



Weverton Rail Crossing Feasibility Study



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INTRODUCTION

Weverton, Maryland is a small rural community located in the southern tip of Washington County and about three miles east of Harpers Ferry, West Virginia along the Potomac River. Parallel to the river runs the CSX Rail Line serving freight and passenger rail from Baltimore and Washington, DC to points west. There are several highly utilized national trails, national park units, and recreational trails that congregate in this area, including the Potomac Heritage National Scenic Trail, the Appalachian National Scenic Trail (AT), Chesapeake and Ohio (C&O) Canal National Historical Park (NHP), Harpers Ferry NHP, U.S. Bike Routes 11 and 50, and the Maryland State Potomac River Water Trail. Weverton provides an access point to these trails, but the current at-grade crossing of the CSX Railroad does not have adequate safety measures in place for a public crossing site.

Project Purpose and Need

The purpose of this study is to identify any environmental concerns and assess potential design options to provide a formal and safe crossing of the CSX Railroad in Weverton, Maryland that links the C&O Canal Towpath, Potomac Heritage National Scenic Trail, and the AT along the Potomac River. The current at-grade crossing, despite not being recognized as a public crossing site by the Federal Rail Administration (FRA) and CSX, is used by pedestrians, hikers, paddlers, cyclists, fishermen, and duck hunters. It does not have adequate safety measures, for crossing the double-track rail lines that carry multiple MARC and Amtrak passenger trains and CSX freight trains daily. The study evaluated the feasibility of crossing alternatives at or nearby the existing crossing location and included dialogue and meetings among key stakeholders in the region including the National Park Service (NPS) and CSX Railroad.

Improving the safety of the existing rail crossing remains a priority for all the stakeholders in the region. In 2015, the NPS sponsored a Harpers Ferry River Access Plan through the Rivers Trails and Conservation Assistance Program ([HF River Access Plan](#)) to create a plan for the Potomac and Shenandoah Rivers confluence at Harpers Ferry. The plan includes multiple recommendations aimed at creating sustainable and achievable solutions in the area. For the Weverton area, the plan's recommendation is to secure a safe and legal railroad crossing at Weverton with a sustainable trail to the river.

HARPERS FERRY RIVER ACCESS PLAN RECOMMENDATION SUMMARY

The recommendations in this plan will lead to outstanding public whitewater access opportunities on the Shenandoah and Potomac rivers through creative partnerships. The plan strives to create acceptable short-term solutions to fill immediate needs, while at the same time pursuing ideal long-term solutions that are in keeping with the National Park setting and high quality of the recreational opportunities. When the plan is implemented, the public will have a wide range of options for sustainably enjoying the Shenandoah and Potomac rivers.

To ensure public access of the AT and C&O Canal Towpath, CSX and a group of cooperators should develop an interim agreement for continued use of the Weverton crossing area until a permanent solution can be implemented. The CSX *Public Project Information for Construction and Improvement Projects*, last updated in July 2017, provides guidelines related to the access of CSX property and for construction projects impacting CSX right-of-way. These guidelines address public highway easements that are approved CSX locations for allowing legal crossing of the tracks and minimal clearance requirements for structures. The guidelines for pathways and trails crossing CSX tracks recommend grade separated crossings and prohibits crossings within the railroad’s right-of-way due to safety concerns. Any at-grade pathway or trail cannot cross the tracks unless it crosses at an approved public highway easement.

Study Area

An evaluation of alternatives has been evaluated within the study area shown in **Figure 1**. This area is located between U.S. 340, a four-lane divided highway, and the Potomac River along the AT where it separates from the C&O Canal Towpath and crosses the CSX Railroad near Keep Tryst Road.

Figure 1: Project Study Area





Historic Background

Prior to the reconstruction of U.S. 340 to a four-lane divided highway in the early 1960s, Pleasant Valley Road extended through the CSX crossing area at Weverton. This road was vacated with the completion of the new highway, and MD 67 was relocated to begin at the new interchange with U.S. 340 leaving behind sections of the old road alignment that were designated to MD180.

The C&O Canal is a NHP that extends from Georgetown in Washington, DC, to Cumberland in Western Maryland along the Potomac River. The historic canal-related resources of trails, bridges, aqueducts, and lockhouses are preserved along the canal towpath and captures scenic viewsheds. The towpath runs alongside the entire 185 miles of the canal and is a stone and dirt path used for recreational walking, running, and biking. The US Bicycle Routes 11 and 50 are long-distance national cycling routes that utilize the towpath and have connections in Weverton.

Harpers Ferry NHP lies at the confluence of the Potomac and Shenandoah Rivers, where the states of West Virginia, Virginia, and Maryland converge. This confluence of the two rivers cuts a gap through the Blue Ridge, as the Potomac River continues its voyage to the Chesapeake Bay. Located at the point of a peninsula formed by these two rivers, the Park was established in 1944 primarily to preserve historic resources and to commemorate the historic events that occurred at and around Harpers Ferry, including early industrial history; John Brown's Raid and the Civil War; and events connected to black history, education and civil rights. Today the park consists of 3,745 acres comprised of several historical landscapes and historic viewsheds. Harpers Ferry NHP also provides river access under the WV 340 bridge and at Potomac Wayside.

The AT is a National Scenic Trail that extends more than 2,190 miles along the ridges of the Appalachian Mountains from Georgia to Maine. Completed in 1937, the AT has become a popular destination for local day-trippers and adventurous hikers. The AT is managed by the NPS, US Forest Service, the Appalachian Trail Conservatory, various state agencies, and many local volunteer organizations. The continuous foot trail traverses from Virginia through Harpers Ferry and along the C&O Canal Towpath into Maryland and branches off at Weverton as it follows a 40-mile route along South Mountain, a north-south ridge that extends from the Potomac River to Pennsylvania. Based on available information, the Appalachian Trail has crossed the railroad tracks in the Weverton area since 1966 (53 years). The NPS is a “public authority” for purposes of holding railroad crossings, given its authority over roads and park access ways

The Potomac Heritage National Scenic Trail is a braided network of trails, open space, and natural areas, which winds through a corridor linked by land, water, and history between the mouth of the Potomac River and the Allegheny Highlands in Pennsylvania. The entire 184.5

miles of the C&O Canal Towpath is a major section of the Potomac Heritage National Scenic Trail, where visitors can hike, bike, and success the Potomac River Water Trail.

The Potomac River Water Trail is used by paddlers with canoes, rafts, and kayaks and continues to be developed with series of access points and camping areas along the Potomac River. These national treasures and the historical significance of the area surrounding Harpers Ferry attract visitors and recreation enthusiasts alike.



Kayaker Along the Potomac River. Source: Harpers Ferry River Access Plan (2015)

Weverton Stakeholders Group

The Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO) is the federally designated regional transportation planning body for Berkeley and Jefferson Counties, West Virginia, and Washington County, Maryland. The HEPMPPO is the sponsor of this feasibility study and organized a stakeholder group to bring together the affected and interested partners to provide direction, review alternatives and strive to reach consensus on viable options for the CSX Railroad crossing site at Weverton. The stakeholder representatives include:

- HEPMPO
- CSX Transportation Inc. (CSX)
- National Park Service – National Capital Regional Office (NCRO)
- National Park Service – Harpers Ferry NHP
- National Park Service – C&O Canal NHP
- National Park Service – Appalachian National Scenic Trail
- National Park Service – Potomac Heritage National Scenic Trail
- Appalachian Trail Conservatory
- Rails-To-Trail Conservancy
- Washington County Division of Engineering
- Washington County Department of Planning and Zoning
- Maryland Department of Transportation State Highway Administration (MDOT SHA) -Traffic Development and Support Division (TDSD)
- MDOT SHA – Regional and Intermodal Planning Division (RIPD)
- MDOT SHA – District 6
- Maryland Department of Natural Resources (DNR)



CSX Train at the Weverton Crossing Area

SITE ASSESSMENT

This section provides an assessment of current conditions including pedestrian/bicycle usage, vehicle parking, and train activity. A brief discussion is also provided on other similar crossings in Maryland. An initial study area scan was conducted with insights from the Weverton Stakeholder Group (WSG) to identify viable crossing locations other than the existing path used by CSX maintenance vehicles. Viable site locations would need to physically accommodate a pedestrian bridge or at-grade crossing with adequate access to parking and nearby trails. Specifically, the WSG noted the following factors in selecting a crossing location:

- The existing crossing location must remain open for vehicle traffic for CSX maintenance, law enforcement, and emergency vehicles for access to the C&O Canal Towpath
- Must serve bicyclists and pedestrians including those carrying a kayak or canoe
- A pedestrian bridge must meet Americans with Disabilities Act (ADA) and CSX design standards
- Maintain reasonable linkage to the existing trails
- Minimize disturbance to environmental, cultural, and historic resources
- Keep consistency with existing viewshed, parking access, and other site features

The steep terrain paralleling the CSX railroad and the elevated U.S. 340 roadway limit the possible locations for a pedestrian bridge in the area. Several crossing locations were considered but most were determined not feasible due to the large footprint needed for the pedestrian bridge, sight distance issues, steep slopes, streams, and/or the presence of historic resources or structures. Per consensus of the WSG, the site assessment and future alternative evaluations focused on locations directly adjacent to the existing crossing.

Existing Crossing Site Overview

The existing at-grade crossing area is a partially paved road that is used by CSX maintenance vehicles, by NPS as an emergency vehicle entrance to the C&O Canal Towpath, and as access to Potomac River landing areas for emergency purposes. The Weverton crossing is considered a passive crossing and does not have any active warning devices. It does not have an approved public highway easement for crossing the tracks. There are lockable gates controlled by NPS, but there is no fencing to prohibit foot traffic that can easily bypass the gates.



Current Lockable Gates at the Weverton Crossing



The current crossing is designated as USDOT #104610T through the Federal Railroad Administration (FRA) and is classified as a private crossing. The US DOT crossing inventory form can be found in **Appendix A**. The NPS does not consider the matter of the crossing as being public or private, or the existence of easements related to the crossing to be a settled matter. Instead, NPS believes historic records for a public crossing may exist and additional deed and title search must be completed to determine the status of the crossing.



C&O Canal Towpath View of Weverton Crossing



Lockhouse #31



Bicyclist Using the At-grade Crossing



View of AT from Keep Tryst Road Parking Area



CSX Equipment and Maintenance Vehicle adjacent to Tracks



Vehicle at Keep Tryst Road Parking Area



CSX Train at Weverton Crossing



Path to Potomac Landing from Towpath



View of C&O Lock & Israel Creek from Towpath

There are two set of tracks that run east and west through the area with limited site distance from the west. Approximately 27-33 trains travel through the area each day including freight trains, Amtrak, and MARC commuter trains. In addition, this is a frequent waiting/staging area for trains to sit and idle with their engines running. As a result, this restricts sight lines of the other track and may prevent people from hearing the horn of another train due to engine idling. The high volumes for trains passing through the area justifies the immediate need for safety improvements for the high number of pedestrians and bicyclists accessing the AT and C&O Canal Towpath by crossing the tracks at Weverton.



View looking West of CSX Railroad from Current At-grade Crossing

Trail Connections

Pedestrians (including those with kayaks and canoes), hikers, paddlers, fishermen, duck hunters, and bicyclists using the Weverton crossing approach from Harpers Ferry, West Virginia, and Brunswick, Maryland, along the AT and C&O Canal Towpath. The location is also used by those parking at either the Weverton Cliffs Parking Lot or the informal parking area at the crossing. Wayfinding signs for the AT and the U.S. Bike Route 11 lead to the crossing at Weverton despite the lack of a public access easement as required by CSX and needed for safely crossing the double tracks of the rail line.

The trails are open year-round but experience the highest volumes during the peak tourism season in the summer, especially with pleasant weather. Extended temperate weather can lengthen the recreational season from March until November. It is estimated that approximately 70 percent of the

rail crossings occur during the summer months. There is a permanently installed automated counter on the AT as it separates from the C&O Canal Towpath, Potomac Heritage National Scenic Trail, and Harpers Ferry NHP. The 2018 estimated annual number of users is over 26,000.

Bike Paths

As part of the U.S. Bicycle Route System, U.S. Bike Path 11 diverts from the C&O Canal Towpath and crosses the CSX Railroad and continues north along MD 67 toward Boonsboro and Hagerstown. US. Bike Path 50 follows the length of the C&O Canal Towpath from Cumberland, Maryland, all the way to Georgetown in Washington, DC. The bike paths attract both enthusiasts and casual bikers and they are part of a national cross-country public use network that includes route numbers and online mapping.



Bike Path and Wayfinding Signage along the C&O Towpath

Public Parking

Public parking to access the C&O Canal Towpath is located at Harpers Ferry, West Virginia, and Brunswick, Maryland. Both are approximately three miles from the Weverton crossing area. The Weverton Cliffs Parking Lot, which provides access to the AT and the C&O Canal Towpath, is limited to foot traffic along the AT. There is no direct route to Keep Tryst Road without crossing U.S. 340. The parking area at the Weverton crossing along Keep Tryst Road, which is owned by MDOT SHA, does not have marked parking spaces and is not an official public parking lot. Its primary use is for providing

CSX and emergency vehicles access to the tracks and C&O Canal Towpath. However, the public utilizes the area and there is space for approximately 12 vehicles to park along the shoulders with overflow parking on the shoulders of Keep Tryst Road. The parking area is highly utilized on weekends during the extending daylight period of the peak summer months. The Harpers Ferry National Historical Park's visitor center also has a large public parking lot where hikers may access the lower town and the C&O Canal Towpath and the AT via a park shuttle.



View of Keep Tryst Road Parking Area from AT

Rail Activity

Trains travel through the Weverton area daily in both directions. They include CSX freight trains, AMTRAK long-distance trains, and MARC commuter trains from Martinsburg, WV, to Washington, DC. The schedule for freight varies daily and on weekends, but the commuter trains run on a fixed schedule. There is an average of 27-33 trains per day as follows:

- CSX - approximately 25 trains per day
- Amtrak Capitol Limited line has two trains daily
- MARC Brunswick Line operates 3 morning trains and 3 evening trains only on weekdays

The last reported accident at Weverton was in September 1987 between a train and a vehicle prior to the installation of the access gates. There may be other near misses, but near misses are not in the Federal Railroad Administration (FRA) accident reporting dataset¹.

Other Maryland CSX Railroad Crossing Locations

Along the CSX Railroad line in Maryland, there are four similar at-grade CSX crossings that lead to the C&O Canal Towpath and access the Potomac River. Other than the CSX and emergency response vehicles, the Weverton crossing is limited to only pedestrians and bicyclists. The four other locations, shown in **Figure 2**, are open to vehicle traffic for parking lots along the Potomac River and C&O Canal Towpath. They are all at-grade crossings three of them with active warning devices. The crossing areas are identified below:

- **Brunswick** (2 crossings): Maple Avenue into the MARC Train Parking Lot and continuing to the C&O Canal Towpath, C&O Canal Brunswick Parking Lot, and Brunswick Boat Ramp
- **Lander Road**: Less than one half mile north of the Lander Boat Ramp
- **Point of Rocks**: Canal Road, south of Commerce Street, leading to the Point of Rocks Boat Ramp and Parking Lot and C&O Canal Towpath
- **Monocacy Aqueduct**: Mouth of Monocacy Road continuing to the Monocacy Boat Ramp and Parking Lot, the Monocacy Aqueduct, and the C&O Canal Towpath

Figure 2: At-grade CSX Crossings in Maryland



¹ <https://fragis.fra.dot.gov/FRA-PopupViewer/index.html?ZoomToCrossing=140610T>

RECREATION DEMAND & COUNTS

To determine the recreation demand at the Weverton Crossing, a count of recreation users and vehicles was administered using a video capturing system. A manual count of the number of trains traveling through the crossing and the number of vehicles parked at two nearby parking areas was also completed.

Figure 3 shows the two locations along the AT that were selected for the placement of the cameras. Camera 1, located where the AT meets the C&O Trail Towpath, captured the total number of pedestrians and bicyclists using the trail, as well as, their travel direction. This camera also captured the total number of trains and their travel direction along the railroad tracks. Camera 2, located at the intersection of the AT and Keep Tryst Road, captured the total number of pedestrians, bicyclists, and vehicles entering and exiting the parking area.

Figure 3: Appalachian Trail Camera Locations & Viewshed





The counts were taken between Thursday, July 26th through Sunday, July 29, 2018 from 8:00 AM through 8:00 PM. However, due to a malfunction, Sunday counts for Camera 2 had to be re-done on Sunday, August 5, 2018. Weather during the counts was partly cloudy with temperatures in the low 80s. The dates and weather represented a typical summer weekend and provided a representation of the typical number of recreation users at the Weverton Crossing.

Camera 1 – AT at C&O Canal Towpath Counts

Recreation Users

As shown in **Figures 4 and 5** over the 4-day period, 1,652 recreation users were counted at the Weverton Crossing. Overall, 56 percent of the recreation users were bicyclists and 44 percent were pedestrians. Approximately 75 percent of total recreation usage occurred on the Saturday and Sunday. Of the 1,652 recreation users, 941 or approximately 54 percent stayed and continued on the C&O Canal Towpath, while 711 recreation users or approximately 43 percent crossed the railroad tracks, with approximately 75% of them being pedestrians.

Figure 4: Recreation User Count & Direction

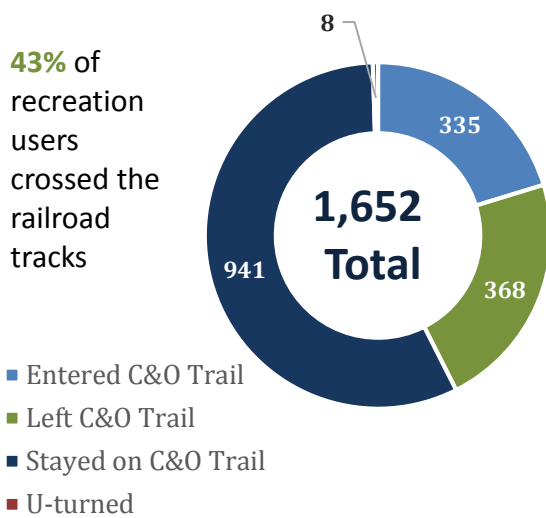
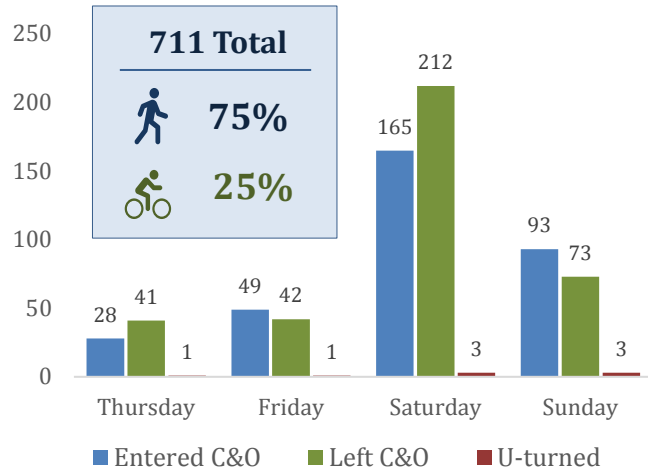


Figure 5: Recreation Users Crossing Tracks

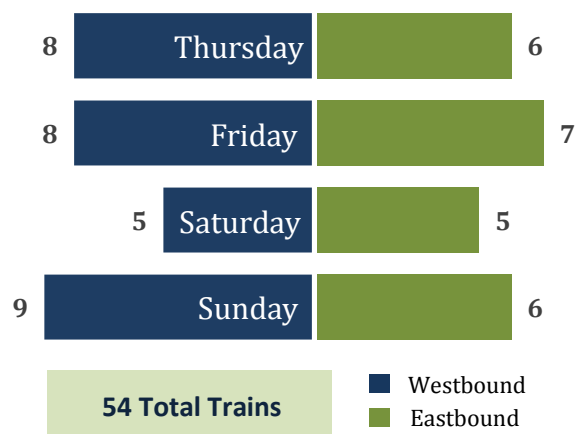


Trains

There are 27-33 trains that operate daily through the Weverton Crossing. Over the 4-day period, there were 54 trains counted between 8:00 AM and 8:00 PM, which accounts for approximately 41 percent of all train traffic. Of the 54 trains, 24 trains traveled eastbound and 30 trains traveled westbound.

Figure 6 shows the number of trains per day and their direction.

Figure 6: Train Count & Direction (8am-8pm)



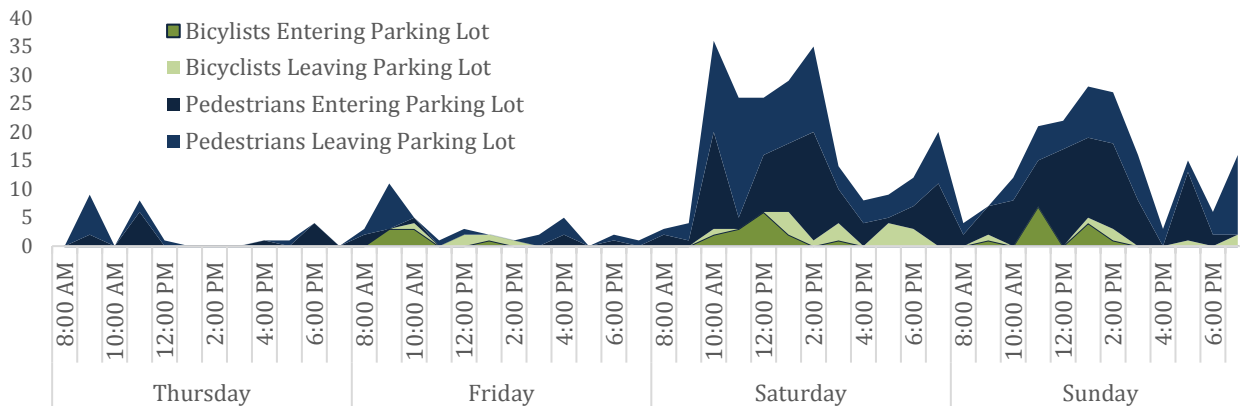


Camera 2 – AT at Keep Tryst Road Counts

Recreation Users

There were 459 recreation users counted entering and exiting the parking area during the 4-day period. Of these 459 recreation users, 397 (approximately 87 percent) were pedestrians and 62 were bicyclists. Similar to the AT at the C&O Towpath location, the majority of recreation usage occurred Saturday and Sunday with peak usage from 10:00 AM through 3:00 PM on both days, as shown in **Figure 7**.

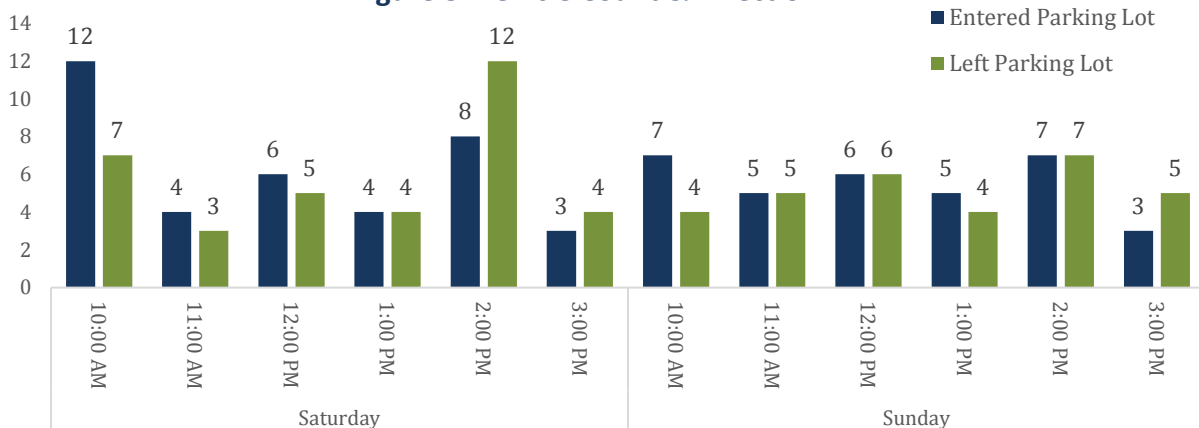
Figure 7: Recreation User Count & Direction



Vehicles

A count of the number of vehicles entering and exiting the parking area, shown in **Figure 8**, was completed for the peak Saturday and Sunday hours. Peak hours were identified as 10:00 AM through 3:00 PM. On Saturday, there were 37 vehicles that entered the parking area and 35 vehicles that exited the parking area. Saturday morning at 10:00 AM and Saturday afternoon at 2:00 PM had the largest number of vehicles entering and exiting - 19 and 20 vehicles respectively. On Sunday, 30 vehicles entered the parking area and 31 vehicles exited the parking area. The number of vehicles entering and exiting the parking area were evenly distributed throughout the peak hours, although Sunday at 12:00 PM and 2:00 PM saw the largest total number of vehicles – 12 and 14 vehicles respectively.

Figure 8: Vehicle Count & Direction





Parking

The Weverton area is served by two parking areas - the Keep Tryst Road parking area and the Weverton Cliffs parking lot. The Keep Tryst Road parking area (owned by MDOT SHA), which is directly adjacent to Weverton Crossing, is not a designated AT parking lot but is utilized by all recreation users. The parking area provides parking for approximately 12 vehicles along the shoulders with overflow parking on the shoulders of Keep Tryst Road. The Weverton Cliffs Parking lot, which is approximately 1/2 mile from the Weverton Crossing, provides parking for 24 vehicles with unmarked overflow parking along Weverton Cliff Road.



View of Keep Tryst Road Parking Area from Crossing Gates

A count of the number of vehicles at each parking area was completed on Saturday, July 28th at 1:30 PM. The time corresponded with a peak number of users on the trail. Both parking areas were over-capacity as shown in **Table 1**. At the Keep Tryst Road parking area, there were 8 more cars than spaces available. These additional vehicles parked in the shoulder along Keep Tryst Road. At the Weverton Cliffs parking lot, there were 11 more cars than spaces available. These vehicles parked along the travel lanes of the parking lot.

Table 1: Available Parking Spaces

Location	Parking Spaces	Number of Vehicles
Keep Tryst Road Parking Area	12	20
Weverton Cliffs Parking Lots	24	35



Recreation Counts & Trends

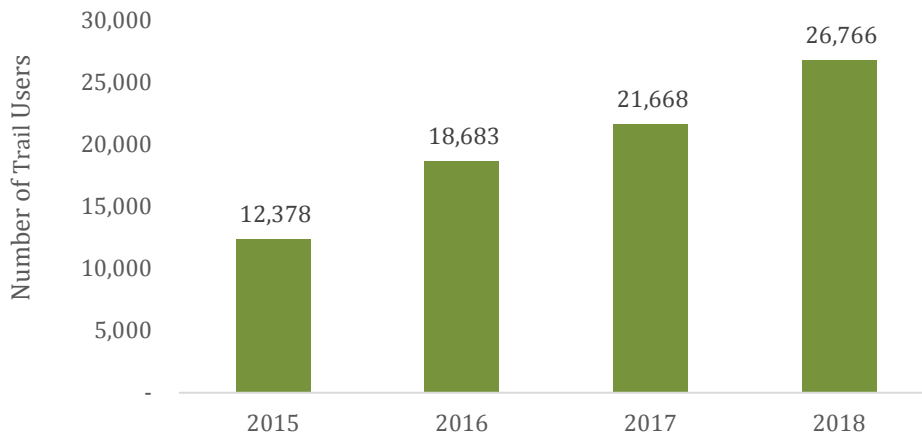
Since 2015, the number of recreation users at the Weverton Crossing based on the C&O Canal NHP’s automated trail counter has been steadily increasing every year. **Figure 9** shows the number of recreation users per year using the AT and C&O Towpath at the Weverton Crossing. In 2015, there were 12,378 users and in 2018, the total number of recreation users increased to 26,766. This represents an average increase of 30 percent per year and an overall increase of 116 percent since 2015.



RECREATION USERS

The number of recreation users at the Weverton Crossing increased an average of 4,800 per year from 2015 to 2018

Figure 9: Count of AT and C&O Recreation Users per Year





RAIL CROSSING CONCEPTUAL DESIGN OPTIONS

With coordination and insight from the WSG, this study has assessed potential design options to provide a formal crossing of the CSX Railroad in Weverton that links the C&O Canal Towpath and the AT along the Potomac River to provide access for all recreation users. The feasible crossing alternatives include a pedestrian bridge that spans over the railroad and an at-grade option that includes safety measures and warning signals for crossing the tracks. As part of the planning process, a conceptual design was developed for each alternative that includes a site layout, estimated footprint of structures, and visualization of the crossing area. A conceptual design is a preliminary phase to show a structure is feasible within the geometric constraints of the area. The exact location, materials, and dimensions will be determined in the engineering and NEPA phases of the project as well as final cost estimates. The concepts are based on similar trail bridge railroad crossings, such as the Schuylkill River Trail in Philadelphia, Pennsylvania. Additional planning considerations identified by the WSG include:

- Alternatives to maintain separate access for CSX maintenance and NPS emergency vehicles at the existing crossing location
- Specific right-of-way boundaries and potential easement requirements
- Improvements to the parking area
- Crosswalk safety features for Keep Tryst Road
- Minimize historic and cultural landscape impacts
- Paths and ramps wide enough for carrying a kayak or canoe

Based on the conceptual designs, a planning level cost estimate was performed for the bridge materials and construction. Potential property acquisition was not included in the cost estimate.

Property Boundaries

Within the study area, the main property owners identified in the parcel data are: CSX, MDOT SHA, Washington County Highway Department, Maryland DNR, and the NPS.

Four property data sources for the study area and the parcel data show slightly different boundaries for each. The sources include:

- Washington County Parcel Data
- CSX Valuation Map
- CSX Parcel Data
- C&O Canal National Historical Park Boundaries

As shown in **Figure 10**, the CSX and Washington County property lines on the north side of the tracks vary slightly near the existing crossing area. Just west of the existing crossing, the sources provide larger differences (up to 30 feet offset) in the property lines along Keep Tryst Road. On the south side,



there are significant differences as the NPS boundary is near the tracks while the CSX property line and the county parcel are closer to the C&O Canal. This difference is close to 100 feet between the data sources. Due to these parcel discrepancies, a formal survey with deed and title research is recommended to determine parcel boundaries. The boundaries and property lines would be needed to assess easements as required for constructing a pedestrian bridge.

Figure 10: CSX and NHP Property Boundaries



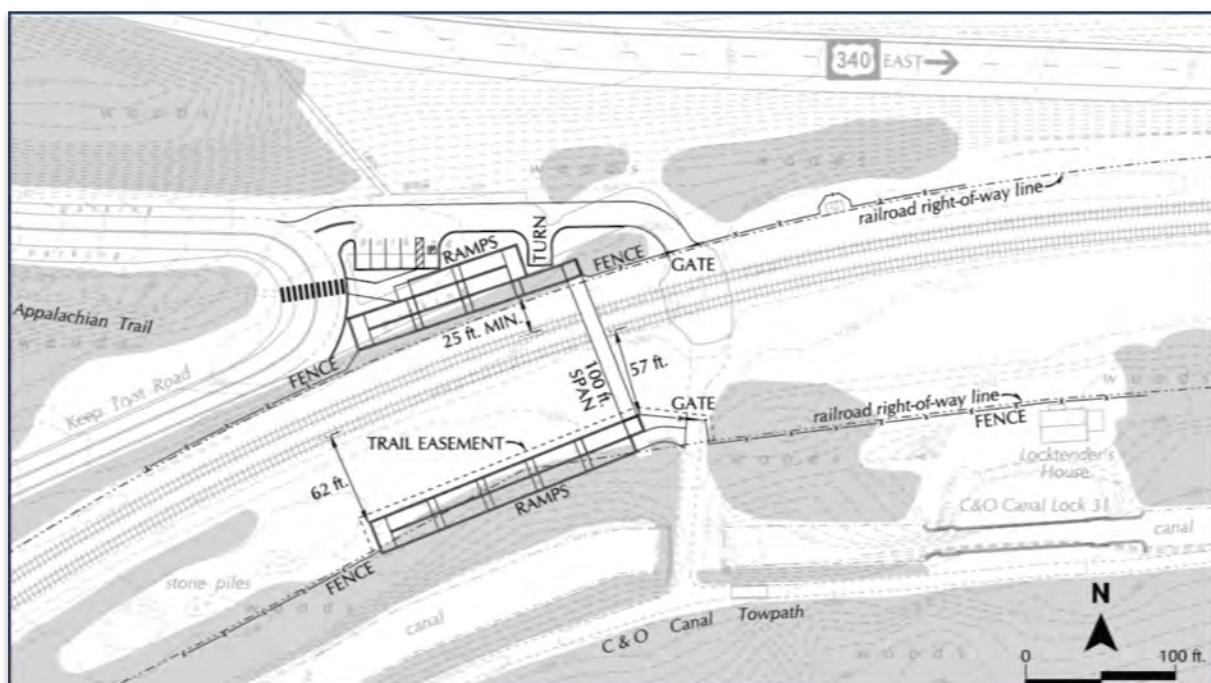
Pedestrian Bridge

The WSG has identified a pedestrian bridge at or near the existing crossing site as an alternative for consideration. Key design constraints include:

- The existing crossing location must remain open for vehicle traffic for CSX maintenance, law enforcement, and emergency vehicles for access to the towpath
- The crossing area must serve bicyclists and pedestrians including those carrying a kayak or canoe
- A pedestrian bridge must be ADA compliant with less than 8.3 percent slope
- A bridge requires a minimum of 23 feet clearance above the tracks
- Maintain reasonable linkage to the existing trails
- Minimize disturbance to environmental, cultural, and historic resources
- Keep consistency with existing viewshed, parking access, and other site features

Constructing a pedestrian bridge within the project study area requires a large footprint in an area with historical significance and cultural sensitivities. The proposed site layout, as provided in **Figure 11**, shows the pedestrian bridge and the CSX right-of-way (per the CSX valuation map). The north side ramps can be constructed outside the CSX right-of-way with the 25-foot minimum distance from the centerline of the tracks. This distance meets CSX's structure requirements and eliminates the need for potential crash walls. The south ramps will require a trail easement from CSX as they are inside the right-of-way. This will prevent disturbance of the C&O Canal and the steep terrain that would require a substantial retaining wall. The estimated distance from the tracks is 57 feet. This would maintain access to the area between the ramp and tracks that is currently used as CSX materials yard.

Figure 11: Site Layout for the Weverton Crossing Area



Other features included in the site layout are a redesigned parking lot, access road to the current crossing area, fencing, and a crosswalk with signage on Keep Tryst Road. The parking area is reduced to five striped spaces including 1 handicapped space. Shoulder improvements along Keep Tryst Road could provide additional parking. The access road has a turnaround area and is gated to force users to use the bridge. Fencing would be installed on both sides of the crossing area for approximately $\frac{1}{2}$ mile eliminating access to the tracks.

3-D model images have been developed to visualize the pedestrian bridge and its context within the study area, as shown in **Figures 12-16**. There are three transcending ramps on the north side with the longest span of 156 feet long. The ramps begin in the parking area with a continued trail and crosswalk for hikers to continue on the AT. The south side has two transcending ramps of 226 feet long. The ramps dimensions are 10 feet wide to handle bikes and for carrying a kayak or canoe. The ramp slope is less than 8.3 percent to meet ADA requirements.

Figure 12: Aerial View of the Pedestrian Bridge



The pedestrian overpass has a 100-foot span and is an open steel truss bridge. The bridge overpass meets CSX guidelines for the minimum clearance of 23 feet above the top of the tracks and the minimum distance of 25 feet between the bridge structure and the centerline of the tracks. The pedestrian bridge materials meet American Association of State Highway and Transportation Officials (AASHTO) design standards and the support walls include prefabricated concrete sections with a 35 pound per square foot uniform wind load standard. The safety railings are 4.5 feet high with four-inch maximum opening. The 3-D designs also illustrate the automated gated vehicle crossing areas and closeup views of the bridge span and ramps.

Figure 13: Northside View of the Pedestrian Bridge with Dimensions



Figure 14: Southside View of the Pedestrian Bridge with Dimensions



Figure 15: Close-up View of Pedestrian Bridge Span



Figure 16: Close-up View of South Ramp Sections



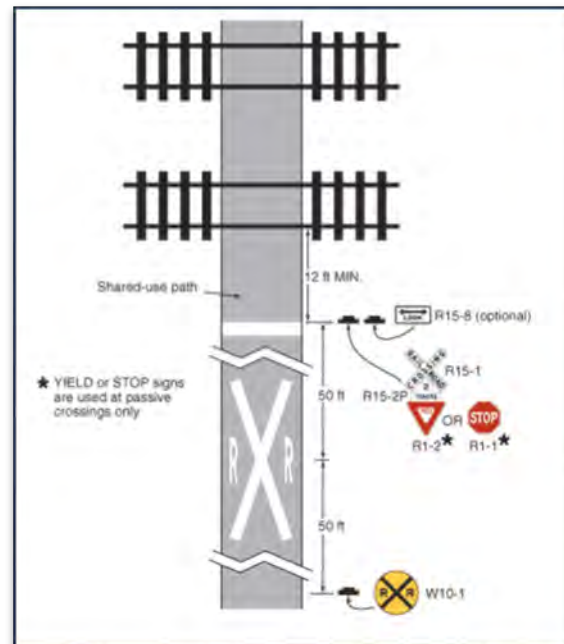
At-Grade Crossing

As an alternative to the pedestrian bridge, a conceptual design has been developed for an at-grade crossing consistent with other Maryland at-grade CSX crossings that lead to the C&O Canal Towpath and access to the Potomac River. The at-grade option requires the least disruption to the historic crossing area and scenic viewshed. The goal of this option is to improve the safety features, warning systems, and channelize the crossings by installing fencing with a new separate path from the existing vehicle crossing.

The 2011 Maryland Manual on Uniform Traffic Control Devices (MdMUTCD) Section 8D.03 provides requirements for pathway grade crossing signs and markings. They are consistent with the safety requirements in the CSX Public Project Manual.

CSX prefers grade separated for the AT crossing at Weverton. Their project guidelines are specific and prohibit any crossing of CSX property unless at designed public highway easements. For public road crossing openings and closures, and bicycle and pedestrian pathways and multi-use trails, the CSX guidelines are included in **Appendix D** and require:

- To comply with and in support of the federal initiative to reduce crossings, CSX requires the community to identify three comparable active grade crossings to be closed for each new grade crossing.
- Private or public parallel bicycle/pedestrian pathways and trails are not permitted on CSX property. CSX prefers grade separated bicycle/pedestrian pathways and multi-use trails.
- Bicycle/pedestrian pathways and trails cannot cross tracks at grade outside of existing highway easements.
- Pedestrian safety is enhanced when pathways and sidewalks are designed such that they cross the tracks at as close to a right angle as practical.
- The highway agency's design must include additional safety measures for at-grade pathways and trails within existing highway easements. These measures should include detectable warnings. Pathways and trails greater than five feet in width require either physical requirements or traffic control devices.



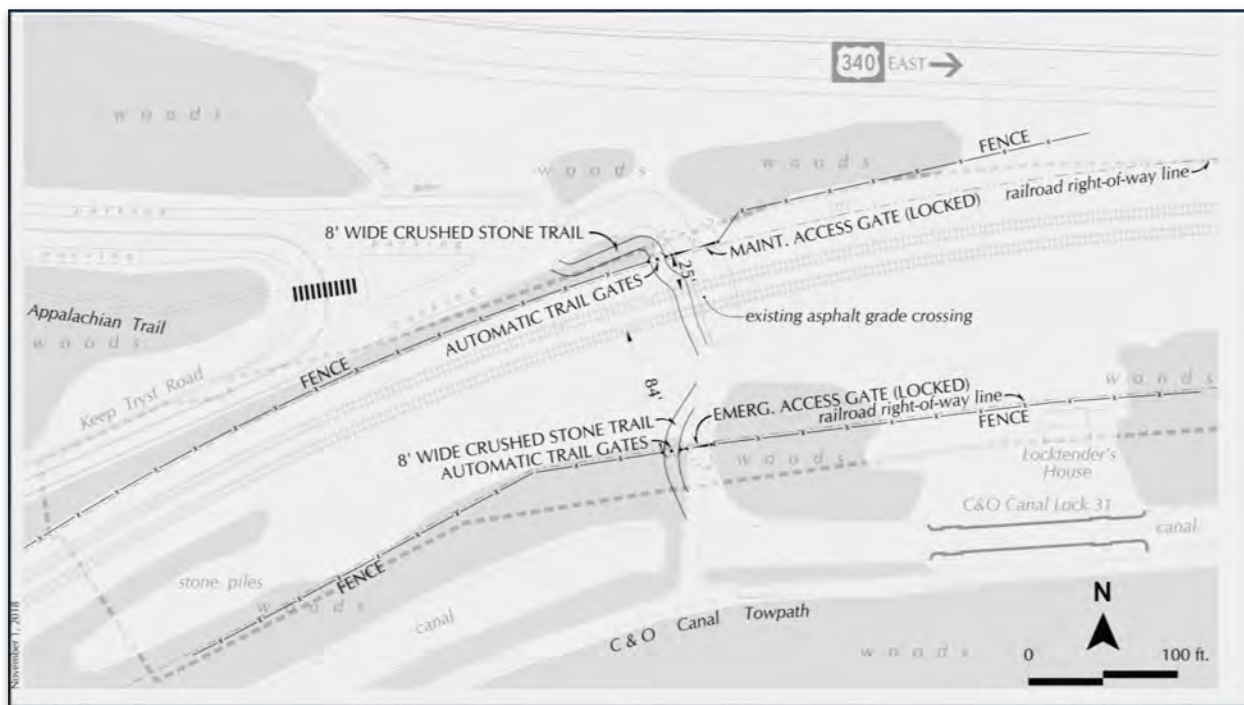
MdMUTCD Example of Signing and Markings for a Pathway Grade Crossing



Photo of an Ideal At-Grade Pathway Crossing with enhanced Safety Features and Warning System

The at-grade crossing site layout in **Figure 17** highlights the proposed safety improvements to the Weverton crossing area. It provides a new crushed stone pathway from the existing parking lot to the crossing area. The layout maintains the vehicle crossing trail but adds security fencing with automated gates and active warning signals. The gates would be connected to the railroad signal system and automatically close by oncoming trains. Once the signals are activated, the gates close prohibiting any foot traffic from entering the crossing area. The eight-foot wide trail gates are similar to the Locust Street crossing on the Schuylkill River Trail in Philadelphia, PA.

Figure 17: At-grade Crossing Option Site Layout



The crossing area would have a six-foot high fence along both sides of the CSX right-of-way approximately 1,500 feet total eliminating the need for a potential property easement. It is tied to the natural terrain and tree line requiring minimal disturbance to the historic area.

Figure 18 and **Figure 19** provide 3-D model views of the crossing area showing the automatic gate system. The vehicle entrance for maintenance, patrol, and emergency vehicles would use a separate gate from the pedestrian path with controlled access on both side of the tracks. Traditional warning systems with flashing lights and cross arms could also be an alternative.

Figure 18: View of At-grade Crossing



Figure 19: Aerial View of At-grade Crossing





PLANNING COST SUMMARY

Planning level cost estimates are intended to provide guidance on the order of magnitude of project costs that may be incurred for various alternatives. Construction quantities and construction items have been identified based on the conceptual designs developed as part of this feasibility study. A summary of the cost estimate is shown in **Table 2** for the pedestrian bridge and **Table 3** for the at-grade option.

Fabrication costs and installation costs for the prefabricated bridge have been acquired from Contech Engineered Solutions Inc. The details of the bridge estimates are included in **Appendix B**. Assumptions have been made for various items based on typical industry values and relative percentages from prior construction projects. A fifteen percent (15%) contingency has been added to account for unforeseen items and variances in construction quantities. The cost estimates represent 2018 dollars and do not include any costs associated with the following:

- Right-of-way/trail easement acquisition
- Utility relocations
- Bridge foundation preparation or soil testing
- Deed and title research, property survey and completion of additional studies

Table 2: Cost Estimate for Pedestrian Bridge

Item	Amount
Bridge Span and Abutments / Footings	\$ 330,000
North Ramps and Walls	\$ 766,000
South Ramps and Walls	\$ 949,000
Parking Area Improvements	\$ 86,000
Fencing and Gates	\$ 18,000
Drainage	\$ 64,000
Mobilization	\$ 86,000
Seeding/Stabilization	\$ 11,000
Signage	\$ 21,000
Erosion and Sediment Controls	\$ 43,000
Property Survey	\$ 21,000
Traffic Control/RR Flagging	\$ 86,000
Construction Management / Inspection	\$ 215,000
Engineering Design (includes CSX Review Costs)	\$ 322,000
Contingency (15%)	\$ 453,000
Total	\$ 3,471,000



Table 3: Cost Estimate for At-grade Crossing

Item	Amount
North Automate Trail Gate	\$ 53,000
South Automated Trail Gate	\$ 53,000
CSX Signals*	\$ 75,000
5' x 100' Stone Walkway	\$ 3,000
Parking Area	\$ 86,000
Fencing	\$ 13,000
Drainage	\$ 8,000
Mobilization	\$ 11,000
Seeding/Stabilization	\$ 1,000
Signage	\$ 3,000
Erosion and Sediment Controls	\$ 6,000
Property Survey	\$ 6,000
Traffic Control/RR Flagging	\$ 11,000
Construction Management / Inspection	\$ 28,000
Engineering Design (includes CSX Review Costs)	\$ 56,000
Contingency (15%)	\$ 62,000
Total	\$ 475,000

**Estimated costs for integrating CSX signals, CSX indicates costs could exceed \$300k.*



ENVIRONMENTAL SCREENING ASSESSMENT

An Environmental Screening Assessment was completed for the project study area encompassing the existing rail crossing and the alternative crossing design concepts. The intent of the screening is to identify and highlight key environmental considerations most likely to require additional studies as potential projects moves forward into design. If/when a project progresses, appropriate coordination must occur with a variety of local, state, and federal agencies. Key coordination efforts and permits/approvals that will be required are noted throughout the assessment, as applicable.

In order to gather a baseline environmental inventory of the project area, the following sources of data were utilized:

- Existing and readily available data available through GIS and online web applications;
- Informal coordination with environmental agencies and interested stakeholders;
- “Windshield” surveys of the project area

No detailed fieldwork, such as wetland delineations, was completed for this feasibility study. Results of the environmental screening are described below.

Land Use

Land use within the project area primarily consists of recreational, transportation, and residential uses. East and south of the proposed CSX rail crossing are the C&O Canal NHP, the Potomac Heritage National Scenic Trail, Harpers Ferry NHP, the AT which crosses the railroad tracks at Weverton, and the forested shoreline of the Potomac River which is owned and maintained by the NPS. Limited parking is located north of the crossing, adjacent to county-owned Keep Tryst Road and U.S. 340. West of the rail crossing are state-owned parklands, continuation of the C&O Canal NHP and AT, as well as dispersed residential and wooded areas.

Cultural Resources

According to the Maryland Historical Trust (MHT) database, the project area is rich with historic and cultural significance, specifically related to the C&O Canal NHP. **Figure 20** highlights key sites in and near the project study as indexed by the site’s List of Classified Structures (LCS) site number. The LCS is a computerized, evaluated inventory of all historic and prehistoric structures having historical, architectural, or engineering significance in which the NPS has or plans to acquire any legal interest.

Chesapeake and Ohio Canal National Historical Park

The C&O Canal is a flat-water canal, chartered in 1825. Construction began in 1828 and by 1850 the canal was opened to its terminus in Cumberland, Maryland. The canal ceased operations in 1924 due to flood damage and the buying out of the company by the Baltimore & Ohio (B&O) Railroad. In 1938, the B&O Railroad sold the canal property to the US government for \$2 million dollars. The entire

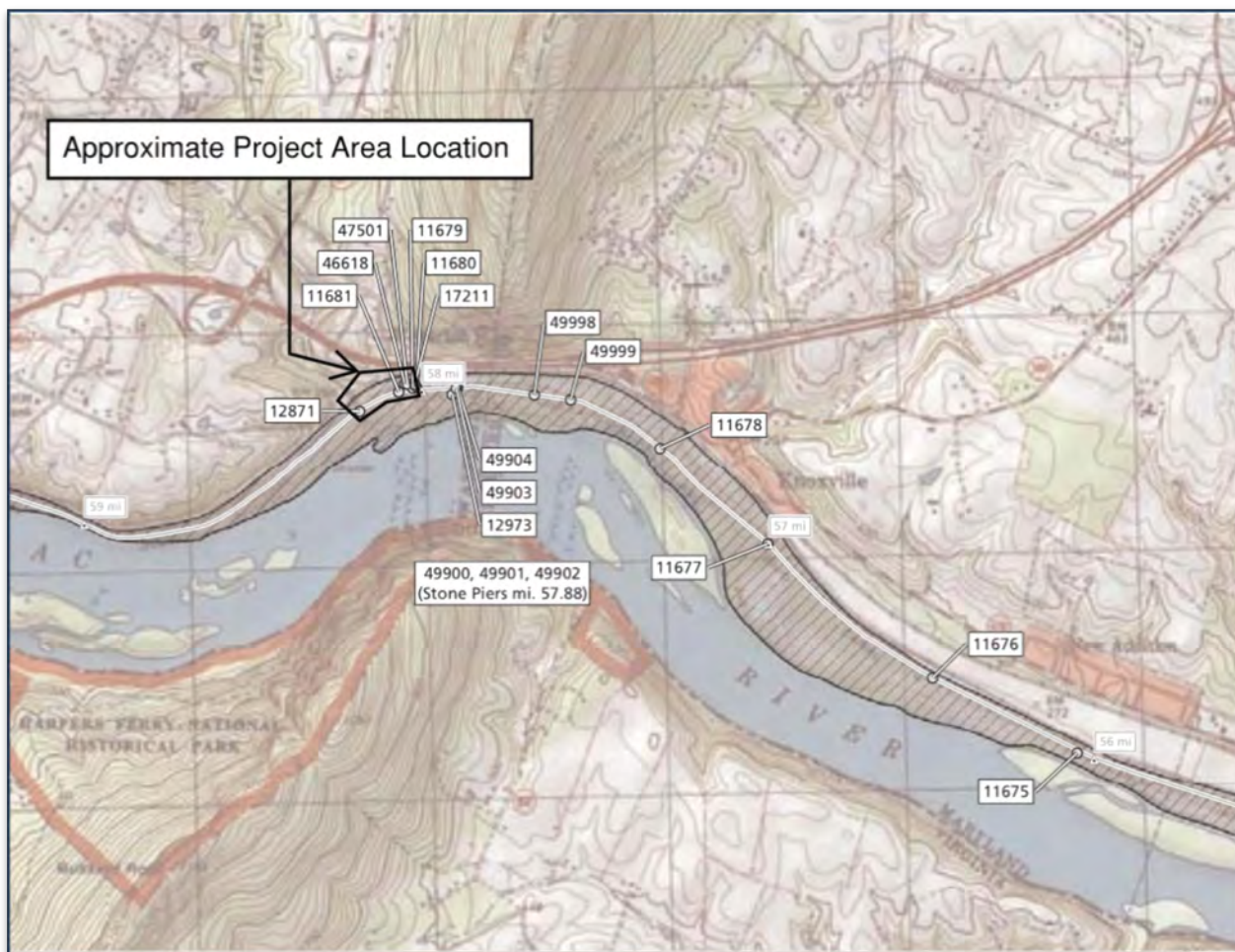


184.5 miles of the canal was recognized as a National Historic Monument in 1961, and then in 1971 became known as the C&O Canal NHP. Under the 1966 National Historic Preservation Act (NHPA), the Canal was added to the National Register of Historic Places (NRHP), having historical significance merits under architecture, engineering, commerce, transportation, military history, and conservation. The C&O Canal NHP spans several counties including Allegany, Frederick, Montgomery, and Washington Counties, as well as Washington, DC.

Potomac Heritage National Scenic Trail

The Potomac Heritage National Scenic Trail is a braided network of trails, open space, and natural areas, which winds through a corridor linked by land, water, and history between the mouth of the Potomac River and the Allegheny Highlands in Pennsylvania. The entire 184.5 miles of the C&O Canal Towpath is a major section of the Potomac Heritage National Scenic Trail, where visitors can hike, bike, and access the Potomac River Water Trail.

Figure 20: Cultural Resources





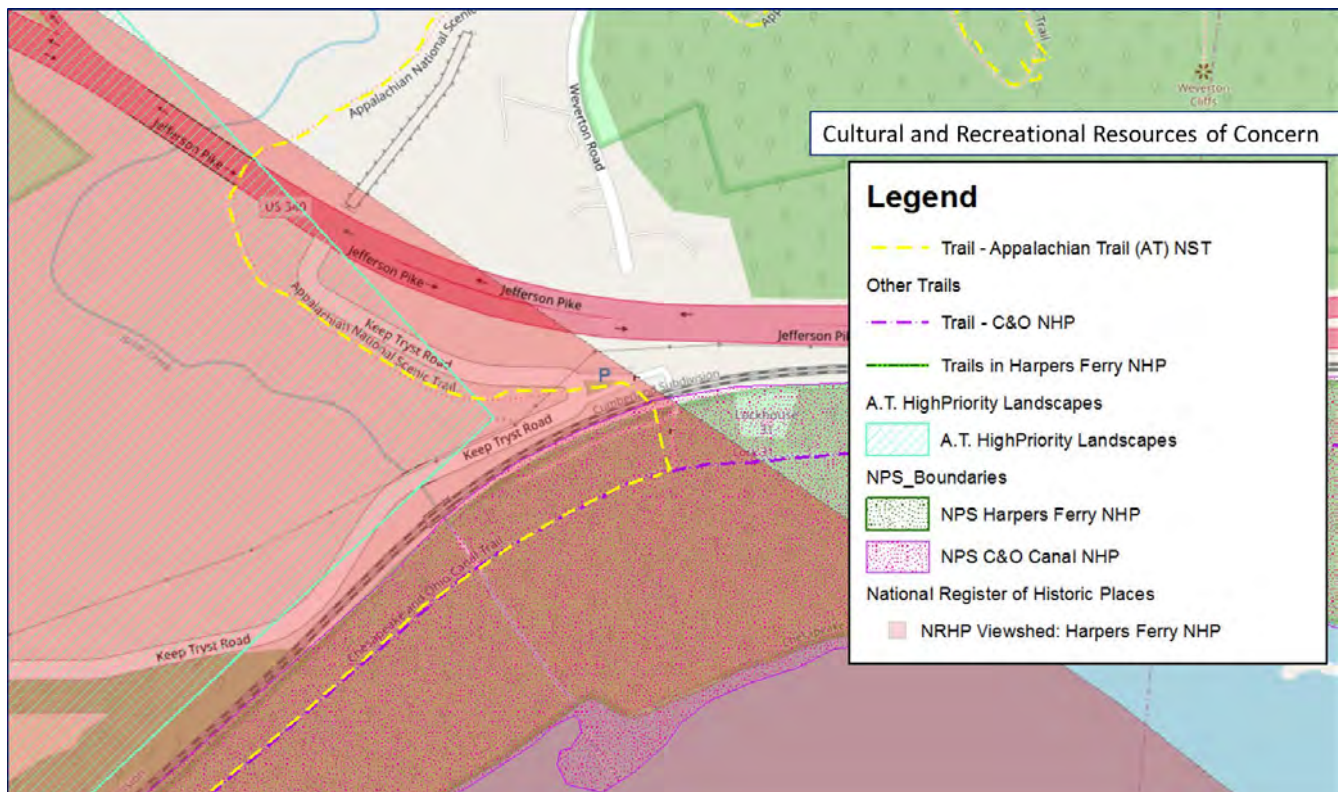
NHP Viewshed and Scenic Easements

In addition to the C&O Canal NHP, the Harpers Ferry NHP, the Appalachian National Scenic Trail, and the Potomac Heritage National Scenic Trail, shown in **Figure 21**, may have adverse effects to their respective viewshed if trees are removed or with the construction of a large structure like a pedestrian bridge. The C&O Canal NHP has over 250 scenic easements registered protecting and preserving the natural and desirable viewshed of the NHP. Not all of the easements could be identified at this time, but the following provides a summary of the potential impacts:

- **Harpers Ferry National Historical Park** (as a Historic District and associated boundaries, not just the park boundaries)
 - Listed on the National Register of Historic Places (NRHP)
 - Possible Viewshed Boundaries, as shown in Figure 20.
 - Determination needed if potential alternatives are consistent with the visual integrity of the resource
 - Potential concerns with Section 4(f) and Section 106 compliance, would the alternative have an adverse effect on the features, characteristics, and qualities that put the resource in the NRHP.
- **Chesapeake & Ohio Canal National Historical Park** (not just a park or trail, but as a Historic District)
 - Listed on the National Register of Historic Places (NRHP)
 - Listed as a National Historic Landmark (NHL)
 - Need to identify any NHP scenic easements in the study area
 - Determination needed if potential alternatives are consistent with the visual integrity of the resource
 - Potential concerns with Section 4(f) and Section 106 compliance, would the alternative have an adverse effect on the features, characteristics, and qualities that put the resource in the NRHP and made it an NHL.
- **Appalachian National Scenic Trail** (not just the trail)
 - Currently under consideration by the NPS on the NRHP
 - The AT Trail Conservancy, along with NPS, currently evaluating several large landscapes “Focus Areas” that warrant protection (e.g., outright purchase of adjacent properties or scenic easements). The Harpers Ferry section of the AT is one of these Focus Areas; hence, scenic integrity is likely an issue.
 - Determination needed if potential alternatives are consistent with the visual integrity of the resource
 - Potential concerns with Section 4(f) and Section 106 compliance, would the alternative have an adverse effect on the features, characteristics, and qualities that make the resource potentially eligible for NRHP.

- **Potomac Heritage National Scenic Trail**
 - Need to identify any NHP scenic easements in the study area
 - Determination needed if potential alternatives are consistent with the visual integrity of the resource
 - Potential concerns with Section 4(f) and Section 106 compliance, would the alternative have an adverse effect on the features, characteristics, and qualities that put the resource in the NRHP and made it an NHL.

Figure 21 Harpers Ferry NHP NRHP Viewshed



Lockhouse #31

Lockhouse-Lock 31 (#17211) is located within the project area, east of the proposed rail crossing. It contributes to the NRHP under Criteria A & C for its architecture, engineering, commerce, transportation, conservation, and military history period of significance (1828–1924).

Other Contributing Resources

According to NPS database records, several other contributing resources to the C&O Canal NHP are located within the vicinity of the project area, immediately adjacent to the canal. These contributing resources are listed below in **Table 4** and also depicted in **Figure 20**.



Table 4: Contributing Resources to the C&O Canal National Historical Park

LCS or Archaeological Site #	Resource	NR Status	Qty/ Type	Area of Significance & Subcategory
12871	Culvert #93 (Culvert No. 93 (Israel Creek Culvert)) (1833)	C	STR	Canal Proper
11681	Wasteweir (1850)	C	STR	Canal Proper
46618	Trailrace Flume – Lock #31 (1833)	C	STR	Canal Proper
47501	Water Intake at Lock #31 (1833)	C	STR	Industry
11679	Lock 31 (Lock No. 31 (Weverton Lock)) (1832)	C	STR	Canal Proper
11680	Bypass Flume – Lock 31 (1833)	C	STR	Canal Proper
<p><i>Source: National Park Service (2015)</i> <i>NR Status = Contributing to the C&O Canal NHP Historic District</i> <i>QTY/Type = Resource count by NR Property Type (STR – Structure)</i> <i>Area of Significance & Subcategory = The area of prehistory/history associated with each resource.</i> <i>Canal-Proper is used for resources integral to the canal itself which contribute to the National Register significance.</i></p>				

Archaeology

The C&O Canal NHP, as a whole, was established in a landscape that has been inhabited for over 11,000 years. Embedded in the landscape is a rich archeological record of human use and occupation that includes Early and Late Archaic riverine base camps; Early and Middle Woodland camp sites; Late Woodland villages, hamlets, and camps; eighteenth-century domestic sites of the first squatters and settlers; eighteenth- and nineteenth-century farmsteads and industrial sites; along with sites associated with the construction and operation of the canal; and Civil War fortifications and camp sites (NPS 2015). Based on information provided by NPS, no archaeological sites listed as part of the NRHP C&O Canal are located within the immediate vicinity of the project area.

- ⇒ **Next Steps:** Impacts should be assessed as both physical and indirect (changing the visual landscape) impacts to the C&O Canal NHP. During the design phase, coordination with the MHT and NPS will be required to initiate consultation per Section 106 of the NHPA as well as to solicit feedback regarding design elements of the project.

Should impacts occur and US Department of Transportation (DOT) funding is utilized for any phase of the project (i.e., design or construction), Section 4(f) of the DOT Act may apply.

Applicable Laws/Permitting:

- Section 106 of the National Historic Preservation Act of 1966
- Section 4(f) of the Department of Transportation Act of 1966 (if DOT funds used)



Natural Environmental Resources

Rare, Threatened, and Endangered Species

Coordination with the US Fish and Wildlife Service through the Information for Planning and Consultation (IPaC) indicated that there are no known federally listed endangered species under their jurisdiction within the vicinity of the project area.

Online GIS Data provided by the Maryland DNR identified a portion of the project area is within a Sensitive Species Project Review Area (SSPRA). SSPRA's represent the general locations of documented rare, threatened, and endangered species as well as several types of regulated areas including: natural heritage areas, locally significant habitat areas, colonial waterbird sites, nontidal Wetlands of Special State Concern, and geographic areas of particular concern. Coordination with DNR Wildlife & Heritage Service indicated that there are no records for state or federally-listed plant or animal species within the project area; however, several species are located within close proximity. See **Appendix C** for a list of these species.

- ⇒ **Next Steps:** Coordination with the Maryland DNR should occur during the design phase to evaluate various avoidance/minimization techniques to reduce impacts to Forest Interior Dwelling Species (FIDS) habitat. Impacts to forested areas should be coordinated with both Maryland DNR and Washington County to determine what permits/documentation is required.

Applicable Laws/Permitting:

- Section 7 of the Endangered Species Act (Federally listed species)
- Maryland Nongame and Endangered Species Conservation Act (State listed species)

Wetlands and Waterways

The project area is located within the Middle Potomac River watershed (Maryland 8-digit watershed code = 02140301), with tributaries draining to the Potomac River. Israel Creek, located in the western portion of the project area and other unnamed tributaries within the vicinity are classified as Use IV-P (Recreational Trout Waters and Public Water Supply) and have instream work prohibition during March 1 through May 31, inclusive, during any year. The C&O Canal is classified as Use I-P (Water Contact Recreation, Protection of Aquatic Life and Public Water Supply) with instream work prohibition from March 1 through June 15, inclusive, during any year. According to National Wetland Inventory (NWI) and Maryland DNR wetland mapping, Israel Creek and the C&O Canal are located within the project area. Israel Creek is a riverine, upper perennial, unconsolidated bottom (R3UBH) system in the western portion of the project area that drains to the Potomac River to the south. The C&O Canal prism (R5UBHx) is a riverine, perennial, unconsolidated bottom, permanently flooded, excavated system.

NWI mapping identifies freshwater forested/shrub wetlands (PFO1A) on both sides of the C&O Canal prism throughout the southern portion of the project area. Maryland DNR wetland mapping shows the same wetland system; however, its extent ends south of the canal towpath.



- ⇒ **Next Steps:** A qualified wetland professional should conduct an onsite wetland delineation to confirm the absence of wetlands with the project area. Any impacts (stream, non-tidal wetland, or 25' wetland buffer) resulting from the project will require authorization from the US Army Corps of Engineers (COE) and Maryland Department of the Environment (MDE).

Applicable Laws/Permitting:

- Clean Water Act, Section 404 Permitting; Section 401 Certification
- Executive Order 11990, Protection of Wetlands, 1977
- Maryland Nontidal Wetlands Protection Act (COMAR 26.17.04)
- Maryland Waterways Construction Act (COMAR 26.17.04)

Floodplains

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Mapping (FIRM), shown in **Figure 22**, shows that a portion of the project area is located within a mapped 100-year flood zone (Zone AE, Effective 08/15/2017) associated with Potomac River and Israel Creek south and east of the study area, respectively. The Special Flood Hazard Area (SFHA), designated as Zone AE floodway, is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment for the one percent (1%) annual chance flood in any given year. Zone AE has Base Flood Elevations (BFE) determined, which are the computed elevation to which floodwater is anticipated to rise during the base flood. According to the FIRM mapping, the BFE within the project area is 261 feet.

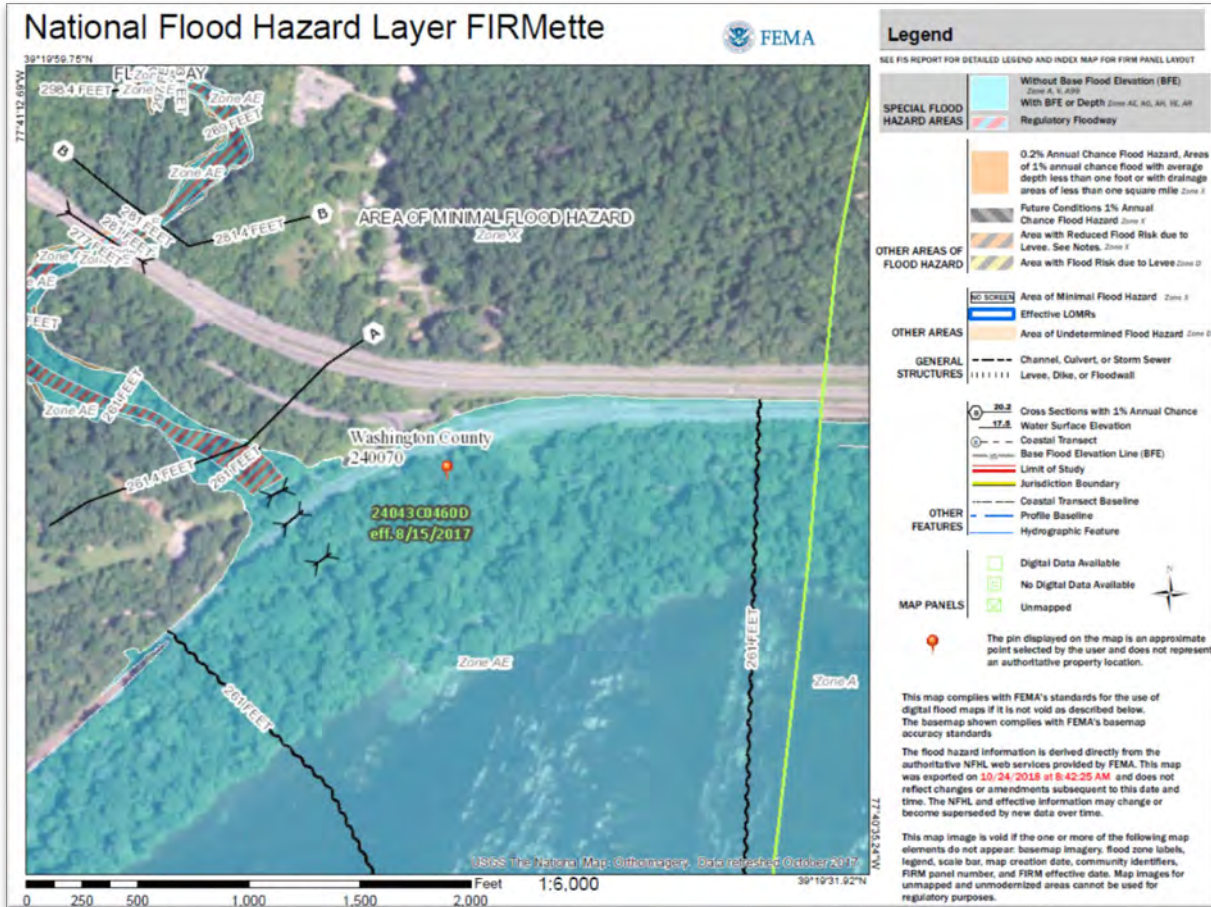
- ⇒ **Next Steps:** Additional coordination with Washington County as well as the MDE should be initiated to determine what permits would be required for floodplain encroachment resulting from the rail crossing.

Applicable Laws/Permitting:

- Clean Water Act, Section 404 Permitting; Section 401 Certification
- Executive Order 11990, Protection of Wetlands, 1977
- Maryland Waterways Construction Act (COMAR 26.17.04)
- Washington County Floodplain Management Ordinance



Figure 22: FEMA Floodplains



Terrestrial Habitat

Common species located within the vicinity of the project area and within the C&O Canal NHP include both common lowland/floodplain and upland forests. Typical species include: pawpaw (*Asimina trilobal*), silver maple (*Acer saccharinum*), tulip poplar (*Liriodendron tulipifera*), box elder (*Acer negundo*), American sycamore (*Platanus occidentalis*), northern spicebush (*Lindera benzoin*), and American bladdernut (*Staphylea trifolia*) (NPS 2016). Reduction in habitat can lend to the opportunity for nonnative/invasive plants species to outcompete natives. Typical invasive species include: tree-of-heaven (*Ailanthus altissima*), lesser celandine/fig buttercup (*Ficaria verna*), Japanese knotweed (*Fallopia japonica*), wineberry (*Rubus phoenicolasius*), multiflora rose (*Rosa multiflora*), Japanese honeysuckle (*Lonicera japonica*), autumn olive (*Elaeagnus umbellata*), Japanese stiltgrass (*Microstegium vimineum*), garlic mustard (*Alliaria petiolata*), and Japanese barberry (*Berberis thunbergii*) (NPS 2017).



*View from Weverton Heights, Washington County, MD, 2006.
Source: Maryland's Forests (2008). Resource Bulletin NRS-58. Photo by Jack Perdue, Maryland DNR.*

Forested tracts within the project area are considered Forest Interior Dwelling Species (FIDS) habitat. FIDS habitat are forested areas greater than 50 acres in size and contain at least 10 acres of forest interior habitat (forest greater than 300 feet from the nearest forest edge). In addition, riparian forests that are on average at least 300 feet in total width and greater than 50 acres in total forest area are also considered FIDS habitat. Impacts to trees would primarily be along the fringes/exterior of the forested areas south of the proposed rail crossing.

- ⇒ **Next Steps:** Coordination with the Maryland DNR should occur during the design phase to evaluate various avoidance/minimization techniques to reduce impacts to FIDS habitat. Impacts to forested areas should be coordinated with Maryland DNR to determine what permits and documentation is required and Washington County to determine if a Forest Stand Delineation (FSD) is required.

Applicable Laws/Permitting:

- Maryland Forest Conservation Act (COMAR 8.19)
- Washington County Forest Conservation Ordinance

Alternative Concept Comparison

Table 5 provides a comparison of the crossing design options (Options 1 and 2) in terms of environmental considerations. Further consideration will be required during the planning and design phases of the project for resources found within the project area, in addition to quantifying impacts and evaluating other resources (e.g., hazardous waste, air/noise, etc.).



Table 5: Environmental Considerations of Options 1 and 2

	Option 1: Bridge Crossing	Option 2: At Grade Crossing
Land Use	<ul style="list-style-type: none"> Minor changes to existing land uses – Easements/Acquisitions required from CSX 	<ul style="list-style-type: none"> Negligible changes to existing land uses - Easements/Acquisitions required from CSX
<p>Next Steps: Coordination with CSX regarding proposed work within rail right-of-way</p>		
Cultural Resources	<ul style="list-style-type: none"> Potential significant impacts to the C&O NHP canal prism, and the viewsheds of the Harpers Ferry NHP, C&O Canal NHP and the AT 	<ul style="list-style-type: none"> Minor impacts to the C&O NHP from the proposed crushed stone trail
<p>Next Steps: Coordination with the MD SHPO/MHT is necessary to determine whether Section 4(f) and Section 106 adverse effects occur to the resources viewsheds and archaeological investigations are warranted per Section 106 of the NHPA.</p>		
Public Parkland & Recreational Areas	<ul style="list-style-type: none"> Although minor impacts would result to the C&O NHP, the overall crossing would result in a betterment for trail connectivity and safety of Appalachian Trail users. 	<ul style="list-style-type: none"> Minor impacts to the C&O NHP from the proposed crushed stone trail
<p>Next Steps: Coordination with the NPS regarding documentation requirements for impacts to the C&O NHP & NEPA requirements.</p>		
Terrestrial Habitat	<ul style="list-style-type: none"> Minor impacts to the C&O NHP from the proposed bridge ramp north of the canal prism; FIDS habitat present 	<ul style="list-style-type: none"> Negligible impacts to terrestrial habitat; FIDS habitat present
<p>Next Steps: Coordination with DNR to evaluate various avoidance/minimization techniques to reduce impacts to FIDS habitat. Impacts to forested areas should be coordinated with DNR to determine what permits/documentation is required and Washington County to determine if a Forest Stand Delineation (FSD) is required.</p>		
Rare, Threatened & Endangered Species	<ul style="list-style-type: none"> Limited potential for RT&E Impacts 	<ul style="list-style-type: none"> Limited potential for RT&E Impacts
<p>Next Steps: None.</p>		
Wetlands & Waters of the U.S.	<ul style="list-style-type: none"> Potential for minor impacts to wetland system within the vicinity of the canal prism. 	<ul style="list-style-type: none"> Potential for minor impacts to wetland system within the vicinity of the canal prism from crush stone trail
<p>Next Steps: Qualified wetland professional(s) conduct an onsite wetland delineation to confirm the presence/absence of wetlands within the project area. Impacts (stream, wetland, or 25’ buffer) will require authorization from ACOE and/or MDE.</p>		
Floodplains	<ul style="list-style-type: none"> Substantial 100-Year Floodplain encroachment (Zone AE floodway) 	<ul style="list-style-type: none"> Minor 100-Year Floodplain encroachment (Zone AE floodway)
<p>Next Steps: Additional coordination with Washington County as well as MDE initiated to determine what permits would be required for floodplain encroachment resulting from the rail crossing.</p>		

- Potential Concern Identified
- Additional Field Studies Required to Determine Level of Concern
- No Concern or Limited Potential for Impact
- Coordination/Analysis Required During Planning and Design Phases of the Project



Next Steps

Pre-Construction Phases

Several important issues and constraints have been identified during the stakeholder process that will ultimately influence the future use and design of the Weverton Crossing. Addressing these issues remains a difficult step towards advancing safety improvements at the site including the design options discussed in the previous sections. Below is a summary of the key issues and constraints that need to be resolved in the pre-construction phase in order for the selected alternatives can advance and construction funds can be procured.

Key Issues and Constraints for Identifying Safety Alternatives at Weverton Site



The NPS abides by the Department of Interior's efforts to enhance conservation stewardship; increase outdoor recreation opportunities for all Americans, including opportunities to hunt and fish; and improve the management of game species and their habitats for this generation and beyond. The Executive Orders are provided in **Appendix F** and Order NO. 3356 directs NPS how best to enhance and expand public access to lands and waters administered by the Department-lands and waters owned by all Americans-for hunting, fishing, recreational shooting, and other forms of outdoor recreation. Order NO. 3366 ensures public lands and waters under the management and administration of the U.S. Department of the Interior (Department) are open and accessible for recreational pursuits by all Americans and visitors to the United States.

Implementation Steps

This report outlines the feasibility and conceptual designs for a pedestrian bridge and an at-grade option for improving the safety at the Weverton Crossing Area. This information has been developed to support future efforts by the WSG for the selection of a preferred alternative, identification of funding opportunities and design features, and implementation of the safety measures for crossing the CSX railroad.

Two potential red flags have been identified in the environmental screening of the alternatives. One is to determine if adverse effects are significant to the viewsheds of the NHPs in the area and the other is the 100-year floodplain encroachment. Early coordination with the identified agencies is recommended to ensure appropriate permits can be secured and final design approval can be obtained for the selected alternative.

Additional coordination and negotiations are needed with CSX for their approval on selecting an alternative and determining the property boundaries between the CSX right-of-way and the NHP property line. This will determine if a trail easement will be required. The ultimate owner of the selected alternative and associated maintenance responsibilities needs to be identified. The identified owner will determine the potential funding opportunities that are available and any matching requirements.



NPS Boundary Marker near Weverton Crossing Area

The following steps are anticipated to advance the project into design and construction:

- Resolve pre-construction issues and constraints
- Select preferred alternative
- Grant writing
- Secure funding for pre-construction activities
- Right-of-way/easement acquisition



- Preliminary engineering (including environmental clearance/permitting)
- Final design
- Advertise/Bidding/Award
- Construction
- Ownership and maintenance responsibilities

It is anticipated that this project will be advanced as an independent effort that is funded through a grant program. Please refer to the following section for potential funding sources. Upon acquiring grant funding, it is anticipated that the design process will take 12-24 months to complete assuming a federally funded process. Right-of-way acquisition or trail easement, NEPA environmental clearance/studies, environmental permitting, and railroad crossing approval is anticipated to all occur during the preliminary and final design phases. Advertising, bidding, and award of the project is anticipated to take approximately 4-6 months. Construction is anticipated to take approximately 3-6 months but will vary depending on which alternative is selected and requirements of the railroad for track outages and availability of work near the tracks. Overall, the implementation process could take three to five years to complete.

Funding Opportunities

Federal and state grants are the primary funding sources for bicycle and pedestrian projects in Maryland. MDOT administers several competitive grants for biking & pedestrian programs. These programs support local economies and enhance quality of life through biking and walking. All grant funding is provided on a reimbursement basis.

MDOT SHA has dedicated funding programs that support bicycle and pedestrian improvements on state roads. MDOT SHA internally identifies, designs and constructs many of the projects. Local communities can identify and request projects for MDOT SHA evaluation. There are also a variety of other public and private grant opportunities available to fund bicycle and pedestrian projects. The specific project type is the first step to determining funding eligibility. Several examples are included below in **Table 6**.

Table 6: Grant and Funding Opportunities

Grant and Funding Programs	Description
State Grant Opportunities	
Transportation Alternatives Program (MDOT SHA)	Program provides funding for projects that enhance the cultural, aesthetic, historic, and environmental aspects of the intermodal transportation system. http://roads.maryland.gov/Index.aspx?PageId=144
Maryland Bikeways Program (MDOT TSO)	Program supports projects that maximize bicycle access and fill missing links in the state’s bicycle system, focusing on connecting shared-use paths and roads and enhancing last-mile connections to work, school, shopping and transit. http://www.mdot.maryland.gov/newMDOT/Planning/Bike/Bikeways.html
	Federally-funded program supporting the development and maintenance of motorized and non-motorized recreational trails and trail-related facilities.



Grant and Funding Programs	Description
Recreational Trails Program (MDOT SHA)	<p>Examples of trail uses include hiking, mountain biking, trail running, equestrian use, canoeing, kayaking, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles.</p> <p>http://www.sha.maryland.gov/Index.aspx?PagelD=98</p>
Maryland Highway Safety Office Grant (MDOT MVA)	<p>Grants aim to reduce the number of motor vehicle-related crashes, deaths, and injuries on Maryland highways through education and enforcement actions that modify risky behaviors. The State’s Strategic Highway Safety Plan is a data-driven plan that identifies the top safety priorities that are eligible for funding. Pedestrian and Bicycle Safety is one of six of Maryland’s top safety priorities, called priority emphasis areas.</p> <p>http://www.mva.maryland.gov/safety/mhso/program-regional-traffic-program.htm</p>
Additional Maryland State Grant Opportunities	
Community Legacy Program (DHCD)	<p>Program provides local governments and community development organizations with funding for essential projects aimed at strengthening communities through activities such as business retention and attraction, encouraging homeownership and commercial revitalization. Projects must be located within an approved Sustainable Community to be eligible for funding. Bicycle and pedestrian opportunities include streetscape improvements and as part of mixed-use developments.</p> <p>http://dhcd.maryland.gov/Communities/Pages/programs/CL.aspx</p>
Program Open Space (DNR)	<p>Program consists of two components, a local grant component often called Localside POS and a component that funds acquisition and recreation facility development by the State. The localside component provides financial and technical assistance to local subdivisions for the planning, acquisition, and/or development of recreation land or open space areas.</p> <p>http://dnr2.maryland.gov/land/Pages/LocalSupport/Local-Support-Contacts.aspx</p>
Community Parks and Playgrounds (DNR)	<p>Program provides funding to restore existing parks and create new park and green space systems in Maryland's cities and towns. Flexible grants are provided to local governments which help them rehabilitate, expand or improve existing parks. Funding can help develop environmentally oriented parks and recreation projects, create new parks, or purchase and install playground equipment in older neighborhoods and intensely developed areas throughout the state.</p> <p>http://dnr2.maryland.gov/land/Pages/LocalSupport/Local-Support-Contacts.aspx</p>
Maryland Heritage Areas Financial Assistance Programs (MHT)	<p>Designated Maryland Heritage Areas are eligible for various tax credits, grants and loans. These financial assistance programs support for a wide variety of historic preservation- related activities. Bicycle and pedestrian opportunities involve inclusion in heritage tourism development and educational programs.</p>
Federal Grant Opportunities	
Better Utilizing Investments to Leverage Development (BUILD) Grants (USDOT)	<p>The BUILD Grant program provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve critical national objectives. The BUILD program enables DOT to examine a broad array of projects on their merits, to help ensure that taxpayers are getting the highest value for every dollar invested.</p>



Grant and Funding Programs	Description
Rivers, Trails, and Conservation Assistance Program (NPS)	<p style="text-align: center;">https://www.transportation.gov/tiger</p> <p>Program extends and expands the benefits of the National Park Service by helping connect all Americans to their parks, trails, rivers, and other special places. When a community asks for assistance with a project, NPS staff provides free, on-location facilitation and planning expertise from conception to completion.</p> <p style="text-align: center;">https://www.nps.gov/orgs/rtca/index.htm</p>
Federal Lands Access Program (FLAP) (FHWA)	<p>Program is intended to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators. Bicycle and pedestrian opportunities include planning, design and engineering, construction, rehabilitation, and preventative maintenance of facilities accessing public lands.</p> <p style="text-align: center;">https://flh.fhwa.dot.gov/programs/flap/</p>
Appalachian Regional Commission (ARC) Grants and Funding	<p>ARC awards grants and contracts from funds appropriated to the Commission annually by Congress. Program grants are awarded to state and local agencies and governmental entities to advance economic development. ARC has accepted tourism as a form of economic development and granted ARC AD funds to other trail projects in Western MD.</p> <p style="text-align: center;">https://www.arc.gov/funding/GrantsandFunding.asp</p>
Railway-Highway Crossings (Section 130) Program (FHWA and MDOT SHA OTS)	<p>Section 130 provides funds to eliminate hazards at all public railway-highway crossings including roadways, bike trails, and pedestrian paths.</p> <p style="text-align: center;">https://safety.fhwa.dot.gov/hsip/</p>
Private Grant Opportunities	
The Robert Wood Johnson Foundation	<p>Foundation invests in grantees (e.g., public agencies, universities, and public charities) that are working to improve the health of all Americans. Current or past projects in the topic area “walking and biking” include greenway plans, trail projects, advocacy initiatives, and policy development.</p> <p style="text-align: center;">http://www.rwjf.org/</p>
The PeopleForBikes Community Grant Program	<p>Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives.</p> <p style="text-align: center;">http://www.peopleforbikes.org/pages/community-grants</p>
The National Center for Safe Routes to School	<p>Program identifies ways for communities to solicit non-government funding for Safe Routes to School activities. The multiple benefits of SRTS programs, including the safety, health, environment and community impacts, often align with the interests of the local community.</p> <p style="text-align: center;">http://www.peopleforbikes.org/pages/community-grants</p>