural traffic into the city. The Maryland General Assembly changed the name to Western Maryland Railroad in 1853; construction began westward from Owings Mills in 1857.[23] Expansion occurred in increments before and after the Civil War, such that by the mid-1880s it held a modest network that included a main line from Baltimore to Hagerstown, and branches to

[23] The Western Maryland Railroad is often also called the Western Maryland Railway. The Western Maryland Railroad, under George Gould's ownership, failed in 1908 and went into receivership. The receivers reincorporated in 1909 as the Western Maryland Railway, and purchased the property of the Western Maryland Railroad in a foreclosure sale in 1910. See Robert L. Frey, "Western Maryland Railway," e-WV: The West Virginia Encyclopedia, http://www.wvencyclopedia.org/articles/1139 (last revised on November 19, 2010), accessed on April 28, 2014.

Shippensburg and Gettysburg, Pennsylvania, and to Cherry Run, West Virginia, which allowed it to build traffic by connecting to the Chesapeake and Ohio Canal and to other railroad company lines. Ex-Confederate general John Mifflin Hood became the line's president following the war, and oversaw much of its expansion.

The Western Maryland Railroad and its contemporaries developed during the end of the railroad construction boom, and in the last decade of a thirty-year period in which investors opened one of the United States' last frontiers to industrial development. Many scholars assert today that, owing to the ruggedness of its terrain, the Appalachian region remained a frontier much later than places that were settled to the far west.[24] This certainly held true in vast swaths of western Pennsylvania, western Maryland, and West Virginia, where road and rail transportation alike did not arrive until financiers and engineers presented means and motive to break through geologic obstacles. The Western Maryland and its older neighbor the B&O found their way *through* the mountains along the relatively grade-friendly Potomac and Monongahela Rivers; only in the decades immediately preceding the construction of the Western Maryland's Cumberland Extension did they extend into the mountainous region's more rugged corners.

Coal and timber were Appalachia's most lucrative resources, but they were hard to reach. In the 1870s and 1880s, when railroads were already established through remote parts of the Rockies and the Sierra Nevada as part of the search for gold, silver, copper, and lead, the low but steep and serpentine Appalachians presented a formidable barrier, and excepting the easiest passes like that which the B&O and Western Maryland took, were just beginning to be breached. Theretofore the mountains' resources remained largely untapped. Agricultural settlers, mostly yeomen, sought the easiest routes across the mountains, usually choosing to settle on the flatter, richer soil west of the Ohio River. Early railroads across the mountains like the B&O followed suit.

Beginning in the 1880s, railroads expanded up the narrower valleys and hollows in order to capitalize on natural resources. Not all were built to high-speed standards; many existed simply to haul bulk commodities relatively short distances where the volume of traffic flow was more important than its speed. Engineers favored routes along river flood plains, through low gaps, and at the lowest possible elevations. Tunnels were avoided wherever possible. High-standard

[24] John Alexander Williams, *Appalachia: A History* (Chapel Hill: University of North Carolina Press, 2001), Ch. 1.

construction was reserved for physically heavy traffic traveling long distances, like mine-to-port coal shipments, and for routes planned to handle more diverse traffic. It took strong financial backing, drawn by the lure of coal and timber, to build railroads that could access the more remote parts of the mountain region's rugged interior.

The Gould Syndicate

In 1902, a newly formed business syndicate led by George Gould purchased the Western Maryland from the City of Baltimore and promised to expand it on a nearly unprecedented scale. The syndicate's investors sought to offer a new transportation route from Baltimore to the nation's industrial interior, bringing with it the potential to relieve market domination and control by two existing trunk line railroads, the Baltimore and Ohio and the Pennsylvania. These trunk lines' territories extended all the way to Chicago and the Mississippi; the Baltimore and Ohio Railroad ran west up the Potomac Valley from Baltimore, while Pennsylvania Railroad connected Philadelphia and Pittsburgh, and included a major route from Philadelphia to Washington by way of Baltimore and an important secondary line between Baltimore and Harrisburg.

Gould was the son of industrialist Jay Gould, who played a major role in nineteenth century railroad finance and organization by assembling a series of lines across the country, buying, expanding, and selling the companies for profit.[25] The elder Gould passed away in 1892, leaving his holdings in a trust for his six children, including George—an arrangement that later led to controversy in the family as George Gould overspent his loans in the course of building new railroads like the Western Maryland.

The Gould Syndicate's proposal for the Western Maryland was part of a scheme to build what would have been the nation's first true transcontinental railroad. Prior to this, railroads that had been called 'transcontinental' generally began west of the Mississippi River and extended to the Pacific Ocean. The Pacific Railroad Acts of the late 1860s chartered and authorized land grants for the first one to reach navigable waters accessible to the Pacific: the combined Union Pacific-Central Pacific route between Council Bluffs, Iowa, and Sacramento, California, completed in 1869, which was followed by a Northern Pacific route from Minnesota to Puget Sound, a

[25] For information on Gould, see Julius Grodinsky, *Jay Gould: His Business Career, 1867-1892* (Philadelphia: University of Pennsylvania Press, 1957).

Southern Pacific route from Louisiana to southern California, and several routes constructed through private rather than congressional initiative such as the Atchison, Topeka, and Santa Fe and the Great Northern Railway. These lines expanded their territory between 1870 and 1900, building north-south and diagonal routes through the west and forming a serviceable network. Despite this growth, eastern and western trunk lines remained separate, sharing territory only in the eastern Great Plains and along the Mississippi River.

The conglomeration of lines that Jay Gould amassed control of lent itself to the possibility of a coast-to-coast system; he occasionally spoke about the idea, but since his primary activities centered on maintaining financial solvency on the stock market and maneuvering around his competition through rate adjustments, a truly transcontinental system never materialized under his control. It was the younger Gould who took on his father's transcontinental vision as a primary business objective. Some of his father's holdings were long gone by the time he inherited the business, but George Gould still had the Wabash Railroad and the Missouri Pacific Lines, which were situated to make themselves useful in a broader plan. Through the Wabash Railroad, George Gould acquired control of the Denver and Rio Grande Railroad (D&RG) and its subsidiaries Denver and Salt Lake and Rio Grande Western in 1901 (consolidated at mid-20th century as the Denver and Rio Grande Western). Combined, the Wabash, Missouri Pacific, and D&RG properties connected Salt Lake City with Toledo, Ohio.

Gould then set his sights on the coasts, where other, existing railroads provided possible, partial links. He arranged for the D&RG to acquire the Alameda and San Joaquin Railroad in California; this became the Western Pacific, which Gould later expanded to connect to Sacramento and Oakland in the west and Salt Lake City in the east. Notably, the Western Pacific line duplicated the route of the older Central Pacific line (by then owned by Southern Pacific) almost as precisely as the Western Maryland did that of the B&O, and in similar proximity for much of its route across Utah, Nevada, and California.

For the purpose of pursuing expansion back east, Gould helped create and then became President of the Fuller Syndicate, which acquired the Wheeling and Lake Erie Railroad (W&LE), joining Toledo to eastern Ohio—in fact, putting the network within 60 miles of Pittsburgh. With this done, Gould incorporated the Wabash Pittsburgh Terminal to extend the W&LE into Pittsburgh. The Western Maryland and its proposed extensions would complete the Atlantic-to-Pacific route.

Negotiations with Baltimore

Many Baltimore city officials were long resentful of the Baltimore and Ohio's monopoly on local and regional transportation. During the 19th century the city financed a series of projects and studies to build roads and other transportation routes to the west. Mayor John Lee Chapman, elected in 1862, was often at odds with Baltimore and Ohio President John Garrett and often demonstrated favor for the Western Maryland. In 1864, at the behest of a group of coal companies, the mayor authorized a survey of a rail route that could compete with the B&O through the Potomac Valley. Competition may have been only part of the motivation; Confederate sentiment was high in Baltimore and some city leaders may have resented the Baltimore and Ohio's stance on the war. The company started out neutral, but its directors pragmatically decided to side with the North after Union General George B. McClellan invaded Virginia's northwest counties (in the future territory of West Virginia) and seized operation of the B&O lines through that territory. Despite the survey and resentment against the B&O, however, the war kept resources and attention concentrated elsewhere. Even the relatively modest expansion of the Western Maryland into central Maryland and Pennsylvania remained at a standstill until after the war ended.

For the rest of the 19th century, Western Maryland Railroad remained a fairly local operation, but when John Mifflin Hood resigned from its presidency in 1902, the railroad's direction changed. Baltimore's leadership became interested in selling its controlling share in the Western Maryland, but the idea of promoting transportation competition to the west was still very much alive. In the decade prior to Hood's resignation, several proposals for various westward railroads from Baltimore emerged, including an 1892 scheme to extend the Western Maryland to Cumberland that may have gone as far as a surveyed route."[26] None of these particular schemes came to fruition, but the idea resurfaced again as the city appraised its financial state in the late 1890s. Baltimore leaders wished to make their city more competitive as a port, to break the Pennsylvania Railroad and Baltimore and Ohio monopoly on their city, to expand the Western Maryland westward, and to divest the city of its stock in the line and the debt that the stock carried.

[26] "Railroad Extension," *Hagerstown Daily Mail*, Hagerstown, MD, February 19, 1892, 1.

Action came quickly after Hood's resignation from the Western Maryland presidency; the city sought and received proposals that year from prospective purchasers, including Gould. Since Gould was already formulating a transcontinental plan, he may have already approached the city by that time. Gould's proposal was favorable to the City of Baltimore for three reasons: it included concrete proposals for expansion into the Port of Baltimore and to the west, the bid came in the form of an upfront cash payment, and it came with an offer to assume the company's outstanding debts to the city of Baltimore.[27] In the late nineteenth century "the Western Maryland continued to struggle with debt and Baltimore continued to bail it out. By 1902 the Western Maryland Rail Road owed the city almost $9 million."[28] This debt gave the city its controlling stock, but the city wanted the stock back in private hands. Baltimore had largely funded the railroad through stock subscriptions, loans, and city guaranteed mortgages.[29] It wanted to be free of its interest in the railroad and begin collecting on its debt.

The city also sought a scheme that could advance its position as a seaport by constructing a direct, modern link to the west. Gould's proposal, a transcontinental route, was the ultimate goal. The city seems to have picked the Gould proposal mainly because it would keep the line independent of the major competing railroads, stating in its contract that:

> No title shall vest in the purchaser or purchaser of stocks of the Western Maryland Railroad if sold to a railroad company now controlling, owning, or operating any line or system of lines centering, terminating, or operating in the cities of Baltimore or Philadelphia…The mayor and city council of Baltimore shall be entitled to institute legal proceedings to inquire into any such sale [and] annul, cancel, and prevent the violation of this ordinance.[30]

According to the most innocent interpretation of this clause, Baltimore's political leaders clearly wished to create railroad competition to the west, not reduce it. This stipulation may have also been placed in the contract specifically to exclude the Baltimore and Ohio and Pennsylvania Railroads.

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[27] Harold H. Williams, *The Western Maryland Railway Story* (Baltimore, MD: Western Maryland Railway, 1952), 8-9.
[28] E. M. Killough, *A History of the Western Maryland Railway Company Including Biographies of the Presidents* (Baltimore: Western Maryland Railway, 1940), 25.
[29] Ibid., 27.
[30] Williams, *The Western Maryland Railway Story*, 91.

Gould successfully outbid three other proposals, all from entities that were either tied to the Pennsylvania or the Baltimore and Ohio, or tied to railroads that served other east-coast ports.

> The Baltimoreans righteously indignant over the recent acquisition of their Baltimore and Ohio by the Pennsylvania Railroad which was the chosen instrument of their arch-rival Philadelphia were delighted with this golden opportunity to make their city the eastern terminus of Gould's system.[31]

With a private magnate like George Gould ready to invest heavily in the project, Baltimore leaders thought they had little to lose and, quite possibly, a lot to gain with a modern, direct rail route to the west (they were right—especially since Gould's creditors assumed all of the debt and construction cost, and thus the vast bulk of the financial risk). The city of Baltimore sold its controlling stock in Western Maryland to the Fuller Syndicate on May 7, 1902. Gould and his partners paid over $8.6 million for the stock to several Baltimore banks who forwarded the money to the city, in addition to a deposit of $500,000 on a $3 million guarantee to build tidewater port facilities.[32]

Once the purchase agreement with Baltimore was complete, the mayor "sent a letter to each of the Directors representing the city on the board, requesting that they tender their resignations to the new owners of the property."[33] A temporary board was appointed in June of 1902, and control of the railroad was given to Henry Bishop until the syndicate could complete the purchase of the West Virginia Central and Pittsburg Railway (WVC&P) and consolidate it into the Western Maryland. Gould made good on his promises to the City of Baltimore: he went to work on extending the route.[34]

Planning the Work

[31] Ross Grenard & John Krouse, *Steam in the Alleghenies* (Mahwah, NJ: Carstens Publications, 1981), 3.
[32] For more information, see Adam Thomas, *In Terrain of Empire: Railroads Between Cumberland and Pittsburgh* (Denver: Self-Published, 2004) and Burgess & Kennedy (1949); cited from "Western Maryland's Future," *The New York Times*, June 28, 1902, 1. Investor Edward Laton Fuller organized the syndicate, which included Gould as president along with three other members. Its primary purpose was purchase and expansion of the Western Maryland.
[33] Killough, *A History of the Western Maryland Railway Company*, 12.
[34] "Western Maryland's Future." *The New York Times*, June 28, 1902. This board included former Western Maryland president John M. Hood and Edwin Gould (George's brother), as well as Winslow S. Pierce, H.B. Henson, Lawrence Green, W.H. McIntyre, Leon Greenbaum, George R. Gaither, and S. Davies Fairfield, joined by F.S. Landstreet representing the WVC&P. Stockholders elected Gen. Thomas J. Shyrock, George B. Baker, and Charles W. Slagle to represent them.

Gould's goal for the Western Maryland was to expand it westward from Big Pool, Maryland, just west of Hagerstown, to Cumberland, via the Cumberland Extension, and then further westward to Connellsville, Pennsylvania. The Cumberland Extension project proceeded in 1902 under the presidency of Winslow S. Pierce, whose association with the Goulds dated to 1885 when he began working for the Missouri Pacific Lines (MP) as an assistant to general counsel. He continued to work for Gould-controlled lines, and by the turn of the century, Pierce was well established as a railroad lawyer and had earned George Gould's trust. He became president of the Western Maryland in 1902, left for a year, and then returned to the position, also assuming chairmanship of the WM's Board of Directors a year later.[35]

The expansion of the Western Maryland included several phases. Research for this report has not yet turned up an explanation of methodology, but other parts of the historical record demonstrate sequence and reveal some of the railroad's intent. First, as part of its acquisition deal, the Fuller Syndicate promised to build a new marine port terminal facility on a piece of Baltimore land called Port Covington. This facility would modernize the city's capability to load ships efficiently, thus making it more competitive with other Atlantic ports. Concurrently, the Syndicate planned to build west from Hagerstown to Pittsburgh, where the Syndicate had Gould's Wabash Railroad constructing an extension in from the west. Construction to greater Pittsburgh was planned in two consecutive phases: the Cumberland Extension and the Connellsville Extension. Additional acquisitions completed the Syndicate's plans for the Western Maryland: the West Virginia Central and Pittsburg Railway, which did not actually provide any potential access to Pittsburgh but served profitable coal mines in West Virginia, the Cumberland and Pennsylvania, which served similarly lucrative mines west of Cumberland, and the George's Creek and Cumberland, which provided a valuable right-of-way for the Connellsville Extension through the Cumberland Narrows, a confined canyon through the ridge west of Cumberland already shared by a road, a creek and the Baltimore and Ohio Railroad—and the only practical westward access toward Pittsburgh.

Under Gould and Pierce, the company assigned its chief engineer, John Quincy Barlow, to the task of surveying potential routes, selecting the best one, and constructing it across Washington and Allegany Counties. Born in November, 1861 in Bridgeport, Connecticut, Barlow began his career as an assistant to a survey crew on the Northern Pacific Railway when he graduated in

[35] Burgess & Kennedy, *Centennial History of the Pennsylvania Railroad Company*, 515.

1882 from Worcester Polytechnic Institute. Connections with several other Worcester graduates who worked for the Northern Pacific, notably among them Chief Engineer William Lafayette Darling, likely helped Barlow secure the job. Barlow worked his way up the ranks at Northern Pacific, leading survey crews in planning a route over Stampede Pass in Washington State.[36] In 1886, he left Northern Pacific for the nearby Union Pacific (controlled by Gould-archrival E. H. Harriman), accepting a Division Engineer's title.[37] He remained in the Pacific Northwest during this time, helping plan and build Everett and Monte Cristo Railway during a gold rush in Washington in the early 1890s and then continuing work with Union Pacific subsidiaries. It is likely this work that brought him to Gould's attention. Barlow was an active, published member of the American Society of Civil Engineers, which likely helped him to earn name recognition.[38] Barlow briefly worked with Gould in some capacity on the Western Pacific, and then went east to begin work on the Western Maryland.

When he began planning the Cumberland Extension in 1902, Barlow was just short of 41 years old—old enough to be well established in his trade. He worked on the Western Maryland project for the duration of planning and construction on the Cumberland Extension. After the Western Maryland went into receivership in 1908, Barlow resigned to work again with E.H. Harriman—who transferred him this time to the Southern Pacific in Utah. He may have continued to consult for the Western Maryland as the Connellsville Extension progressed. In 1919, he went to work for the Utah Construction Company, and at some point became Chief Engineer for the State of Utah, a position from which he advised on U.S. Bureau of Reclamation projects, including design of the Hoover Dam—a project for which his experience in concrete work on the Western Maryland likely prepared him.[39] Likely through his connections at Southern Pacific headquarters in San Francisco, he went to work in 1920 for the Pacific and Southwestern Region of the United States Railroad Administration, and then retired to Oakland, where he died in 1941.[40]

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[36] Virgil C. Bogue, "Stampede Pass, Cascade Range, Washington," in *Journal of the American Geographical Society of New York,* Vol. 27, No. 3 (New York: American Geographical Society of New York, 1895), 239-255.
[37] *The Biographical Directory of the Railway Officials of America* (Chicago: The Railway Age, 1906), 39.
[38] "Discussion on Railroad Location," in *Transactions of the American Society of Civil Engineers*, Vol. 31 (New York: American Society of Civil Engineers, 1894), 103.
[39] Michael Hitzik. *Colossus: Hoover Dam and the Making of the American Century*, (New York: Simon and Schuster, 2010), 173.
[40] *The Biographical Directory of the Railway Officials of America* (New York: Simmons-Boardman Publishing Co., 1922), 32.

Although he had been a supervisor before, Barlow's job on the Western Maryland appears to have been his first as the leader of a major, comprehensive rail construction project. His task was not an easy one:

> The physical union of the Western Maryland and [Cumberland] at first seemed impracticable, because nature and the works of man (the mountains and the C&O Canal) had produced a combination of obstructions between these two roads which it was not believed even twentieth century engineers could overcome. There were high mountains to tunnel and long bridges to erect over the winding Potomac, and in addition the Canal and the National Turnpike seemed to close in on the right of way.[41]

The routing of the Western Maryland Railway reveals how technological advancements made the construction of this line possible, but also expensive. Surveys for the Western Maryland Cumberland Extension, begun in 1902, closely duplicated a similar survey that the mayor of Baltimore authorized in 1864 in retaliation against Baltimore and Ohio's rates. A report that year by Western Maryland Chief Engineer Barlow sheds some light on the question of how the route was chosen. In it, he presented his analysis of the surveys he made of potential routes for the Cumberland Extension. His recommendations were based on a balance between straightness, levelness, income, and cost. On his recommended route, Barlow declared, "No line exceeds 0.3% ascending grade eastward or a 0.5% descending grade eastward, and the maximum curve is 6 degrees, but for 25 miles east of Cumberland and 15 miles west of Big Pool nothing heavier than 4 degree is used....The estimates are based on embankments 16 foot wide, rock cuttings 18 foot wide and earth cuttings 20 foot wide."[42] All of these numbers showed that Gould intended to build a railroad to very high standards.

Barlow divided the territory between Cumberland and Big Pool into seven sections, working from west to east. Gould and his superiors used small towns and modest industrial features, potential places for the railroad to serve, as division points between each section. Notably, Barlow established the roadbed "above the highest known flood water in all cases." This was a good practice when railroad builders could afford it, but they often chose the expedient of building on the flattest land—that which flooded most often—which resulted in expensive

[41] Williams, *The Western Maryland Railway Story*, 56.
[42] J.Q. Barlow, *Western Maryland Railroad: Report and Estimate of Cost, Line Cumberland to Big Pool, March 15, 1903* (Baltimore, MD: Self-published, 1903; On file at Maryland Historical Society), 3.

repairs after each washout.[43] With these standards established, Barlow surveyed an assortment of routes for each section with the intent of recommending the best route within each segment.[44] Barlow wanted to select a route by trading off how expensive it would be to operate against its initial cost to find a balance that would result in the quickest repayment of the construction costs from traffic revenue. (Greater initial cost usually reduced operating cost). Barlow seemed certain that he was underestimating the construction cost in all instances—in other words, he knew the cost would be high. It seems that neither he nor Gould knew just how expensive the construction of the railroad would turn out to be.

Barlow chose route options in each section based on specific conditions. For example, he noted,

> between Okonoko and Paw Paw the lines on the berme [sic] side of the canal, about two miles of it is difficult work, owing to the steep slopes and the closeness of the canal. To avoid obstructing canal navigation this two miles would most likely have to have work…carried along…in the winter when the canal is empty. There is a possible alternative by crossing the river…but such an alternative would nearly double the cost.[45]

In the Paw Paw Bends, the railroad's most costly section, Barlow's strategy fell in favor of straightness of route and avoiding the river bends. This—although he makes no reference to the fact—gave the railroad the competitive edge it needed over the PRR and the B&O in the form of a straighter route that would be easier to operate. Barlow recommended the routes through the bends apparently in order to avoid paralleling the canal. This is understandable, for doing so would have created curvature in the railroad that would have offered it no advantage. One option was to tunnel through Doe Gully Ridge further to the south and avoid a pair of Potomac crossings, but Barlow indicated that it would have been much longer than any other option and would have required embankments where it would parallel the B&O—an economically and politically tricky proposition, no doubt, and again, one with no advantage over the adjacent competition. Some of his cost/benefit analyses in the Bends were based on estimates for revenue per mile that likely never materialized for want of online customers in that section. Interestingly, the route through the bends used tunnels only on the Maryland side; this was likely due to geologic circumstances—on the West Virginia side, the oxbows are more favorably broad for

[43] Ibid.
[44] Ibid., 10.
[45] Ibid., 23.

suitable railroad curvature, and the ridges that form them are much broader, necessitating what would have been very long tunnels.[46] While the tunnels that were eventually built on the Maryland side were certainly long and the fills large and numerous—at 4,300', Indigo Tunnel was 1,100' longer than the tunnel through Doe Gully Ridge would have been—none seemed to frighten Barlow the way the West Virginia geology did.

Barlow concluded his report by comparing two options, composed of combinations of routes chosen from each section for the line between Old Town and Sideling Hill Creek. One was called the "River" option and the other was the "Interior" option. Barlow stated,

> the conclusion is that the river route should be adopted and a recommendation has herein been made as to the particular one of the several river lines. Its estimated cost is considerably in excess of the estimated cost made by the Consulting Engineer, but it must be borne in mind that the results of extensive surveys give a vastly better basis upon which to compile estimates than a visual reconnaissance only. The Consulting Engineer's estimate of about $3,400,000 was for a line of heavier grades and curves of a character generally somewhat inferior to the lines surveyed; his report further states that a better character of line…would cost something like half a million dollars or more… The estimate herein given for the recommended line is $5,107,716. This initial out-lay may be reduced to about $4,900,000 by certain construction economies as before noted.[47]

Barlow was certainly correct that surveying could produce a more accurate estimate than visual reconnaissance, but information about how the results of his surveys influenced his recommendations are lost with his maps, as are any indications of whether his recommended River Route bears any similarity to the route that the abandoned roadbed follows today. The only assumption that can reasonably be made is that the river option was cheaper because the terrain close to the river was naturally easier to follow, possibly softer and easier to build through, and therefore cheap enough to pay back quickly from freight revenues.

Thus, Barlow chose the option that, to him, seemed most likely to pay for itself more quickly than the others, and that offered the "minimum of complications with either the B. & O. R. R. or the C. & O. Canal" except where the line was "forced on the berme slope of the Canal by

[46] Ibid., 37-38.
[47] Ibid., 53-54.

unavoidable topographical conditions." He cited the B&O's practice of following the canal near Harper's Ferry as precedent. Lastly, he added, "Should it be thought that the proposed new lines still contain a good many bends and curves, it may be said that a traffic on the new line practically equaling the capacity of a double track road, would be required to justify the expense necessary to make any changes…the line, when compared with the B & O R R between the same points, is shorter and with lighter curves and grades…." It would thus seem that Gould's goal of besting the competition was not at all lost on Barlow.[48]

The route of the Cumberland Extension was based on three factors. As is inevitable in any capitalist enterprise, competition played a large role. Availability of usable land and the technology to deal with it was also a factor. The fact that the best river-bottom land was already in use lent some credence to the decision to build the railroad at a slightly higher elevation, as did Barlow's declaration that the entire line was above any predictable flood stage. Contributing directly to availability was the proximity of the Baltimore and Ohio Railroad. That the two railroads remained mostly in separate states on opposite sides of the river was a product of geology and politics in relative proportions that are unclear.

The factor of cost was the third influential factor, but only in relative terms; competitiveness (as a product of technological advancement) appeared to have superseded it in making many decisions. Barlow's report goes into great length about costs, comparing the various alternate routes' absolute costs to how quickly the railroad's builders thought the line could pay for itself in each case. Still, Barlow's approach was conservative; he recommended in his report that $200,000 of construction funds might be saved if the railroad was initially put in operation using temporary wooden trestles on the bridge approaches with the more expensive, but permanent, fills replacing them only after the line was running and earning income. Someone else made a different decision—the line opened in 1906 with permanent fills at every bridge approach, except one. Whoever overruled Barlow apparently felt it unnecessary to break the construction expense into increments that could be executed as the railroad earned revenue in operation. The likelihood that this only added $200,000 to the cost is quite small. The availability of more advanced technologies made a fully up-to-date railroad seem possible and practical, and offered the possibility of real competition against formidable competitors. George Gould wanted a modern railroad, and after the cost of that modernity collapsed his finances, that is exactly what he and his successors built, and exactly what the railroad's receivers got.

[48] Ibid., 47-49.

New Standards

When the Western Maryland's closest competing rail lines were built in the 1840s, the first heavy construction equipment and techniques were in their earliest formative stages. Large workforces using mostly hand tools to sculpt the earth were primarily responsible for constructing railroads. A flood plain provided the easiest grade to follow, as compared to the surrounding hills, and consequently required the least amount of earthwork. To build a straighter route would have required many more cuts, fills, and tunnels, with concurrent labor costs. The labor-intensive nature of the era's forged-iron, cut-stone, powder-blasted, and hewn-timber construction methods could not economically support such construction. Thus, neighboring railroads were built to the best standards available when each was constructed, but at the beginning of the 20th century, had long been operating routes that had become more and more obsolete with each decade.

By then, decades had passed between the time of its competitors' construction and the construction of the Cumberland Extension; in that time, significant advances occurred in the technologies of design, bridge construction, explosives, and mechanized earth-moving, as well as with respect to increasing professional formalization in railway design practice. At the time of the Cumberland Extension, the Pennsylvania Railroad was nearly six decades old; edifices like Horseshoe Curve or Rockville Bridge could now be built with labor-saving steam shovels, dozers, and cranes, dynamite, prefabricated components, and materials that were either new, improved, or much reduced in cost, like concrete and steel.

Using these modern materials and equipment the Western Maryland's engineers believed it was theoretically feasible to build in the hills above the flood plain. Since the Gould Empire was willing to invest considerable capital in making the Western Maryland a viable link in its transcontinental scheme, its engineers could employ much of the current technology to their advantage. Gould realized at the outset that his transcontinental system would require a massive investment, but he fully expected that the resulting efficiency and marketing advantages would generate a tremendous increase in traffic, lower costs, and long-term profits.

Of course, both the Baltimore and Ohio and Pennsylvania Railroads had the funds to invest in infrastructural improvements, and each did throughout the nineteenth century, but such improvements primarily came in the form of better-designed or more advanced replacements of existing bridges, stations, yards, repair facilities, and operating works such as signaling and dispatching systems. Occasionally investments came in the form of grade improvements, usually motivated by the need for additional capacity and manifested in the form of expansion of existing grades for more track. These rarely came in the form of entirely new routes designed to eliminate curves and grades, and seldom, if ever, matched the scale, scope, or completeness of the Western Maryland's expansion projects. Still, while obsolescence left them open to being bested by better-built routes, no serious contenders threatened before 1904, when construction began on the Cumberland Extension.

Construction

The railroad company filed a charter for the new line with the Maryland Secretary of State in May of 1903. Railroad miles were counted westward from a zero point in Baltimore, but actual construction commenced from Big Pool westward. Some roadbed surfacing and track-laying began on May 28, but construction bids did not close until June 15, and general contracts were not awarded until the following August 1.

Acquisition of land for right-of-way for the roadbed and for a supply of fill material and access for construction provided the railroad with its first direct expenses. Legal proceedings concerning the new railroad's right to cross the still-active C&O Canal delayed some of the work until a February 1905 settlement. In this settlement, the railroad paid $500,000 for forty-two strips of canal land for crossings and other uses. A ruling by the Court of Appeal of Maryland the previous June sustained the railroad's right to cross the canal, with the provision that the railroad be liable for any damages. Once this issue was settled, contiguous work on the new grade proceeded.[49]

Construction began at Big Pool, Maryland in 1904.[50] As of February 1905, the Western Maryland payroll supported a total force of 2,629 workmen to build the Cumberland Extension. A large proportion of the skilled workforce was likely native-born, but there were also large numbers of Italian and Austrian immigrants. The crews worked in two shifts, around the clock.

[49] Roger Cook and Karl Zimmerman, *The Western Maryland Railway*: Fireballs and Black Diamonds (Laurys Station, PA: Garrigues House, 1992, orig. San Diego: Howell-North Books, 1981) 42-43, 47-49.
[50] Ray Wongus, Jr., "The Cumberland Extension," *The Blue Mountain Express*, Fall 1993, Vol. 22, no. 3 (Union Bridge, MD: Western Maryland Railway Historical Society, 1993), 12.

Workers slept in temporary housing on the job site, which moved from place to place as the work advanced. The railroad spent $1,200 a day feeding this workforce. Daily food allotments included a half a pound of fresh meat per worker, plus thirty cases of corn, seventy-five bushels of potatoes, 240 pounds of coffee, 600 pounds of sugar, and 3,360 pounds of flour, and unspecified thousands of eggs. Wages for laborers ran between $1.50 and $1.75 a day; if Hagerstown Division freight train crew wages can be hypothesized as comparable, skilled workers would have made between $70 and $100 a month.[51]

Almost immediately, the railroad began incurring extra expenses. In the section of the railroad paralleling the canal, around milepost 127, railroad construction crews removed a total of 140,000 cubic yards of rock and placed it on the riverbank. In the engineering field notes for its 1920 Valuation Report on the line, the Interstate Commerce Commission (I.C.C.) expands upon the railroad construction crews' treatment of the canal.

> It appears the [Western Maryland] was particularly desirous of expediting this rather difficult and necessarily slow work and made some special arrangements with the sub-contractor to put on an extra large force and push the work, and in carrying out this rush program, the [Western Maryland] assumed the extra costs involving the rehandling of material and the resulting damages to the canal.[52]

I.C.C. engineering field notes for the 1920 Valuation Survey refer to a number of amounts paid by the railroad as compensation for damage to the canal. One page of notes cites an August 1905 voucher "for labor performed and material furnished repairing canal damaged by blasting" in the amount of $1676.75. Other liabilities covered by the railroad included building a bridge to maintain a U.S. mail route across the canal, repairing leaks in the canal, and moving and altering a building at Canal Lock Number 55. This arrangement, compounded by the magnitude of the work and the weather, cost the railroad more than it had anticipated.

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[51] Untitled report. (Western Maryland Railway vertical file, Western Maryland Room, Washington County Regional Library, Hagerstown, Maryland), 8-12.

[52] Interstate Commerce Commission. I.C.C. Engineering Field Notes, Valuation Survey. (Washington, DC: Interstate Commerce Commission, 1919-1921; On file, National Archives, College Park, MD) Box 34, Folder 11, Valuation sections 1, 2, 3, 8, 9, & 10., p. 27.

> It seems this period covered the winter months during which the canal was not operated. In carrying out this program the severity of the winter prevented the sub-contractor from completing his work within this period. The resulting damages to the canal and to certain of its shippers amounted to about $33,000 and, as mentioned above, this and other expenses were borne by the railroad.[53]

While it likely ignored many of the annoyances it caused the Baltimore and Ohio, the Western Maryland addressed the issue of possible further damage to the canal after the line went into use by pouring riprap onto the bank that separated the railroad from the canal. "When bridge masonry was built close to canal towpath, necessitating excavation that might injure towpath, closely laid riprap was placed along inside of canal on slope of towpath."[54] Bands of rock about a one and one half inches deep and twelve feet tall occurred at three locations: a 150' stretch half a mile west of Little Orleans, another one half a mile east of Green Ridge, and one more a quarter of a mile west of Green Ridge, all built in 1904. When the canal was re-watered after construction, most of these were no longer visible below the water's surface. Infrastructure through this area included the riprap, as well as a stretch of concrete and masonry retaining wall where the railroad was directly adjacent to the canal. West of Sideling Hill Creek, damage to the canal was less a concern since the topography took the railroad away from the canal.

Barlow continued to plan and guide the engineering work. William Cary Hattan served as resident engineer on the project at Hancock in 1904 and 1905. While much of the new railroad was built using state-of-the-art construction methods at the start of the twentieth century, the scale was exceptional. A 24-hour work cycle, though costly, brought quick results.

Technology and Engineering

Regional topography and geology presented unique and exceptional challenges to the Western Maryland's chief engineer, J. Q. Barlow. Exacerbating these challenges was the presence of the Baltimore and Ohio Railroad and other transportation routes, including roads and the Chesapeake and Ohio Canal, which had already taken up the best land in many places, forcing the Western Maryland off of the relatively flat flood plains of natural watercourses and onto the rougher terrain further up the hills. Baltimore and Ohio, the major bondholder and receiver of the

[53] I.C.C. Valuation Field Notes, pp. 5-7, Box 34, Folder 11, Valuation sections 1, 2, 3, 8, 9, & 10,
[54] Ibid.

canal, came to present additional challenges in the form of political and legal obstacles, but it was the frustration of building through the less-desirable parts of already-challenging terrain that led Western Maryland to build the precedent-setting infrastructure that it did.

Infrastructure on the Cumberland Extension west of Hancock consists of a series of cuts, fills, culverts, tunnels, and bridges designed to carry the railroad at an average of seventy-five feet above the Potomac. This enabled the railroad to avoid a number of oxbows (u-shaped bends) in the river, and cut across the corduroy landscape of ridges and valleys that the river winds through. Edwin Killough summarized the nature and extent of this challenging infrastructure in his history of the company:

> The construction features of this extension were particularly daring. The course of the turnpike was changed many times to accommodate the railroad. Retaining walls were built down the bed of the canal to support the road. Of the sixty miles of line, five tunnels represent two miles, one of which, Indigo Tunnel, is 4350 feet long. The Potomac River is crossed eight times by the railroad and there are a total of twenty-three steel bridges on the extension. The line is of modern construction, provisions being made in the larger bridges for the construction of a second track when needed.[55]

Of the 30 miles between Sideling Hill Creek and Spring Gap, over 20 percent (more than 6 miles) are in or across major cuts, fills, bridges, and tunnels. This does not include the hundreds of smaller fills, cuts, and other grading that helped to make the grade level.

The incorporation of such extensive, and expensive, earthwork, bridges, and tunnels provided a shorter route through the Paw Paw Bends—a series of closely-spaced oxbow bends in the Potomac River near Paw Paw, West Virginia—than that of the original Baltimore and Ohio "Low Line" alignment of 1842, which went circuitously around the ridges rather than through or across them. The Western Maryland's alignment was nearly level as well, with no grade steeper than 0.5 percent west of Williamsport, Maryland, but it was far from straight. Although the Cumberland Extension achieved the shorter route between Hagerstown and Cumberland, the fourteen-mile alignment through Paw Paw Bends did require moderate to severe curves that were somewhat out of keeping with the higher-speed standards of the rest of the line. Through the bends alone, there were twenty-five curves totaling over six miles in length (forty-four percent of

[55] Killough, *A History of the Western Maryland Railway Company*, 31.

the total distance) between Mileposts 128 and 142, which restricted freight train speed to thirty-five miles per hour and passenger trains to forty miles per hour.[56] By comparison, typical train speeds of the day for straight, level, mainline track ranged between fifty and 110 miles per hour for passenger trains and forty to seventy miles per hour for freight. All but the very shortest of trains passing over the line would have been, at any point during the journey, always passing through or over at least one substantial fill, cut, bench, bridge, tunnel, or culvert. A forty-car freight train might occupy two long trestles and a tunnel at once—an exceptional circumstance on most other lines.

For the bridges, six types of spans were used; each represented current technology by using lightweight, modular steel assemblies to reduce material and construction costs and increase structural integrity. Application of each type depended on immediate circumstances. For very short spans, the railroad usually constructed single or double concrete-arch culverts; concrete was another labor-saving technology that enabled more grandiose works. In a few instances where the railroad crossed a small road, I-beams below the ties and between concrete abutments were also used. In locations where the railroad crossed another railroad or the C&O Canal, through trusses and through plate girder spans were used to provide necessary clearance under the bridge. For river, stream, and high-level canal crossings, two styles of deck trusses were installed, supplemented with deck plate girder approach spans. The trusses, plate girders, and beams were generally partially prefabricated and modular, thus enabling installation with a minimum of personnel and adding to the practicality of the overall grandiosity of the design.

In building the bridges, workmen constructed concrete piers and abutments first. Wooden forms for concrete tunnel portals, culverts, and bridge piers and abutments were composed of individual planks placed edge to edge in frames. At river crossings, cement was mixed on the shore and hauled to the pour sites in buckets, suspended by aerial cables. All of this saved the weeks of additional work that hand laid masonry would have taken a generation before.

Tunnels, culverts, and smaller bridges were built directly from Western Maryland official standard drawings. A few were adapted from the standards to meet existing conditions, including

[56] Railroad curves are measured in degrees, meaning the track's direction changes every 100'. Thus, the greater the number of degrees, the sharper the curve, and the slower a train must travel through it. Where possible, most railroads prefer curves of 3° or less to minimize operational problems. Source on Western Maryland profiles: *Track Chart: Cumberland to Hagerstown & Big Pool to Cherry Run* (Baltimore: Western Maryland Railway, 1919-1941; on file, Western Maryland Railway Historical Society, Drawings Room, Union Bridge, MD).

a culvert that was spliced onto an existing culvert under the C&O Canal. This saved labor in the same way that modularity and prefabrication did by allowing crews dedicated to each specific part of the process to move quickly from one job to the next.[57]

Machinery made the assembly of steel bridges fast as compared to the onsite, from-scratch methods of older constructions. The Pennsylvania Steel Company fabricated the bridge members at their plant in Steelton, Pennsylvania, and sent them to the Potomac Valley as a kit of parts for final assembly. Trusses came together atop the piers one prefabricated member at a time with the help of derricks. Truss and girder members were constructed mostly of plate and rolled steel members in order to keep the construction as light as possible. Castings were limited to a few large washers and other load-spreading devices. Workmen performed final assembly of box beams, plates, and girders in situ. Movable jib cranes with angled booms rigged out from the deck sat atop the already-constructed portions of the trusses and lowered new pieces into place. A traveling chassis made it easy for the derricks to advance with construction.

Temporary narrow gauge railways were also used in the excavation of cuts and tunnels, where rock was loosened by drilling and blasting, and in the construction of fills, which frequently used material removed from the cuts and tunnels. The *Cumberland Evening News* provided another colorful account where tunnel construction was concerned:

> Just think of those ponderous blasts! Tunnels were dug into solid rock. In those tunnels 1,400 kegs of powder were placed. A puff, a thunderous report, and 250,000 tons of rock were lifted from its foundation and hurled into the canal, into the Potomac and distributed over surrounding territory. This was not one blast. It was several. And when the way was paved for the road bed, when the water was again in the canal and when the mules was again on the towpath the fact was demonstrated that Mr. Barlow is one of those men who "do things." He is an Eastern man by birth and education and a far western man by training. He learned how to build roads over mountains, under mountains, and around mountains, how

[57] Western Maryland standard drawings 434-G, 632-D through 650-D, 889-G through 891-G, (Baltimore: Western Maryland Railway, 1919-1941; on file, Western Maryland Railway Historical Society, Drawings, Room, Union Bridge, MD).

> to bridge canons [sic] and rivers; how, in short, to get there quickest with the least expense, before he came to Maryland.[58]

Contemporary machinery also made other earthworks practicable. Steam shovels and powered winching equipment heavily supplemented hand labor in removal of the blasting debris and soft overburden. Small locomotives colloquially called "contractor's dinkies" and typically used in construction projects pulled the debris away in four-wheeled dump cars to be reused at fill sites.[59] At least one construction photograph shows an open-frame derrick at the top of a fill, presumably used to hoist material out, with a steeply-inclined narrow gauge track carrying the dump cars from the top of the fill to the bottom at one end.[60] Temporary trestles spanned fill locations, and the dump cars would unload material around the trestles until they were completely buried. The railroad leased the rights to either dig fill material or dump waste material on private land adjacent to the right-of-way. I.C.C. field notes indicate several specific cases where compensation was paid to landowners for this right. An example is a case where the "Carrier paid $200 for use of 1.15 acres, for spoil bank purposes. All rights of carrier ceased on completion of construction work."[61]

The example of tunnels provides a demonstration of the ways in which this high-tech railroad incurred more expenses than planned. Construction itself was straightforward, but difficult.

> Tunnel construction began with a small bore just large enough for workmen to fit into, which was then enlarged from within.
> All the tunnels were included in a contract with MacArthur Bros. Co. and associates, the general contractors....The material...consisted of earth, loose and solid rock and shale....The solid rock in the tunnels was much harder than that in open cuts.[62]

To break up the rock, workers took advantage of the rock's natural tendency to fracture along the layers of its strata. Indigo Tunnel passes through a northeast-to-southwest strip of the Foreknobs

[58] "The C&O Canal: No Intention of Interferring (sic) with the Waterways," *Cumberland Evening Times*, December 24, 1904 (Cumberland, MD: Cumberland Evening Times, 1904), 1.
[59] I.C.C. Valuation Field Notes, pp. 1-26, Box 40, Folder 30.
[60] Panoramic photograph, collection of the Hagerstown Roundhouse Museum, Hagerstown, MD. Source unknown.
[61] I.C.C. Valuation Field Notes, pp. 1-26, Box 40, Folder 30.
[62] Ibid.

Formation, a geologic formation composed largely of shale with deposits of sandstone and siltstone. The Kessler Tunnel also passes through this same geologic formation, while the Stick Pile Tunnel passes through the similar, but slightly harder, Brallier Shale formation.[63] Western Maryland standard drawings called for different construction methods under the different conditions and materials through which each tunnel was bored. The engineers constructing the Cumberland Extension tunnels adapted these ideal-conditions standards to the specific geologic conditions present. For example, standards called for concrete tunnel linings, but the unstable nature of the shale required that timber held together with iron hardware lined the tunnels.[64] Thick planks held dry packing—essentially stone rubble or crushed rock—in place to stabilize the roof. This method of tunnel construction did not necessarily contribute to the advanced nature of the construction—in fact it was an exception to the otherwise uniform use of modern concrete—but it helped to drive the project cost even higher. The total cost for five tunnels, as charged, was $768,374.39. Excavation costs were responsible for the bulk of this, at $538.392.64, followed by timbering, at $135,546.20, or about $53.14 per linear foot. Concrete costs at the portals were comparatively low, totaling $3,998.91 for sidewalls and $7,440.90 for arches,[65] but the tunnels also incurred other costs:

> Of the extra bills incurred in the construction of the tunnels, only one of the large amounts was in connection with the Indigo Tunnel. It was decided to waste the material here at a different place from that contemplated when the bids were made and the contract awarded. For this purpose inclines were built and machinery was installed at each end of the tunnel to carry the waste over the canal. The Railway Co. agreed to pay such additional cost…over the method of waste disposal originally planned by the contractor. The amount the company paid…was $6,698.91.[66]

The Indigo Tunnel cost $324,058.62 to build, including $732.10 to cover the expense of moving a steam shovel from Indigo to Kessler Tunnel. Stick Pile Tunnel cost $128,590, while the Kessler Tunnel cost $145,546.54; a breakdown of the Kessler Tunnel construction materials gives an idea what this cost covered, plus labor. The tunnel's construction required 372 cubic

[63] Site visit with Erica Clites, Geologist, NPS National Capital Region, August 5, 2009; notes of the author.
[64] Western Maryland Standard Drawings 29-G through 39-G and 654-B (Baltimore: Western Maryland Railway, 1919-1941; on file, Western Maryland Railway Historical Society, Union Bridge, MD).
[65] I.C.C. Valuation Field Notes, pp. 56-72, Box 40, Folder 30.
[66] I.C.C. Valuation Field Notes, p. 56, Box 40, Folder 30.

yards of concrete in the portals, 352,000 board feet of timber to frame the walls and ceiling, 3,789 cubic yards of dry stone packing, 298,331 board feet of planking to support the dry packing and bracing the side timbers, and 12,019 pounds of iron hardware holding it all together. This tunnel went through the same hard-rock ridge that the C&O Canal's nearby Paw Paw Tunnel penetrated.

By February 6, 1906, track had been laid over the entire length of the Cumberland Extension. As the engineer's report indicated, "at that time much still had to be done to complete ballasting, lining tunnels, building telegraph lines, stations, water tanks, section houses, and other facilities."[67] For the next one and a half months, crews rushed to finish this work. The railroad opened to the first through freight train on March 15. The first passenger train followed on April 17, 1906. Completed in less than three years, the entire Cumberland extension had cost $6,918,934, or $115,000 per mile.[68] The revenue stream that came from opening the line was likely quite welcome, as the Western Maryland was seriously in debt.

The Cumberland Extension was a massive undertaking. In the Paw Paw Bends, for example, it was routine for freight trains to occupy several major Potomac crossings and perhaps even a tunnel at the same time. Even on the straight stretches of canal, trains could usually be crossing four or more hollows on fill-and-culvert arrangements at one time, not to mention the intervening cuts through the hills that separated each hollow. The nearby Baltimore and Ohio (B&O) stayed on the floodplain for nearly all of the same stretch. It was a much curvier railroad, but also a much cheaper one—even when its mid-19th-century cost is adjusted for early-20th-century currency values. The comparison in maintenance costs between the two lines was proportionally similar after each went into use. Also, the B&O was paid for, whereas the Western Maryland remained in debt for its construction costs into the 1930s. The fact the Western Maryland had a hard time generating traffic made it difficult to keep up with these infrastructural investments.

[67] Williams, *The Western Maryland Railway Story*, 27.

[68] W. Raymond Hicks, "The Cumberland Extension – Western Maryland Railroad Company," in *Railway and Locomotive Historical Society Bulletin,* no. 122 (Sacramento: Railway and Locomotive Historical Society, April 1970), 12-15; George M. Leilich, "The Western Maryland: A Corporate History" in *Railroad History* 155, (Philadelphia: National Railway Historical Society, Autumn 1986) 72-77; and Wongus, "The Cumberland Extension," 11-21.

Competitors

The Western Maryland's extensions were, by necessity, rich in technology, substantial in form, and aggressive in construction. Like any such venture, they were also expensive, but to their backers they appeared to offer solutions to the problem of monopoly by the PRR, B&O and other railroads that served Baltimore and Pittsburgh.

Better-financed competitors with large legal staffs made the process more difficult for Gould and his partners. Management at the PRR and the B&O were especially concerned. The competition looked upon the plan with a combination of trepidation and smug humor. B&O president Leonor F. Loree offered his opinion on the proposed Western Maryland route. "Mr. L.F. Loree reported to Mr. A.J. Cassatt, President of the Pennsylvania Railroad that it would be impossible to build a line paralleling the [Baltimore and Ohio] through the Potomac Valley and that the [Western Maryland] was virtually pocketed."[69] Gould's expansion plans for the Western Maryland incurred attempts at preventive action by its competitors before a single shovel was turned.

One of the first such actions was fateful, insofar as it led directly to the construction of the Cumberland Extension. Prior to 1904, the Western Maryland's major western termini included Williamsport, Maryland, where it interchanged coal brought east on the Chesapeake and Ohio Canal, and Cherry Run, West Virginia, on the banks of the Potomac, where the Western Maryland interchanged freight cars with the Baltimore and Ohio.[70] Western Maryland's owners initially offered to cooperate with the Baltimore and Ohio by maintaining its interchange arrangement at Cherry Run. The Baltimore and Ohio declined to grant them the rights to use its line from Cherry Run to Cumberland, and so in early 1903, the Western Maryland directors passed an order to construct the Cumberland Extension. One historian commented on the Western Maryland board's dramatic response: "a cheaply built road would never challenge the B&O, so Gould's engineers built a B&O killer, with lower grades, broader curves, and fewer miles, 254.2 vs. 282.5, between the common end points of Baltimore and Connellsville."[71]

[69] Hicks, "The Cumberland Extension – Western Maryland Railroad Company," 15.
[70] Leilich, "The Western Maryland," 18.
[71] Tom Biery, "Underdogs Really are Better: Western Maryland: Cumberland, MD., 1973," in *Trains Magazine* (Waukesha, WI: Kalmbach Publishing, February 2004).

The Baltimore and Ohio held a controlling interest in the Chesapeake and Ohio Canal Company, as a result of receivership from 1884 to 1924. In its tactics to thwart the competition, Baltimore and Ohio took full advantage of this.

> As is well known, the Baltimore and Ohio Railroad Company has been the mainstay of the canal for more than a dozen years, not that it loved the canal, but because by maintaining its grip through successive trusteeships it was in position to keep it out of the hands of those corporations which sought possession of its banks as a railroad bed. Had they been successful the Baltimore and Ohio would have had a most formidable competitor in coal traffic...which is its very life blood.[72]

The canal company went so far as to institute legal proceedings against the Western Maryland's attempts to gain right-of-way across canal land. The Western Maryland eventually won these rights-of-way in court, but the proceedings were an unanticipated expense.

The Pennsylvania Railroad also made life difficult for the Western Maryland. It interfered with partnerships that Gould built with Andrew Carnegie that would have resulted in the transcontinental route having considerable access to steel industry-related shipments to and from Pittsburgh.[73] In 1902 it chose not to renew its contract to have the Gould-controlled Western Union Telegraph Company operate the telegraph lines along its rights-of-way and had them evicted and the wires forcibly removed with the support of the Federal Circuit Court the following year. Pennsylvania Railroad formed a new contract with the Postal Telegraph Company instead, which was no small financial loss for Gould. In 1904 the Pennsylvania

[72] "The Future of the C and O Canal: Will It Be Operated as at the Present Time," in *Cumberland Evening News*, October 7, 1905, 1.

[73] Gould's purchase of the Wheeling and Lake Erie from another portion of his father's estate in 1901 was an important part of assembling the necessary links for a transcontinental route, but it was a sure sign that the scheme threatened the Pennsylvania's dominance of the upper Ohio Valley steel business. Andrew Carnegie, who undoubtedly saw a chance to create a competitive environment and more favorable freight rates for his Carnegie Steel Company, allegedly supported the acquisition. Shortly before turning his properties over to the U.S. Steel Corporation, he entered into an agreement with the Fuller Syndicate that stated the steel company's subsidiary Union Railroad would interchange with the W&LE and thus route a quarter of all of Carnegie's westward steel traffic over the Gould-controlled line. The Pennsylvania Railroad quickly reacted to the Carnegie agreement and renegotiated its relationship with Carnegie Steel on terms more favorable to it. This did not eliminate Carnegie's agreement to connect the Wabash Pittsburgh Terminal to the Union Railroad, but it prompted the Carnegie interests to take the position that the percentage shipment agreement was legally unenforceable. This was a loss of important potential revenue for Gould, whose quickly mounting construction debt could ill support it. The Pittsburgh Coal Company also supported the Fuller Syndicate until its existing westward connections persuaded it otherwise.

Railroad began legal proceedings against the Fuller Syndicate—likely on anti-trust grounds. The exact nature of the suits is unclear, and evidently the Gould scheme continued despite them. However, the legal proceedings and other maneuvers made Gould's work harder and, notably, more expensive, and it cost him several valuable revenue sources. This was important, as it soon became evident that his plans would cost too much money to sustain construction.

Revenue and Operation

Once the Cumberland Extension line went into operation in 1906, coal from the fields of northern West Virginia went to market on the Western Maryland. When the Connellsville Extension opened in 1912, the railroad's mileage had doubled in less than ten years.[74] The Western Maryland issued its 44th Annual Report in 1906, reporting that it operated 540.92 route miles of track and owned 5,920 freight cars.[75] This fleet quickly grew as the railroad established traffic streams, primarily in merchandise, seasonal commodities, and coal traffic.

Merchandise moved back and forth over the Cumberland and Connellsville Extensions between the East Coast and the Midwest. Coal funneled through the two extensions from various feeder lines in Pennsylvania, western Maryland, and West Virginia to the port of Baltimore. A daily, long-distance passenger train traveled over the line on its way between Baltimore and Chicago from 1913 to 1917. A modicum of interchange freight traffic between the Western Maryland the Chesapeake and Ohio Canal, mostly coal, lasted until the Baltimore and Ohio abandoned the canal in 1924. Carload traffic from Hancock, Hagerstown, and points east provided important secondary revenue. When the Cumberland and Connellsville extensions went into operation, the railroad also took advantage of industries in the areas around Cumberland, Elkins, and the Monongahela Valley to provide it with carload traffic. Even with online carload traffic, though, the completion of the through line to Connellsville made coal and bridge traffic the Western Maryland's main source of revenue.

Though it passed through sparsely-populated country, a few industries along the Cumberland Extension provided modest local, carload revenue for the railroad during the line's early years of operation. There was a cement plant near Hancock at Round Top. Cross ties were loaded onto cars for a time at Pearre, as were barrel staves at Little Orleans. The Kulp Lumber Company

[74] Leilich, "The Western Maryland," 155.

[75] David R. Sweetland, *Western Maryland In Color* (Edison, NJ: Morning Sun Books, 1995), 3.

operated on the north side of the broad, flat valley floor just east of Old Town, but its sawmill closed in 1914.[76] Orchards shipped apples by train from several points at the east end of the line, as well as at Pearre, Little Orleans, Green Ridge, and Oldtown. An orchard at Cohill (east of Pearre) continued to provide business until well after World War II.[77]

Most of the local freight that had existed during World War I and the 1920s on the Cumberland Extension became casualties of the Great Depression. Some industries remained, and some new ones emerged in the post-World War II period. The most significant was a large Pittsburgh Plate Glass plant between North Branch and Cumberland near where the Cumberland Extension crossed the south throat of the Baltimore and Ohio's South Cumberland freight yard.

However, the Western Maryland from the 1930s onward focused largely on the traffic that its infrastructure was best suited for: heavy-duty, through service. The inventory of freight cars reflects this. Of the 13,088 freight cars in Western Maryland's fleet in 1950, 10,754 were coal-hauling hopper and gondola cars. The Cumberland Extension mostly served as a conduit for four to five million annual tons of coal extracted from the mines of West Virginia and southwest Pennsylvania to the Port of Baltimore. The remaining (2,140) cars were mostly boxcars used for hauling grain, machinery, and merchandise. Once suitable locomotives were obtained starting in 1940,[78] the line also earned revenue in high-speed merchandise traffic, serving as a bridge line (which meant that it forwarded traffic from one railroad company's line to another's). From the 1930s onward, much of this traffic operated in cooperation with the Pittsburgh and West Virginia and a consortium of other, interconnected but independent railroads known informally as the "Alphabet Route." Grain traffic from the west provided supplementary income when the St. Lawrence Seaway froze over. The drawback was that "Western Maryland tends to be a one-way railroad, moving up to seven times more revenue tonnage eastbound than in the reverse

[76] Benjamin F.G. Kline, Jr., *Tall Pines and Winding Rivers: The Logging Railroads of Maryland*, 2nd ed., (Strasburg, PA: Friends of the Railroad Museum of Pennsylvania, 2007), 86-92; Robert Zimmerman and Mason Cooper, "Green Ridge Railroad of Maryland," undated article available at Western Maryland Railway Historical Society Archives, Union Bridge, MD.

[77] Though likely not a high revenue producer, the Woodmont Rod and Gun Club just east of Pearre used the railroad to trade in live game, shipping deer in from Michigan, Cuba, and other places. Other information in this paragraph from Wilbur Metz, interview by David A. Vago, July 14, 2009.

[78] Western Maryland ordered twelve large freight-service steam locomotives from Baldwin Locomotive Works with similar tonnage capacities to existing locomotives but with larger-diameter drive wheels for faster service from; these arrived in 1940 and 1941. Additional steam locomotives for high-speed service came in 1947, also from Baldwin, followed by new diesel-electric locomotives from General Motors in the same year and additional deliveries between 1952 and 1954 that replaced steam in all capacities. See Sweetland, *Western Maryland In Color*, 3-5.

direction."[79] That, plus a lack of industries and communities directly along its route that could provide important revenue, brought the Cumberland Extension dangerously close to being a money loser. In 1950, Western Maryland earned an operating ratio of 68.4 per cent expenses to revenue—a high state of efficiency—but this did not offset capital, liabilities, and other fixed expenses sufficiently to bring the railroad stability as competition from other forms of transportation intensified.

Changes

Over its lifetime from first construction in 1904 to abandonment in 1975, the character of the line's physical plant did not change drastically, thanks to the advanced technology of its construction. However it did see the installation of heavier rail to accommodate larger locomotives and higher-capacity coal hopper cars, and the extension of passing tracks to accommodate longer trains. In 1913 passing tracks were added on the Cumberland Extension at Parkhead, Hancock, Herbert, Jerome, and North Branch, while existing ones were extended at Hancock, Fairplay, Town Creek, and Oldtown. Having originally been laid with ninety pound rail, the line was upgraded to 130-pound rail in the 1920s. The track was also raised just before World War II to accommodate locomotives with wider clearance requirements.

In addition to the track upgrades, a few bridges toward the east end of the line were replaced or upgraded shortly after the line opened. In 1910, a 37' I-beam bridge near Pearre, milepost 125.3, was built, likely replacing a wooden stringer arrangement. During 1911-1912, the timber trestle bridge at milepost 125.3 over the C&O Canal at Tonoloway, Maryland, was replaced with a steel span on concrete supports. A temporary trestle carried the line around the site while work continued. The largest bridge upgrade came further to the west in 1913, when a passing track was added at Town Creek, necessitating the addition of a second set of spans on the double-width concrete abutments and piers. This was the only location on the Cumberland Extension where the railroad installed a second bridge on the abutments and piers initially designed for it.[80]

The mostly-modern infrastructure of the route otherwise remained the same, and in remarkably good repair, until abandonment in 1970. One exception was in operating technologies, especially as improved signaling and telecommunications equipment became available. The

[79] David P. Morgan, "Western Maryland," in *Trains Magazine* (Waukesha, WI: Kalmbach Publishing, March 1954), 51.
[80] I.C.C. Valuation Field Notes, pp. 1-56, Box 40, Folder 30.

poles of the telegraph system were a conspicuous part of the infrastructure. Located every few yards along the entire railroad, they carried telegraph wires for the railroad and Western Union, as well as signal communication lines. As communication technologies advanced, they remained in place to carry the wires of telephone rather than telegraph systems.

The other exception to the infrastructural stasis was in gradual reduction of the number of structures along the line. Most railroad buildings were built to standard plans from sawn, dimensioned lumber. Especially numerous were the watch boxes constructed to shelter the employees whose job was to watch for landslides, snowdrifts, and other obstacles. The earthwork on the Cumberland Extension occasionally threatened the safe operation of trains since the benches cut into the mountainsides were often steep and sometimes penetrated through fairly soft ground and easily fractured rock. As a result, land and rockslides were quite common. Other buildings included section houses and stations. Small, partially-enclosed waiting sheds served passengers at Woodmont Rod & Gun Club, Little Orleans, and Kiefer's. Only Oldtown and Pearre received true stations. An agent who doubled as station agent and telegraph train-order system operator staffed the sheds. As maintenance became more and more mechanized, fewer maintenance outposts were necessary. As passenger train service declined, stations were gradually removed. When diesel locomotives replaced steam power, crews removed infrastructure like water tanks, and when telegraph and later telephone communications between trains and dispatchers were replaced by radios, telecommunications buildings gradually disappeared.

Financial Troubles

Gould's Western Maryland project, and indeed his whole transcontinental scheme, was a gamble, apparently based on the faith that the risk involved in spending $50 million in credit could be justified by the rewards that the finished product would produce. The plan ran out of money before it finished linking the oceans. Gould's grandiose scheme required a mammoth investment of capital in acquisitions of existing railroads and in major new construction on the Western Maryland, starting with the Cumberland Extension. The debt incurred turned out to be more than revenue could support, and the company defaulted on interest payments in 1908 and 1909. In the receivership that followed, Gould lost the Western Maryland as well as the other roads intended to be part of his transcontinental system. The receivers finished the line, but in the years that followed, in the face of debt, high maintenance costs, and competition just across the river, the Western Maryland struggled to maintain a healthy balance between revenues and expenses.

George Gould built his transcontinental plan around the premise that cutting-edge railroad-building technology would allow him to best the competition by permitting faster and more reliable service while also offering a seamless, coast-to-coast route, but in hindsight, the plan did not sufficiently account for construction cost, did not break the expansion into more manageable increments, and did not sufficiently allow for service to existing, major population centers. This being the case, Gould failed to beat his competitors at the business of making money with trains--but not before threatening them with his new infrastructure. Having raised the bar on engineering standards (and thus potential service standards) his investments were enough to force these competitors to invest in their own physical plants. The proposed Western Maryland extension into western Pennsylvania posed a threat to the near-monopoly that the Pennsylvania Railroad (PRR) held on Pittsburgh and its highly-concentrated industrial trade, both through its own lines and those of the B&O (in which PRR held a controlling interest). PRR and the B&O consequently fought the Gould plan through a variety of channels. Even after a bankruptcy resulting from high construction costs killed the transcontinental idea, the next-best thing—completion of several smaller links in key areas, including the fastest and most direct route between Pittsburgh and the ocean—provided a compelling reason for the receivers to elect to finish the Western Maryland. This included adding the last finishing touches to the Cumberland Extension and constructing its westward link, the Connellsville Extension from Cumberland, Maryland to Connellsville, Pennsylvania. As the line neared completion and then opened, PRR and B&O managers invested in grade and curvature improvements based on the examples set by Western Maryland and its contemporaries.

The Cumberland and Connellsville Extensions were the contemporaries of five other, well-planned, major railway construction projects that also represented significant advances in construction technology in the early 20th century. They were joined by other projects on small, insular railroads relating to mining in Utah and Montana, but three of these larger projects were part of the Fuller Syndicate scheme: the Wabash Pittsburgh Terminal and Wheeling and Lake Erie lines, which were planned to link the Western Maryland line at Connellsville to the eastern extremity of existing Gould-owned lines in Western Ohio, and the Western Pacific, which would extend the western holdings to Oakland, California. Construction on these lines was equally ambitious, playing a similar role to that of the Western Maryland extensions in overspending the Syndicate's credit.

The other two were not Gould or Fuller properties, but instead made money serving as dedicated coal-conduit lines from Appalachian mines to tidewater ports: the Virginian Railway, from Deepwater, West Virginia to Norfolk, Virginia, and the Carolina, Clinchfield, and Ohio, linking Tennessee and western Virginia coalfields to tidewater railroads in South Carolina. Notable in comparing these concurrent projects is the emphasis that Western Maryland placed on competitiveness through expensive technological advancement. Although all of the contemporary, early-1900s lines used advanced technology to make themselves more competitive, most of the others used a far more balanced approach with factors of cost, operating efficiency, and presence of potentially profitable customers. Among Fuller Syndicate projects, Wabash and Western Pacific had the advantage of being immersed in regions rich in potential online traffic. These included, respectively, the agricultural and manufacturing centers of Ohio, Indiana, and Illinois, and the mineral and coal resources of Nevada and Utah as well as the produce of California's Central Valley.

This helped make them more successful than the Western Maryland in the decades that followed. Of all these projects, Western Maryland proved the least solvent over time. Among the projects specific to the Appalachian region, including the Virginian and the Clinchfield, the WM's endpoints were the most populous, and it enjoyed the most through traffic. However, major portions of the new construction were built well above the flood plain. This is what necessitated the line's numerous and costly works of civil engineering. Additionally, in spite of its populous endpoints, it passed few towns larger than a few hundred citizens in the intermediate territory between Hancock, Cumberland, and Connellsville. The ridges along the Cumberland Extension's length held little coal, and nearby timber resources were mostly exhausted in the first two decades of the 20th century. Most importantly, the line was redundant. With the B&O only a short distance away and mostly parallel, the Western Maryland's expensive physical plant and limited operating capital hampered its ability to compete with such a physically close rival. For these reasons, it is significant that of the five major, contemporary, early 1900s projects, only the Western Maryland and the original Wheeling and Lake Erie are no longer in use as a railroad. In other words, the factors of potential traffic and operating efficiency did not balance sufficiently against the cost to keep the Western Maryland competitive as railroad mergers increased in the

1960s. The Western Maryland's significance, therefore, rests upon the way in which its high technology influenced other railroads around it.

In spite of its failings, the Western Maryland Railway was competitive enough to operate for seven decades, mostly because the advanced nature of its design and construction gave it a direct and fairly straight route that, in turn, enabled it to market itself effectively as a through route for traffic originating and terminating beyond its endpoints. In the 1940s and 1950s, the WM earned a reputation as an effective, well-run organization. Its well-maintained equipment and infrastructure made it one of the Mid-Atlantic region's railroading showpieces, while reliable on-time performance and well-marketed, high-speed freight services made it a favorite with customers. This conservative, polished appearance belied the financial difficulties that plagued the company. Lingering construction debt payments, high maintenance costs on its intensive infrastructure, and a near-complete lack of local traffic limited the company's financial success even during good economic times.[81] As the railroad industry began to falter in the mid-20th century from highway and air competition and a gradual decline in domestic manufacturing, the Western Maryland found it harder to compete and remain profitable. Between the 1920s, when Baltimore and Ohio first acquired Western Maryland stock, and the late 1960s, when railroad mergers became a commonplace means of eliminating redundancy and improving finances, the company's competitors gradually outdid it; Baltimore and Ohio fully merged with the Western Maryland in 1968 and the successor system, the Chessie System, abandoned major portions of it in 1975, including the Cumberland Extension.

<u>National Park Service Acquisition</u>

Probably spurred by interest in the line on the part of competitor Norfolk and Western, and wanting to make the abandonment as permanent as possible, the Chessie System began removing the track quickly after the last train ran. Track removal was mostly complete by that fall. The C&O Canal National Historical Park began negotiating with the railroad for purchase of the Cumberland Extension roadbed from Pearre to North Branch in 1976, shortly after its abandonment.

The property transfer took place on December 2, 1980. Because its initial interest in the line was as a buffer, the Park Service was only interested in the Maryland side, but as a condition for the

[81] Tom Biery, "Underdogs Really Are Better," 59-67, and Morgan, "Western Maryland,"50.

deal the railroad required that the government acquire its land in West Virginia as well. Initial conversations between the Park Service and local representatives indicated that the Park Service would sell the West Virginia land to the county or to adjacent landowners. The Park Service even went so far as to seek prices for removing the bridges, which it saw as a liability. Several historical, environmental, and recreational advocacy groups in the area, including the C&O Canal Association, argued for the roadbed's potential as a recreational corridor, but opposition from the adjacent landowners prevented any significant progress toward that goal.

Given this difference of opinion, the cost of bridge removal, and the sizeable resources needed to convert the roadbed into a safe, attractive trail, the Park Service chose to mothball the property instead. Sections of the roadbed are used as access roads to various properties, but the bridges have been barricaded to prevent vehicular access. Since the track was removed in 1975, some adjacent property owners have treated other portions to be extensions of their property. Occasional conversations have taken place over the management and disposition of the roadbed, but without conclusive result. Thus, the Park Service-owned portion of the roadbed remains essentially intact but overgrown for much of its length. It does, however, serve as the intended buffer for the canal in several places.

The Western Maryland Railway officially ceased to exist as a corporation on May 1, 1983, when its few remaining assets were merged into the B&O, and its debt at last settled.[82] Only portions of the three sections of the West Subdivision noted still remain in service, with the Hagerstown-Cherry Run section the only one to see regular traffic. The industrial tracks near North Branch see much less usage, and the line from Cumberland across the river to Ridgeley, West Virginia, is now used only by the Western Maryland Scenic Railroad, which operates a small section of the Connellsville Extension for excursion trains, to access its shop and small yard. The section of the Cumberland Extension roadbed from Pearre eastward is part of a recreational trail that is property of the Maryland Department of Natural Resources.

[82] Phillips, "Whatever Became of the Western Maryland?" two-part article in *Trains Magazine* (Waukesha, WI: Kalmbach Publishing, May and June 1980), May, 44-49 and June, 44-50.

Conclusion

The abandoned but extant Cumberland Extension's grade and roadbed, including its bridges, tunnels, cuts, fills, and culverts, represent an experiment in which a railroad baron made a bold gamble in an effort to best his competition using expensive modern technology. The gamble fell short for George Gould, and he lost it to receivers, but its causes are important considerations in its failure, and its successes are worthy of consideration for their subsequent impact.

The Cumberland Extension occurred just a few years before the amount of railroad mileage in the United States peaked in 1916. It was a time when most major trunk rail lines were well-established, and concluding several aggressive rounds of acquisition and consolidation. Shippers, political leaders, and citizens sought ways to produce more favorable shipping and travel rates through a variety of means, primarily including regulation and inducement of competition. Such competition required viable alternatives to established trunk routes; until new modes of road and air transportation developed, viable options were limited. Canals and horse-driven road transportation had largely become obsolete. Electric trolley lines were efficient, but limited in capacity. The most viable options, new heavy rail lines and river navigation projects, were expensive and politically challenging. It took strong financial and political backing to make them happen at all, and aggressive vision to make them successful against existing competitors. Western Maryland's backing came from the City of Baltimore, a small group of New York investment banks, and the Fuller Syndicate. Its aggressive vision came from George Gould.

That aggressive vision manifested itself in the form of civil engineering. Through the civil engineering work of the Cumberland and Connellsville Extensions, the Western Maryland succeeded in providing competition against its larger, nearby competitors through its aggressive civil engineering. This same engineering also presented its most harmful shortcomings—an expensive infrastructure and an under-developed revenue stream—which eventually led to its dissolution and abandonment. Still, the railroad competed for six decades, before succumbing to consolidation and abandonment. For that time, it held a secondary position as a transportation provider in the corridor it served. It earned modest revenue that gradually and briefly produced a modicum of profit.

The Cumberland Extension's biggest impact came in the way in which its aggressive civil engineering technology influenced the way other railroads were built or upgraded. During the age of railroad expansion of the 19th century, civil engineers took the approach that the most technologically and financially feasible way to build transportation corridors was to follow the easiest natural grades, using locally-sourced materials. This view was a cultural product of conservative investment practices, which sought to achieve profit through minimum necessary expenditure. If a railroad could be built aggressively to $20,000,000 standards now, or built conservatively for $8,000,000 now and upgraded to $20,000,000 standards later (after it began earning revenue or profit), investors usually chose the latter as less risky. In other words, most railroads moved no more earth than was necessary in order to get the line built and working.

However, since the land that more traditional railroad planners would have chosen as ideal was already in use, George Gould had no choice but to built at elevations that demanded more aggressive engineering. And, since he was building in territory where competition against existing monopolies was an urgent concern, and where speed was a primary consideration in that competition, he felt that a technologically advanced approach was paramount. By cutting a relatively straight, level route through hilly country, Gould believed that he could compete effectively. As a result, the Western Maryland established that other railroads could do the same thing. Once they saw the results, most felt that they had to in order to compete on the grounds of speed. Eventually, as automobile traffic grew and brought with it increased political capital and demand for ease and convenience of travel, highways followed suit.

There is no discernible paper trail to suggest that subsequent highway and rail project planners looked directly to the Western Maryland for inspiration. The proof is subtler, in the fact that Gould, Barlow, and their associates innovated engineering and construction techniques that posed a technological threat to competitors. The Pennsylvania Railroad, the country's largest player in the railroad business, owned the Baltimore and Ohio. In direct response to the Cumberland Extension, Baltimore and Ohio constructed the Magnolia Cutoff. The Pennsylvania eliminated a series of tunnels and curves near the Allegheny summit. Both projects employed the aggressive technologies that the Western Maryland had—technologies that they could afford before, but conservatively chose not to use in the absence of competitive necessity. The Western Maryland simply raised the standard to which they had to adhere in order to remain competitive. In turn, other competitors to the Baltimore and Ohio and Pennsylvania began similar upgrades. The trend advanced nationwide, spurred further as other Gould projects advanced and made use of techniques first employed on the Western Maryland. Nationwide, railroads continued a series of grade realignments based on aggressive earthworks that continued into the 1970s, but even by the end of World War I, use of concrete, mechanized earthwork, and modular bridge construction became standard practice in transportation infrastructure projects.

George Gould took the risk of investing in aggressive civil engineering technology. Though the Western Maryland paid dearly for the effort, the Cumberland Extension proved that it could be done. Through its influence an aggressive approach to building straight, level grades through undulating landscape became an accepted practice. Today it is the norm in engineering of transportation routes.

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Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested
_X__ previously listed in the National Register
____previously determined eligible by the National Register
____designated a National Historic Landmark
____ recorded by Historic American Buildings Survey #__________
_X_recorded by Historic American Engineering Record # _MD-175___
____ recorded by Historic American Landscape Survey # __________

Primary location of additional data:

____ State Historic Preservation Office
____ Other State agency
_X__ Federal agency
____ Local government
____ University
____ Other

Name of repository: _National Park Service, Chesapeake & Ohio Canal National Historical Park, Park Archive

Historic Resources Survey Number (if assigned): _MIHP #AL-I-B-074_____

10. Geographical Data

Acreage of Property 492.5

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates
Datum if other than WGS84: NAD 1983
(enter coordinates to 6 decimal places)

1. Latitude: 39.631089 Longitude: -78.306189
2. Latitude: 39.642141 Longitude: -78.355919
3. Latitude: 39.614621 Longitude: -78.399900
4. Latitude: 39.608398 Longitude: -78.424546
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18. Latitude: 39.570025 Longitude: -78.722276
19. Latitude: 39.590171 Longitude: -78.734786

Or
UTM References
Datum (indicated on USGS map):

☐ NAD 1927 or ☐ NAD 1983

1. Zone: Easting: Northing:
Zone: Easting: Northing:
Zone: Easting: Northing:
Zone: Easting : Northing:

Verbal Boundary Description (Describe the boundaries of the property.)
The boundary is that of the abandoned Western Maryland Railway Company right-of-way between railway milepost 126 at the intersection of the C&O Canal and Long Ridge Road, Woodmont, and 2/10th of a mile east of milepost 160 just west of Maryland Route 51, North Branch. The included right-of-way, depicted on maps of the Western Maryland Railway Company, is approximately 34 miles long and varies from 75 to 150 feet in width.

Boundary Justification
The district includes the right-of-way historically associated with the Western Maryland Railway and contained within the Chesapeake & Ohio Canal National Historical Park.

11. Form Prepared By

name/title: David Vago (Section 8) and Susan Cianci Salvatore (Section 7) Independent Consultants; *Revisions*: Dean Herrin, Kathryn G. Smith, and Erik Johnson
organization: National Capital Region, National Park Service
street & number: 1100 Ohio Drive, SW
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e-mail dean_herrin@nps.gov
telephone: 202-619-7279
date: July 21, 2014

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property:	Western Maryland Railway, Cumberland Extension Right-of-Way, Mile 126 to Mile 159.8
City or Vicinity:	Woodmont to North Branch
County:	Washington, Allegany (MD), and Morgan (WV)
State:	MD and WV
Name of Photographer:	Jet Lowe of Historic American Engineers Record (HAER) (JL-HAER); NPS, National Capital Region, List of Classified Structures (NCR-LCS) Team
Dates of Photographs:	JL-HAER: November 2009 (aerial photographs) and April 2010; NCR-LCS: November 2008, March and September 2011, January 2013
Location of Original Digital Files:	NPS, National Register of Historic Places
Number of photos:	26

Photo # and View

1: (WV_Morgan County_Western Maryland Railway_0001)
Railroad Bridge No. 1360 over the Potomac River & Chesapeake and Ohio (C&O) Canal (WM-136A):[83] view east from West Virginia shore to 150' Warren deck truss bridge. (JL-HAER, April 2010)

[83] "WM-136A" is a structure number assigned by the National Park Service. The number 136 represents mile 136 of the railroad measured from the easternmost terminus at Baltimore, Maryland (milepost 0). Subsequent letters indicate the various resources found along that particular mile of the right of way. Mileposts indicate mileage along the Western Maryland Railway beginning at Baltimore, Maryland (Milepost 0), and ascending from east to west.

2: (MD_Allegany County_Western Maryland Railway_0002)
Railroad Bridge No. 1363 over the Baltimore & Ohio (B&O) Railroad (WM-136B): south elevation. (JL-HAER, April 2010)

3: (MD_Allegany County_Western Maryland Railway_0003)
Railroad Bridge No. 1363 over the B&O Railroad (WM-136B): interior view of skewed Baltimore truss and curved deck, looking west. (JL-HAER, April 2010)

4: (MD_Allegany_County_Western Maryland Railway_0004)
Railroad Bridge No. 1396 over the Potomac River and the B&O Railroad (WM-139B): interior view of 150' Warren deck truss lateral bracing, looking northeast. (JL-HAER, April 2010)

5: (MD_Allegany County_Western Maryland Railway_0005)
Railroad Bridge No. 1407 over the Potomac River (WM-140D): view west to roadbed across Bevan Bend, West Virginia. (JL-HAER, November 2009)

6: (MD_Allegany County_Western Maryland Railway_0006)
Railroad Bridge No. 1416 over the C&O Canal (WM-141B): view northeast to west portal near mile 141.6. (JL-HAER, April 2010)

7: (MD_Allegany County_Western Maryland Railway_0007)
Railroad Bridge No. 1474 over Town Creek (WM-147B): view south showing C&O Canal Town Creek Aqueduct in background near mile 147.4. (JL-HAER, April 2010)

8: (MD_Washington County_Western Maryland Railway_0008)
Railroad Culvert 12 (concrete with stone headwall box culvert) (WM-127J): view north to south portal, 12" x 12" concrete-box outflow near milepost 128. (NCR-LCS, November 2008)

9: (MD_Allegany County_Western Maryland Railway_0009)
Railroad Culvert 22 at Fifteen Mile Creek (WM-130C): north portal, looking southeast near mile 130.9. (JL-HAER, April 2010)

10: (MD_Allegany County_Western Maryland Railway_0010)
Railroad Culvert 73 (cast iron pipe) (WM-138D): view south to north portal, 24" diameter, approx. 36' long pipe. (NCR-LCS, January 2013)

11: (MD_Allegany County_Western Maryland Railway_0011)

Railroad Culvert 94 (stone box) (WM-144A): view north to south portal, approx. 50' long with 18" x 18" opening. Headwall is 6' wide x 4' high. (NCR-LCS, March 2011)

12: (MD_Allegany County_Western Maryland Railway_0012)
Railroad Culvert 144 at Town Creek (concrete-arch) (WM-147C): view south to north portal, canal basin overflow, near mile 147.5. (JL-HAER, April 2010)

13: (MD_Allegany County_Western Maryland Railway_0013)
Railroad Culvert 128 at Old Town (WM-150E): (concrete-arch) south portal, looking north near mile 150.8. (JL-HAER, April 2010)

14: (MD_Allegany County_Western Maryland Railway_0014)
Railroad Culvert 166 (WM-157G) (timber header), north elevation 12" diameter pipe behind homes north of Highway 51 and west of Subway Drive. (NCR-LCS, March 2011)

15: (WV_Morgan County_Western Maryland Railway_0015)
Railbed (WM-RR-BED) part of Railroad Bridge No. 1317 (WM-131C): looking northeast towards Maryland side near mile 131.7. (JL-HAER, November 2009)

16: (MD_Allegany County_Western Maryland Railway_0016)
Railbed (WM-RR-BED) in cut west of Railroad Bridge No. 1416 over the C&O Canal (WM-141B), milepost 142 looking southwest. (JL-HAER, April 2010)

17: (MD_Allegany County_Western Maryland Railway_0017)
Railbed (WM-RR-BED) looking west, next to Milepost "B 147" recently repainted on vertical piece of rail, east of Town Creek. (JL-HAER, April 2010)

18: (MD_Allegany County_Western Maryland Railway_0018)
Railbed (WM-RR-BED) above C&O Canal Lockhouse #72 looking east. (NCR-LCS, March 2011)

19: (MD_Allegany County_Western Maryland Railway_0019)
Railroad Retaining Wall 14 (stone) (WM-144H): view north of stone (right) and timber (left), canal in foreground, milepost 144 vicinity. (JL-HAER, April 2010)

20: (MD_Allegany County_Western Maryland Railway_0020)
Indigo Railroad Tunnel (WM-129D): west portal, milepost 129.95, looking northeast. (JL-HAER, April 2010)

21: (MD_Allegany County_Western Maryland Railway_0021)
Stickpile Railroad Tunnel (WM-135C): interior showing timber framing and missing posts, looking northeast near mile 135.6. (JL-HAER, April 2010)

22: (WV_Morgan County_Western Maryland Railway_0022)
Western Maryland Railway, Jerome Telegraph Office (WM-137I): exterior view, milepost 137.25, looking north. (JL-HAER, April 2010)

23: (MD_Allegany County_Western Maryland Railway_0023)
Railroad Retaining Wall 19 (stone and concrete) (WM-145F): telegraph pole, milepost 146 vicinity, looking north. (JL-HAER, April 2010)

24: (MD_Allegany County_Western Maryland Railway_0024)
Railroad Battery Box 2 (WM-150C): top view, on railbed just west of Railroad Culvert 126 (WM-150A). (NCR-LCS, March 2011)

25: (MD_Allegany County_Western Maryland Railway_0025)
Railroad Section Foreman's Dwelling, Foundation (WM-155F): northeast elevation, concrete foundation 25' south of tracks. (NCR-LCS, March 2011)

26: (MD_Allegany County_Western Maryland Railway_0026)
Railroad Tell-Tale (WM-157D): view of west elevation, west of Hetrick Rd. (NCR-LCS, March 2011)

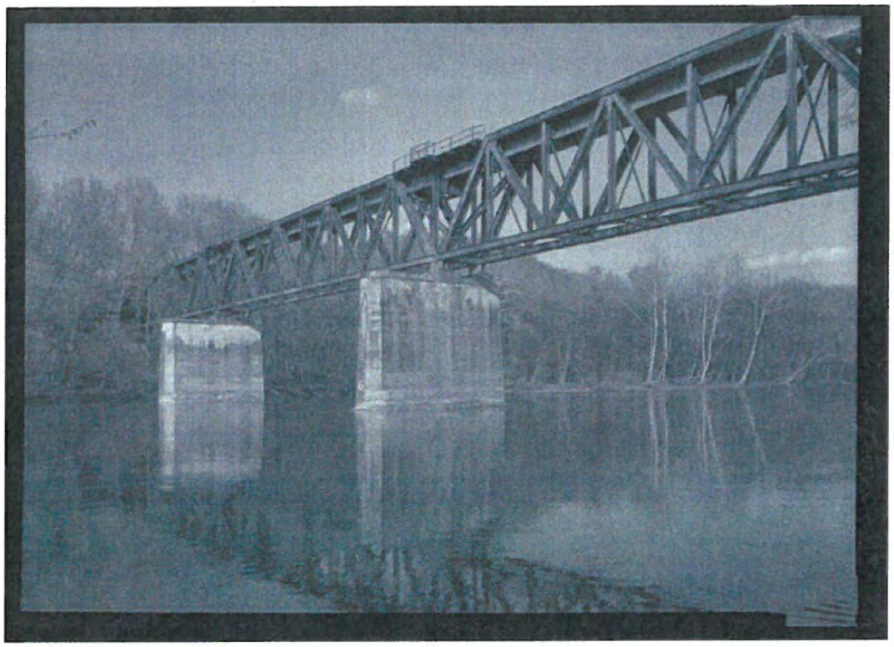


Photo 1 of 26
Railroad Bridge No. 1360, view east

Photo 2 of 26
Railroad Bridge No. 1363, south elevation

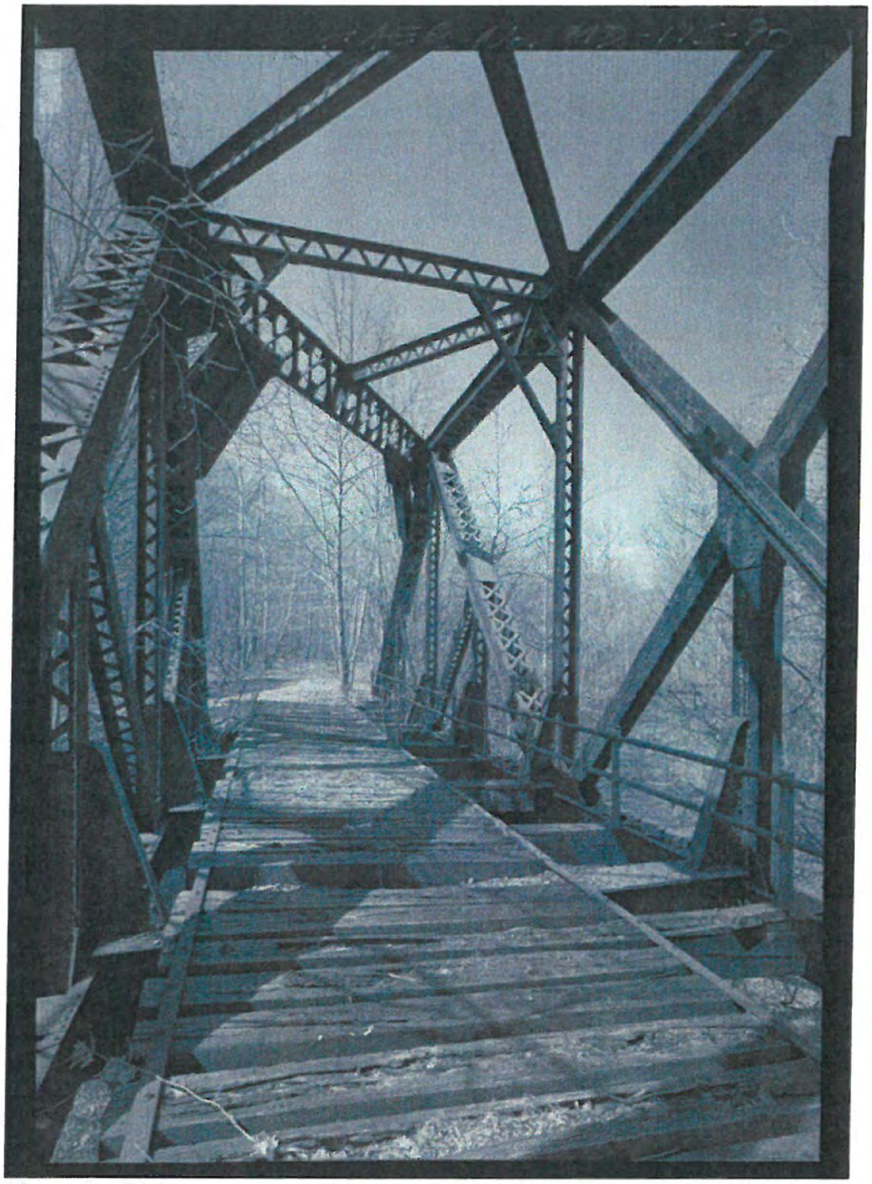


Photo 3 of 26
Railroad Bridge No. 1363, view west

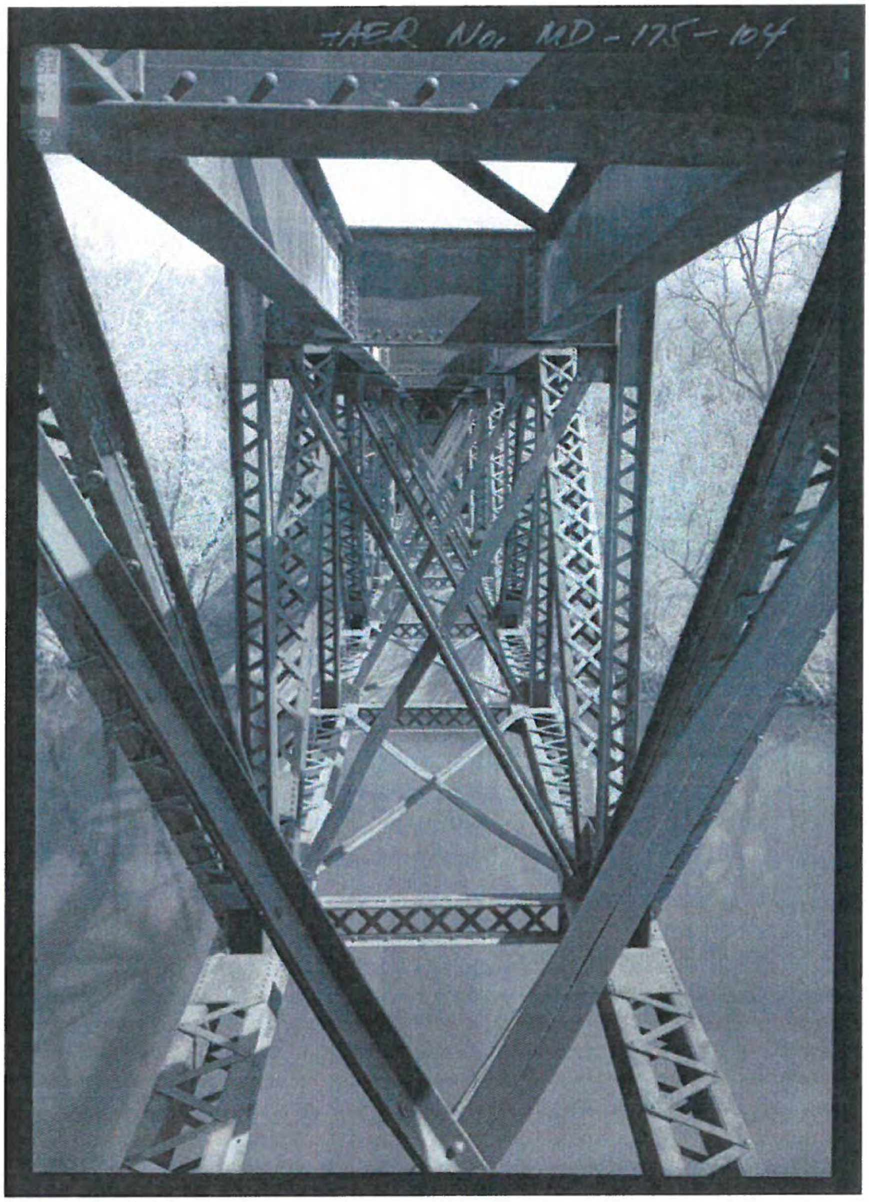


Photo 4 of 26
Railroad Bridge No. 1396, view northeast

Photo 5 of 26
Railroad Bridge No. 1407, view west

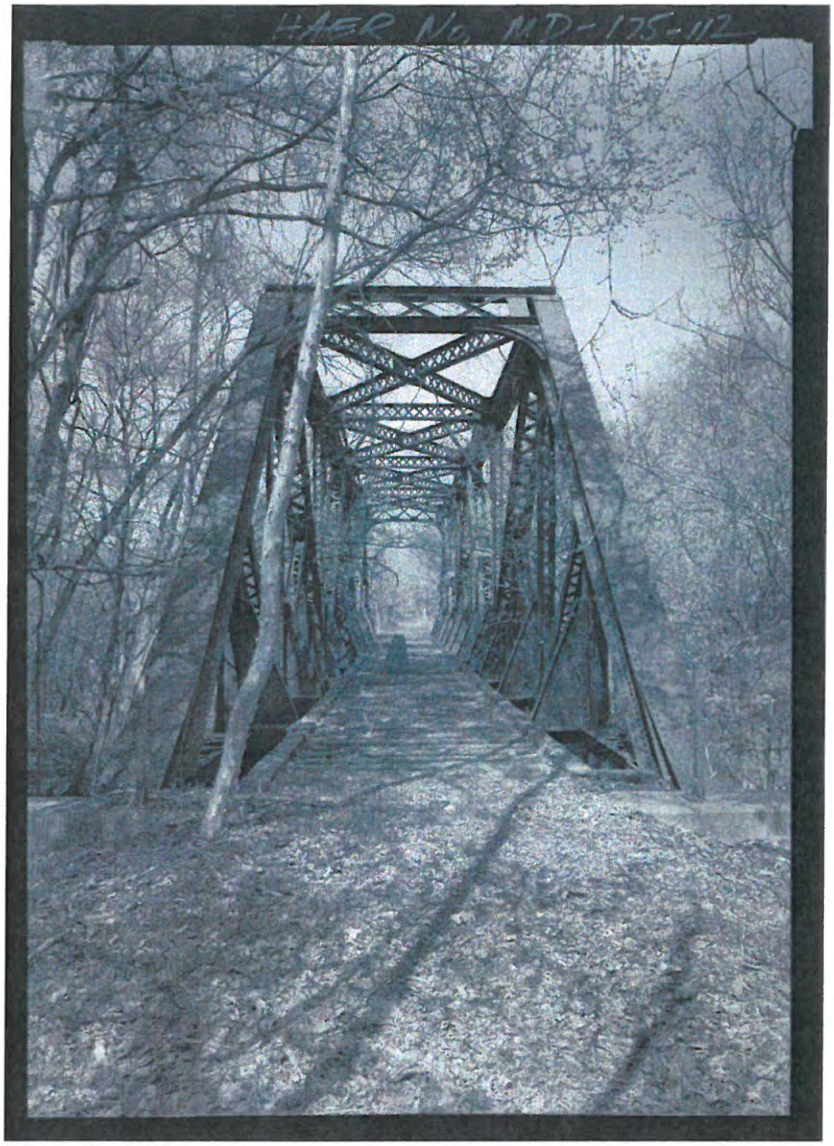


Photo 6 of 26
Railroad Bridge No. 1416, view northeast

Photo 7 of 26
Railroad Bridge No. 1474, view south

Photo 8 of 26
Railroad Culvert 12, view north

Photo 9 of 26
Railroad Culvert 22, view southeast

Photo 10 of 26
Railroad Culvert 73, view south

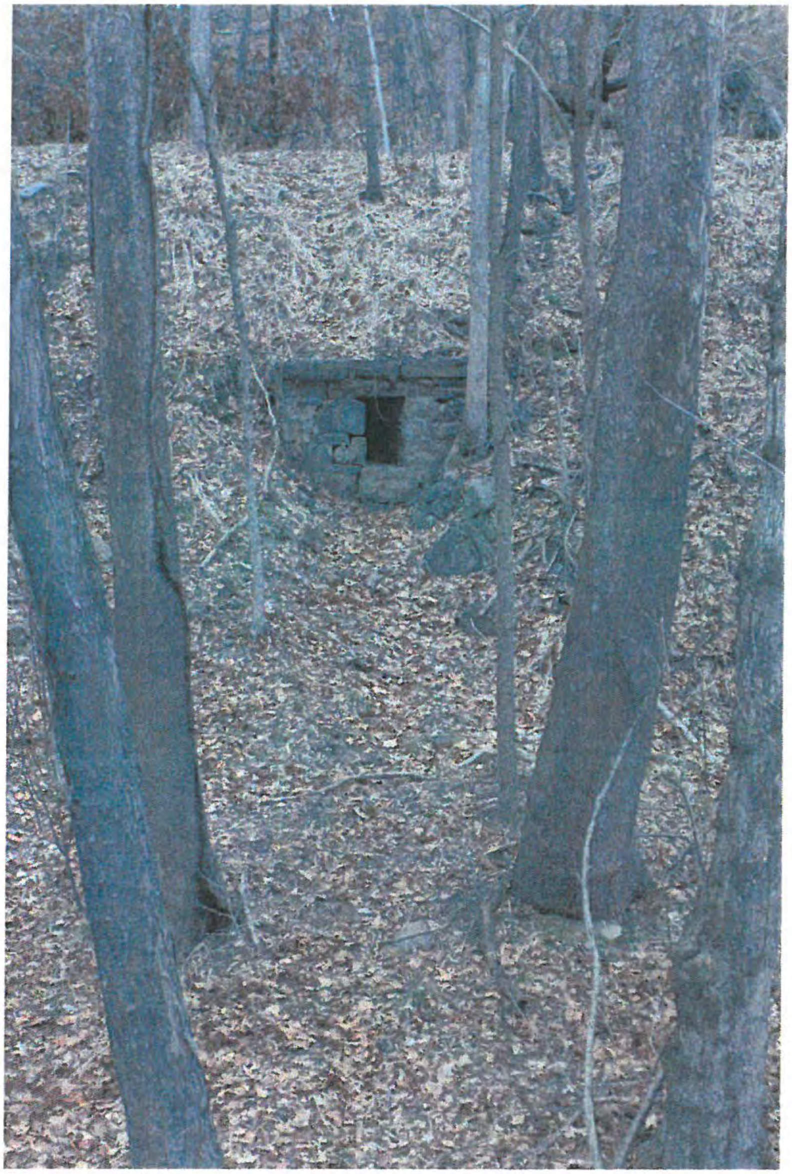


Photo 11 of 26
Railroad Culvert 94, view north

Photo 12 of 26
Railroad Culvert 144, view south

Photo 13 of 26
Railroad Culvert 128, view north

Photo 14 of 26
Railroad Culvert 166, north elevation

Photo 15 of 26
Railbed of Railroad Bridge No. 1317, view northeast

Photo 16 of 26
Railbed in cut west of Railroad Bridge No. 1416, view southwest

Photo 17 of 26
Railbed, view west

Photo 18 of 26
Railbed above C&O Canal Lockhouse #72, view east

Photo 19 of 26
Railroad Retaining Wall 14, view north

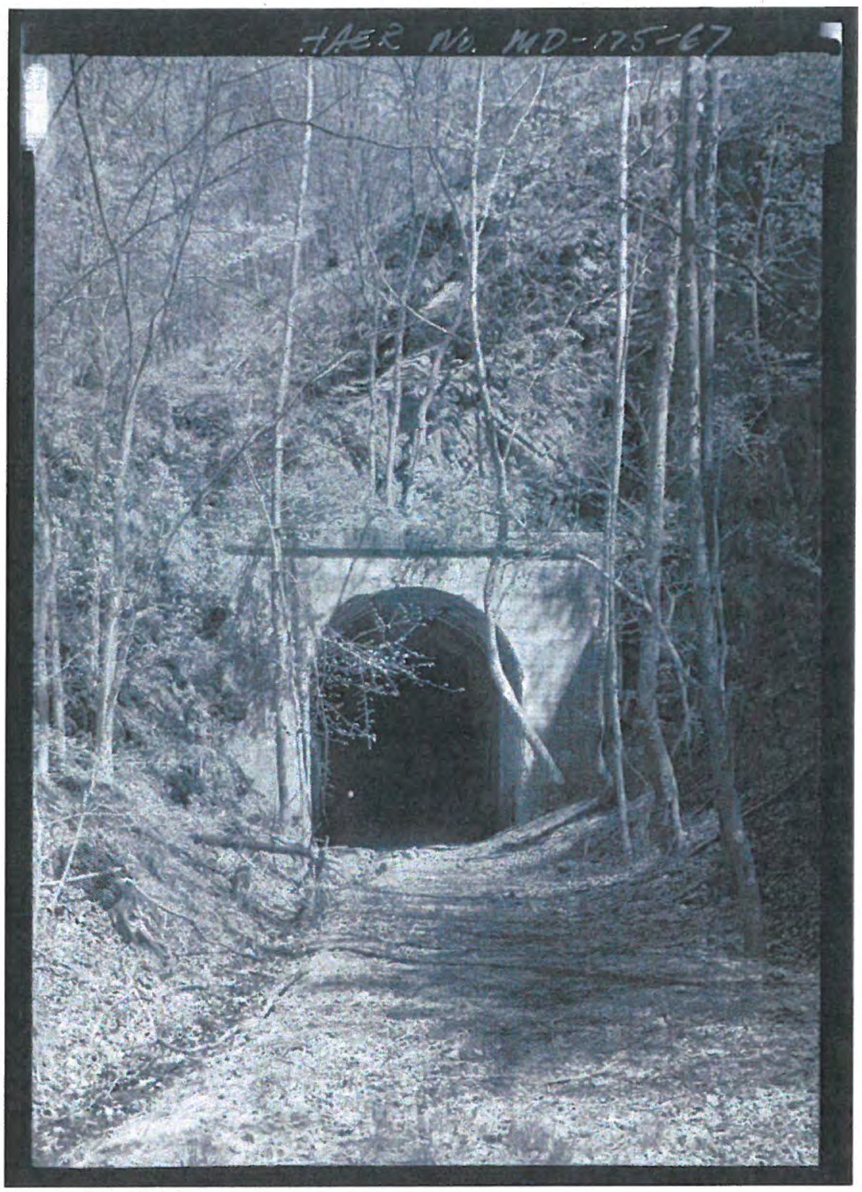


Photo 20 of 26
Indigo Railroad Tunnel, view northeast

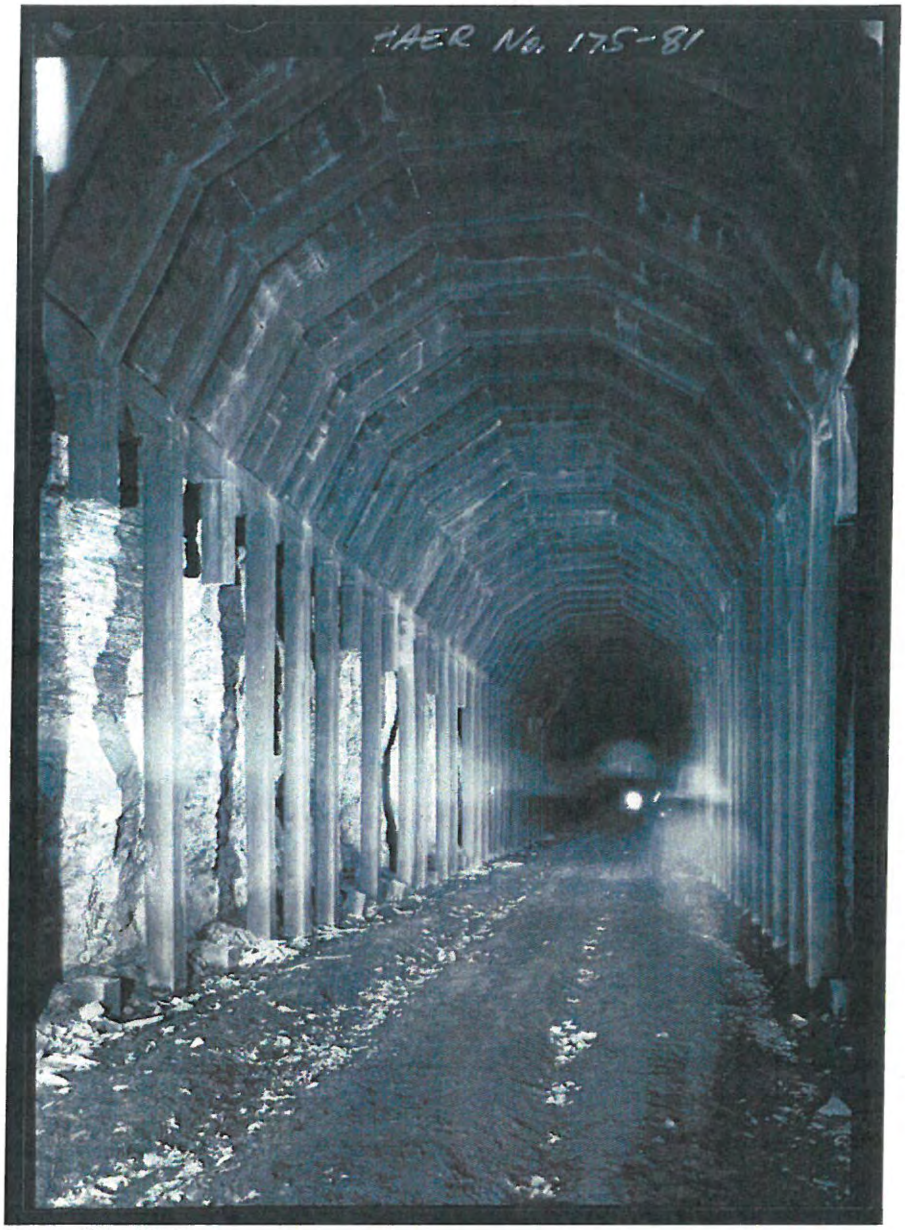


Photo 21 of 26
Stickpile Railroad Tunnel, view northeast

Photo 22 of 26
Jerome Telegraph Office, view north

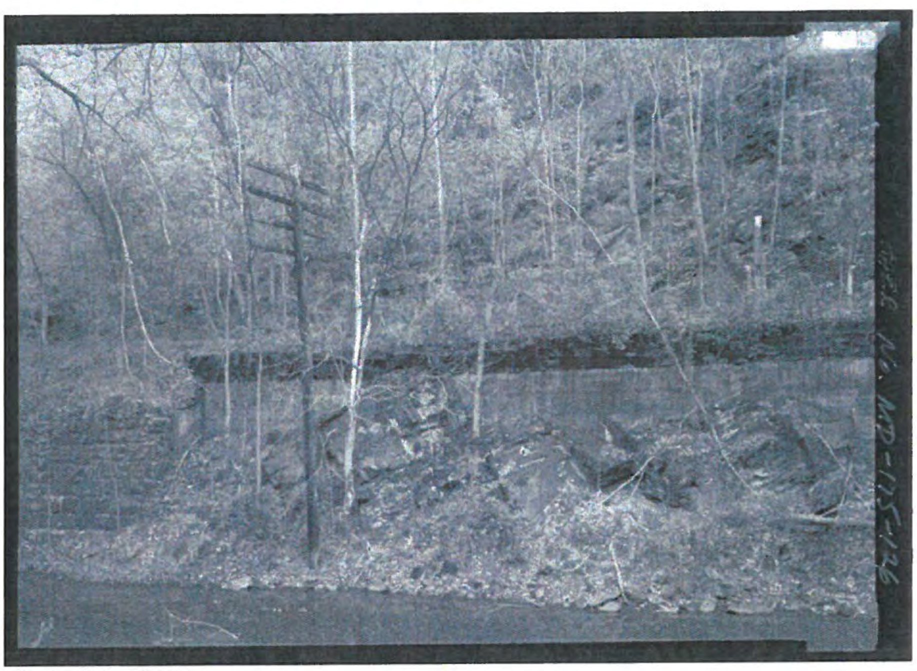


Photo 23 of 26
Railroad Retaining Wall 19, view north

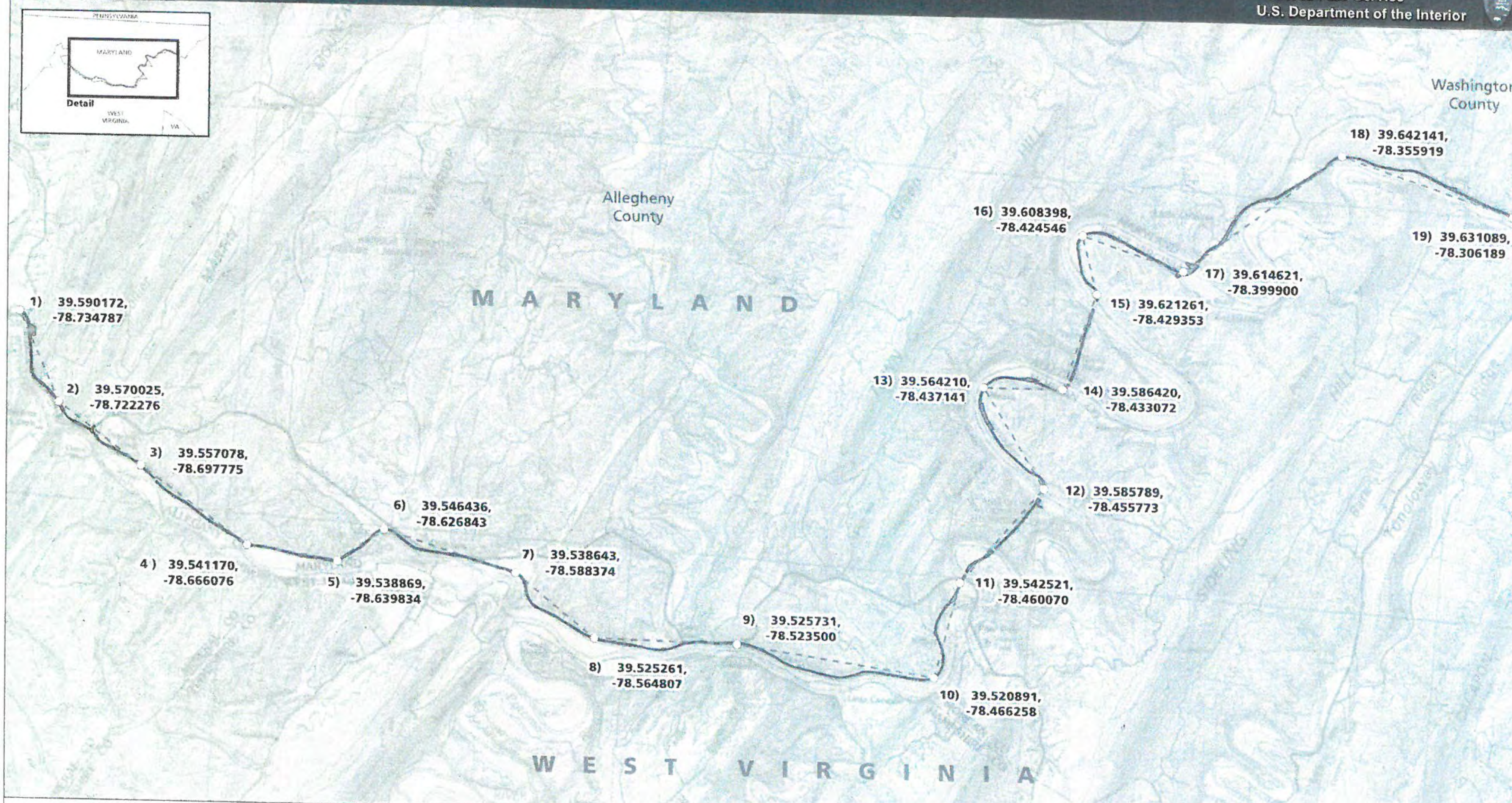
Photo 24 of 26
Railroad Battery Box 2, view top

Photo 25 of 26
Railroad Section Foreman's Dwelling, Foundation, northeast elevation

Photo 26 of 26
Railroad Tell-Tale, west elevation view

Chesapeake and Ohio Canal National Historical Park
Hagerstown, Maryland

National Park Service
U.S. Department of the Interior



Western Maryland Railway - Cumberland Extension
National Register Nomination
Locator

Allegany & Washington Counties, Maryland and Morgan County, West Virginia

National Register Boundary Points

Boundary Points: NAD 1983, Latitude / Longitude

0 1 2 3 Miles

Source: CHOH Lands Records | National Geographic Society basemap (2013)

CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)

Chesapeake and Ohio Canal National Historical Park
Hagerstown, Maryland

National Park Service
U.S. Department of the Interior

CONTRIBUTING		NON-CONTRIBUTING
Bridge	Culvert, Concrete	Non-Contributing
Milepost	Culvert, Pipe	**BOUNDARIES**
Structure	Culvert, Stone	Western Maryland Railway
Tunnel	Culvert, Timber	C&O Canal NHP Boundary
	Culvert, Other	

Western Maryland Railway - Cumberland Extension
National Register Nomination
Resources & Boundary

Allegany & Washington Counties, Maryland and Morgan County, West Virginia

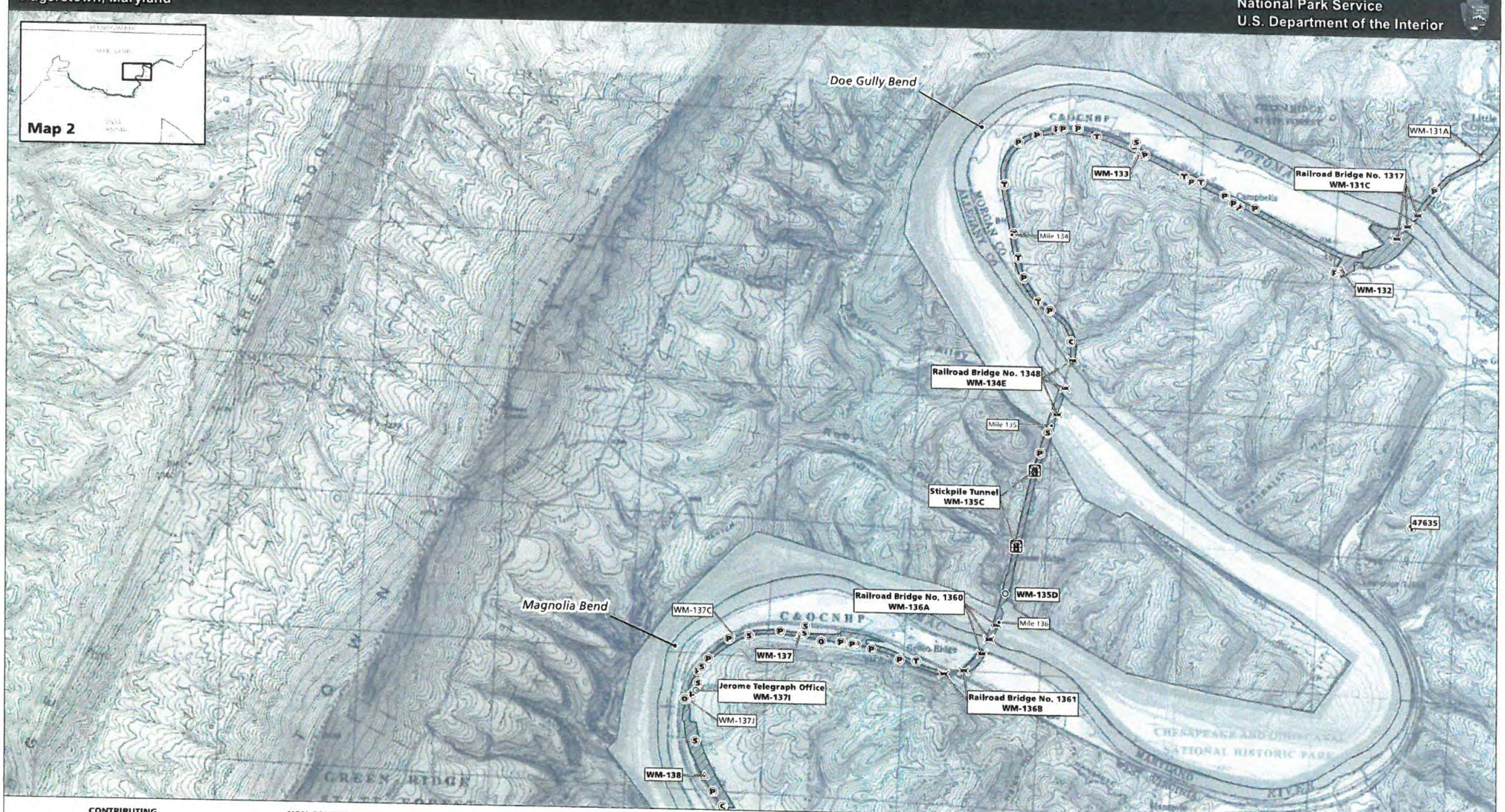
0 ½ 1 Mile

Source: CHOH Lands Records | National Geographic Society basemap (2013)

CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)

Chesapeake and Ohio Canal National Historical Park
Hagerstown, Maryland

National Park Service
U.S. Department of the Interior



Western Maryland Railway - Cumberland Extension
National Register Nomination
Resources & Boundary

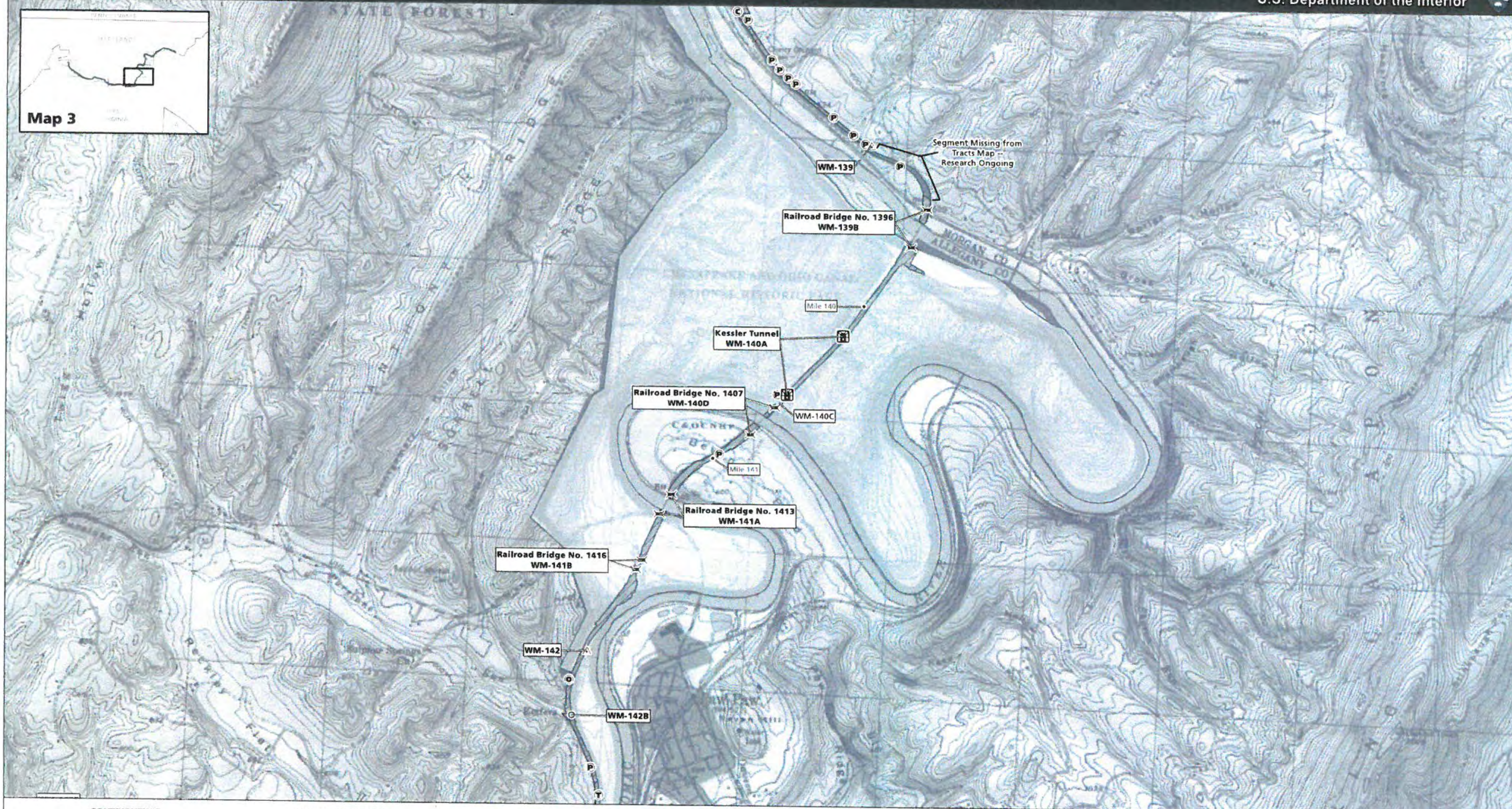
Allegany & Washington Counties, Maryland and Morgan County, West Virginia

Source: CHOH Lands Records | National Geographic Society basemap (2013)

CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)

Chesapeake and Ohio Canal National Historical Park
Hagerstown, Maryland

National Park Service
U.S. Department of the Interior



CONTRIBUTING

- Bridge
- Milepost
- Structure
- Tunnel
- Culvert, Concrete
- Culvert, Pipe
- Culvert, Stone
- Culvert, Timber
- Culvert, Other

NON-CONTRIBUTING

- Non-Contributing

BOUNDARIES

- Western Maryland Railway
- C&O Canal NHP Boundary

Western Maryland Railway - Cumberland Extension
National Register Nomination
Resources & Boundary

Allegany & Washington Counties, Maryland and Morgan County, West Virginia

0 ½ 1 Mile

Source: CHOH Lands Records | National Geographic Society basemap (2013)

CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)

Chesapeake and Ohio Canal National Historical Park
Hagerstown, Maryland

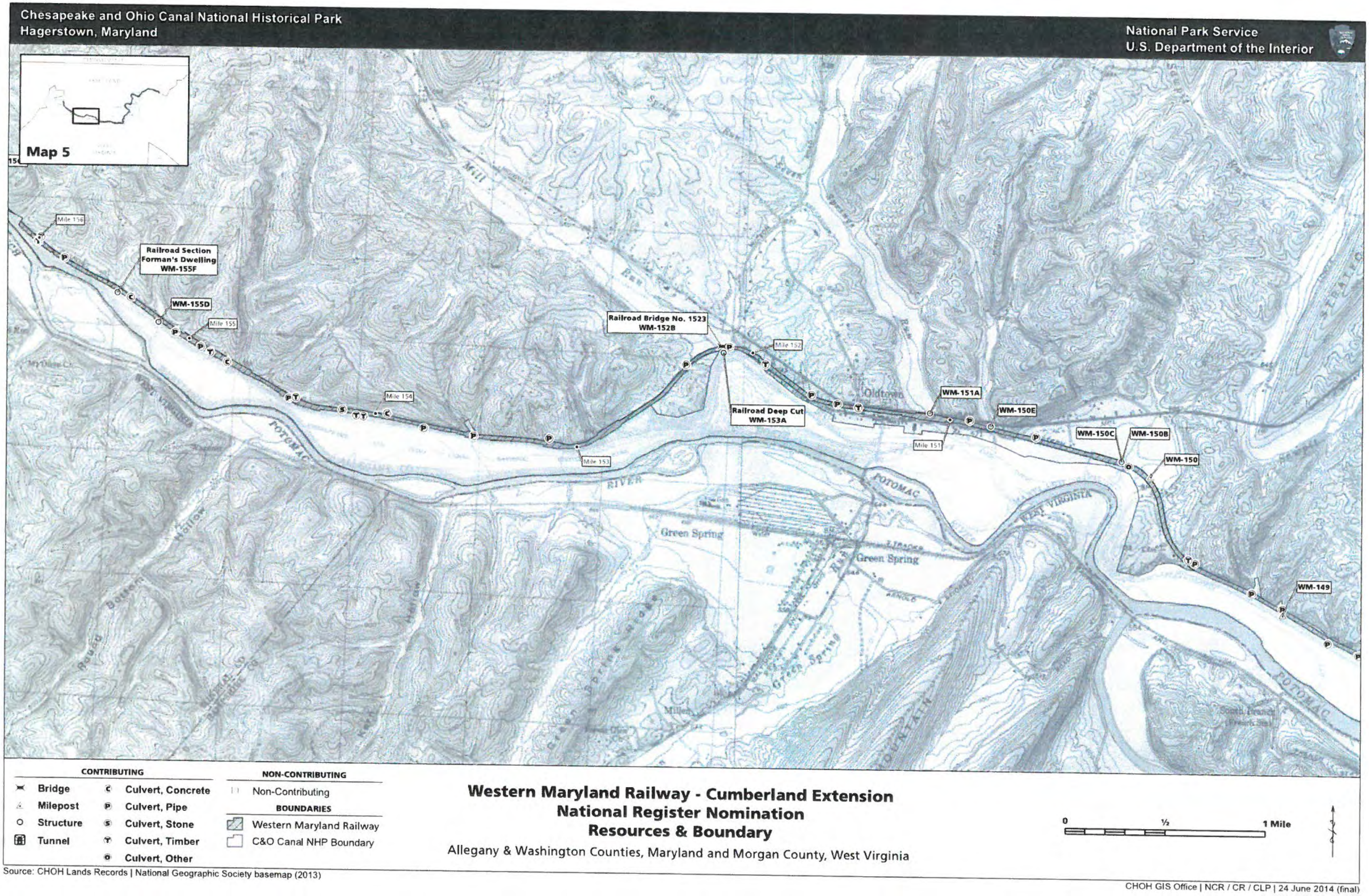
National Park Service
U.S. Department of the Interior

Western Maryland Railway - Cumberland Extension
National Register Nomination
Resources & Boundary

Allegany & Washington Counties, Maryland and Morgan County, West Virginia

Source: CHOH Lands Records | National Geographic Society basemap (2013)

CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)



Chesapeake and Ohio Canal National Historical Park
Hagerstown, Maryland
National Park Service
U.S. Department of the Interior
Map 5
Mile 156
Railroad Section Forman's Dwelling WM-155F
WM-155D
Mile 155
Mile 154
Mile 153
Railroad Bridge No. 1523 WM-152B
Mile 152
Railroad Deep Cut WM-153A
Oldtown
WM-151A
Mile 151
WM-150E
WM-150C
WM-150B
WM-150
WM-149
POTOMAC
RIVER
Green Spring
CONTRIBUTING
Bridge
Milepost
Structure
Tunnel
Culvert, Concrete
Culvert, Pipe
Culvert, Stone
Culvert, Timber
Culvert, Other
NON-CONTRIBUTING
Non-Contributing
BOUNDARIES
Western Maryland Railway
C&O Canal NHP Boundary
Western Maryland Railway - Cumberland Extension
National Register Nomination
Resources & Boundary
Allegany & Washington Counties, Maryland and Morgan County, West Virginia
0
½
1 Mile
Source: CHOH Lands Records | National Geographic Society basemap (2013)
CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)

Chesapeake and Ohio Canal National Historical Park
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Western Maryland Railway - Cumberland Extension
National Register Nomination
Resources & Boundary
Allegany & Washington Counties, Maryland and Morgan County, West Virginia

0 ½ 1 Mile

Source: CHOH Lands Records | National Geographic Society basemap (2013)

CHOH GIS Office | NCR / CR / CLP | 24 June 2014 (final)