

Rehabilitation and/or Replacement of the Fitzwater Truss Bridge and Waste Weir Bridge, Construction of a Trailhead, and Miscellaneous Improvements on Fitzwater Road

Environmental Assessment



ABSTRACT

At Cuyahoga Valley National Park, the National Park Service (NPS) proposes to rehabilitate and/or replace the Fitzwater Truss Bridge over Cuyahoga River and the Waste Weir Bridge over the Ohio & Erie Canal, in Cuyahoga County, Ohio. Also proposed is the construction of a public trailhead and associated parking area, and the reconstruction of Fitzwater Road.

This Environmental Assessment (EA) prepared in cooperation with the Federal Highway Administration, Eastern Federal Lands Highway Division, examines in detail the No Action Alternative, Rehabilitation of the Fitzwater Truss Bridge and Replacement of the Waste Weir Bridge, Replacement of Both Bridges on Existing Alignment, and Replacement of Both Bridges on New Alignment. Replacement of Both Bridges on a New Alignment is the Preferred Alternative. The Preferred Alternative would have a long-term minor adverse impact to vegetation, a short-term minor adverse impact and a long-term minor beneficial impact to floodplains, a short-term negligible adverse impact and a long-term minor beneficial impact to streamflow characteristics, a long-term minor beneficial impact to visitor use and experience, a short-term minor adverse impact and a long-term minor beneficial impact to health and safety, and a long-term moderate beneficial impact to park operations.

Public Comment

This EA will be on public review from July 28, 2008 through August 28, 2008. During this 30-day period, hardcopies of the EA will be available for review at the Headquarters of the Park located at 15610 Vaughn Road, Brecksville, Ohio, the Canal Visitor Center located at 7104 Canal Road, Valley View, Ohio, and the Brecksville Branch of the Cuyahoga County Public Library located at 9089 Brecksville Road, Brecksville, Ohio. An electronic version of this document can be found on the NPS's Planning Environment and Public Comment (PEPC) website at <http://parkplanning.nps.gov>. This site provides access to current plans, environmental impact analyses, and related documents on public review. This document is located under the Midwest Region, Cuyahoga Valley NP. An electronic version may also be found at the Federal Highway Administration, Eastern Federal Lands Highway Division's website at <http://efl.fhwa.dot.gov/planning/nepa.htm>.

If you wish to comment on the EA, you may submit comments through the PEPC website or mail comments to the name and address below. Please note that the names and addresses of people who comment become part of public record. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

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1 INTRODUCTION/PURPOSE AND NEED

1.1 ABOUT THIS DOCUMENT

In 1969, the United States Congress passed the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) to establish a national policy,

“...which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; ...”

NEPA also established the Council on Environmental Quality (CEQ) as an agency of the Executive Office of the President. In enacting NEPA, Congress recognized that nearly all Federal activities affect the environment in some way. Section 102 of NEPA mandates that before Federal agencies make decisions, they must consider the effects of their actions on the quality of the human and natural environment. NEPA assigns CEQ the task of ensuring that federal agencies meet their obligations under the Act.

The CEQ regulations (40 CFR 1500-1508) describe the means for Federal agencies to develop the Environmental Impact Statements (EIS's) mandated by NEPA in Section 102. The CEQ regulations developed the Environmental Assessment (EA) to be used when there is not enough information to decide whether a proposed action may have significant impacts. If an EA concludes that a Federal action will result in significant impacts, the Agency is required to prepare an EIS or alter the action proposed. Otherwise, the Agency is directed to issue a Finding of No Significant Impact (FONSI).

Section 1508.09 of the CEQ regulations states that the purposes of an EA are to:

1. Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI.
2. Aid an Agency's compliance with the Act when no environmental impact statement is necessary.
3. Facilitate preparation of a statement when one is necessary.

Preparation of an EA is also used to aid in an Agency's compliance with Section 102(2)E of NEPA, which requires an Agency to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”

The Department of the Interior issued its NEPA regulations as Part 516 of its Departmental Manual (516 DM), last revised in March 2004. The National Park Service (NPS) has issued several NEPA handbooks. In January 2001, the NPS released the Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision Making. The Federal Highway Administration (FHWA)'s NEPA regulations are codified at 23 CFR Part 771. FHWA

Tech Advisory T6640.8A was issued in 1987 to provide guidance on environmental documents.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

Need

Fitzwater Road extends from Canal Road west, and ends at the Cuyahoga Valley Scenic Railroad maintenance yard. Along this segment of the road there are two bridges, the Fitzwater Truss Bridge spanning the Cuyahoga River, the Waste Weir Bridge spanning the Waste Weir, and a culvert spanning the Ohio & Erie Canal (Canal). Fitzwater Road is used by Park visitors to access the Towpath Trail, and important historic and recreational feature of the Park. Fitzwater Road is also used by the Cuyahoga Valley Scenic Railroad, a partner of the Park, to access their maintenance yard. The Cuyahoga Valley Scenic Railroad is also an important feature of the Park, as they conduct train rides along the rail corridor throughout the year.

Fitzwater Truss Bridge

The existing Fitzwater Truss Bridge is structurally deficient and presents a safety hazard. Ongoing deterioration of the structural steel has made this bridge unsafe for vehicular traffic. The bridge is closed to vehicular traffic.



Figure 1: The underside of Fitzwater Truss Bridge is severely rusted and deteriorating

The Federal Lands Highway Bridge Inspection Program last inspected this bridge in October 2007. The main problems include severe widespread rusting of the underside structural steel with severe section loss on the truss lower chord members, gusset plates, floor beams, and stringers, with especially accelerated corrosion noted on the exterior stringers; moderate decay of the timber sleepers; spalling of the west abutment with exposed rebar; severe deterioration of the southwest wingwall; severe deterioration of the asphalt topping on the timber block wearing surface; and moderate to severe channel bank erosion. In addition, the superstructure deflects significantly under truck loading. The lower chords were retrofitted with post-tensioning rods in 1995. This retrofit has now exceeded its design life, and is of highly questionable effectiveness. The channel meanders in this location, and the inadequate length of the bridge causes hydraulic problems. The bridge was closed to all vehicular traffic as of November 2007 as a result of the previously described advanced deterioration.



Figure 2: The southern abutment shows a moderate degree of scour from the River, and exposed steel rebar.

Waste Weir Bridge

The existing Waste Weir Bridge is structurally deficient, functionally obsolete, and requires a high degree of maintenance. The Federal Lands Highway Bridge Inspection Program last inspected this bridge in October 2007. The main structural problem is widespread moderate to severe deterioration throughout the structural concrete, with numerous exposed and rusted rebars. In addition, the railing system is functionally obsolete.



Figure 3: The concrete girder of the Waste Weir Bridge has deteriorated to the point where steel rebar is now exposed.

Ohio & Erie Canal Towpath Trail

The existing Towpath Trail follows the Canal and intersects Fitzwater Road between the two bridges and the crossing is approximately thirty feet east of the Truss Bridge. There is no existing paved trailhead for visitor access in this vicinity and there is inadequate width for vehicles to park along the shoulder. All trail users who intend to enter or exit at this site are traveling to and from Canal Road, to the east of the trail.

There are over 2 million visitors to the trail each year, with the section of the Towpath in the vicinity of Fitzwater Road experiencing especially heavy use. There is currently no available parking in the vicinity of the Towpath Trail and Fitzwater Road. Informal parking is located approximately 300 feet south along Canal Road. The Canal Visitor Center is located approximately 1.2 miles north of Fitzwater Road. There are no sidewalks or trails along Fitzwater Road that connect to the Towpath Trail. The two existing bridges and box culvert do not include adequate width for separate pedestrian passage.



Figure 4: The Towpath Trail is located between the two bridges.

Fitzwater Road

The asphalt pavement on Fitzwater Road is generally in fair condition. Moderate edge cracking, alligator cracking, and block cracking are exhibited in several areas of the roadway. The Cuyahoga Valley Scenic Railroad maintenance yard has been recently paved and is in good condition.

Purpose

The purpose of this action is to provide safe access for vehicles and pedestrians across the Cuyahoga River, the Canal, and the wastewater spillway to be able to experience the historic Canal, and Lock 37. The purpose of this action is also to improve visitor experience by providing a designated area to park their cars and access to the Towpath Trail via bike or foot at Fitzwater Road. The purpose of this action is also to provide safe access for the Cuyahoga Valley Scenic Railroad to access their maintenance yard at the end of Fitzwater Road.

1.3 PURPOSE AND SIGNIFICANCE OF THE PARK

Description of the Park

Cuyahoga Valley National Park (Park) was originally designated as a National Recreation Area in 1974 to preserve approximately 33,000 acres in the Cuyahoga River Valley. It was designated as a National Park in 2000. The Park serves as a refuge for flora and fauna, gives a sense of times past, and provides recreation and solitude for Ohio’s residents and visitors. The Park includes and protects several areas of recreational, cultural, educational, and historic significance, including the Cuyahoga Valley Environmental Education Center, the Blossom Music Center, the Porthouse Theater, Brandywine Golf Course, Shawnee Hills Golf Course, Astorhurst Golf Course, Brandywine Ski Resort and Dover Lake Waterpark, Brecksville Stables, Wetmore Bridle Trails, and the Cuyahoga Valley Scenic Railroad.

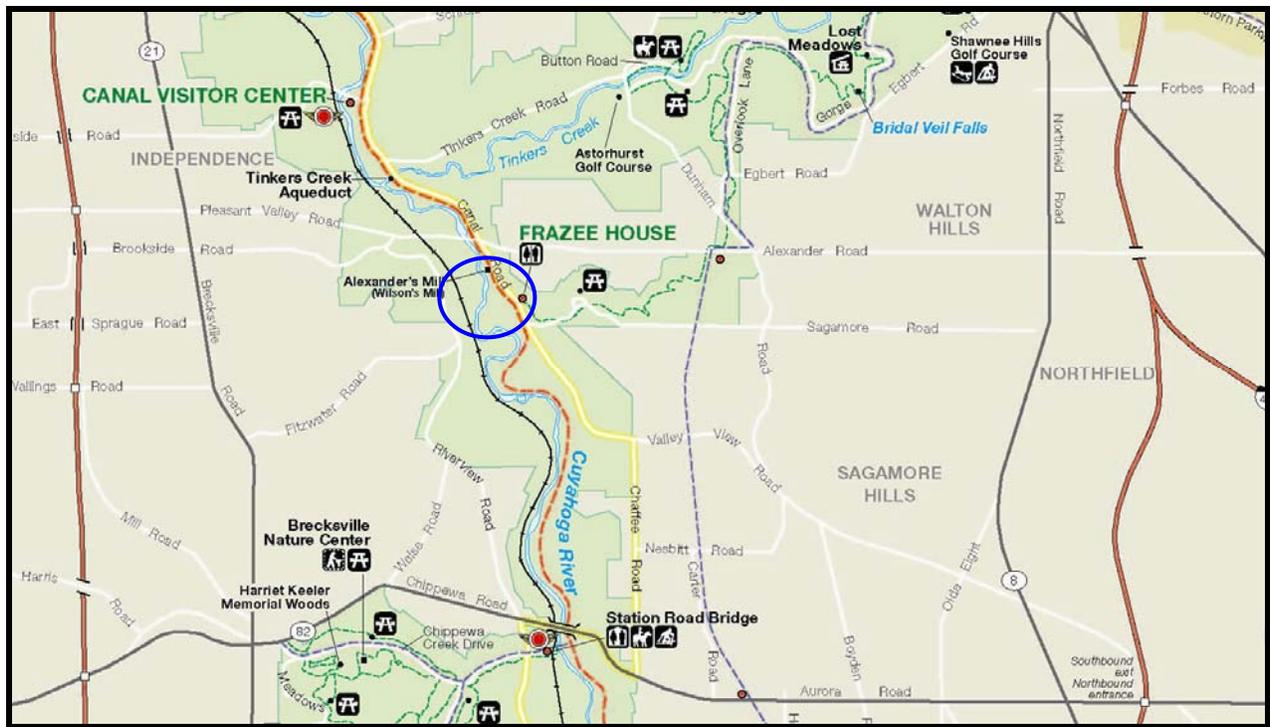


Figure 5: The approximate location of the project is shown in blue.

The Park is located between the Ohio cities of Akron and Cleveland, in Cuyahoga and Summit Counties. The study area lies entirely within Cuyahoga County. The location of the proposed project is along Fitzwater Road, west of its intersection with Canal Road, in the north end of the Park. The site is approximately 1.2 miles south of the Canal Visitor Center, which is one of the Park’s four main visitor contact facilities, and 0.1 miles north of Alexander’s (Wilson’s) Mill, one of the featured historic sites.

Project Background

The Fitzwater Truss Bridge was constructed in 1922. It is approximately 200 feet long and 28 feet wide and carries Fitzwater Road over the Cuyahoga River. The Waste Weir Bridge was constructed in 1922 and is approximately 76 feet long and 29 feet wide. It carries Fitzwater Road over the Canal spillway wastewater flume. A concrete box culvert, located between the two bridges, carries Fitzwater Road over the Canal.

In the study area, Fitzwater Road is a two lane, asphalt paved roadway with grass shoulders on both sides with a posted speed limit of 20 miles per hour. From the railroad maintenance yard to Canal Road, the roadway length is 0.3 mile, and the average roadway width is 21 feet. The Fitzwater Road provides access to the Park's railroad maintenance yard at the road's terminus. The Cuyahoga Valley Scenic Railroad crosses Fitzwater Road near the railroad maintenance yard. The road can also be used to access the Towpath Trail, which crosses Fitzwater Road to the east of the Truss Bridge. There are no other points served by the road. Historically, Fitzwater Road ran from Canal Road to Riverview Road. However, in 1958 a landslide removed approximately 500 feet of the roadway and the remaining section from Riverview Road to the maintenance yard was abandoned.

The proposed action originally included the construction of a detour route in order to maintain access to the rail maintenance yard for those alternatives that would rehabilitate and/or replace the bridges on the existing alignment. Detour routes considered included an alignment along the rail line, installation of a temporary bridge, and reconnection of Fitzwater Road. After an inspection of the Fitzwater Truss Bridge in October 2007, it was determined that the bridge was no longer safe for vehicular traffic, and that an alternate access route should be constructed immediately to ensure access to the rail maintenance yard was not interrupted. The route would also provide access for construction vehicles to access the project area for the construction/replacement of the new bridges. A study completed in January 2008 investigated the feasibility of an alignment along the rail line, reconnection of Fitzwater Road, and the installation of a temporary bridge within the Fitzwater Truss Bridge or in place of the Fitzwater Truss Bridge. The impacts of that access route are documented in this EA. The consideration and dismissal of the extension of Fitzwater Road and the temporary bridge access is discussed in section 2.5.

1.4 RELATED PLANS

The General Management Plan for the Park

The 1977 General Management Plan (GMP) for Cuyahoga Valley National Recreation Area is a concept document intended to provide direction for Park management during the "land acquisition/initial implementation stage." The GMP establishes objectives to be achieved for natural resource management, cultural resources management, and visitor use and interpretation. The proposed action must be consistent with this approved Plan.

Degraded Wetlands Restoration Plan

An inventory of wetlands in the Park identified wetlands degraded by past human activity. The study area includes several areas adjacent to the existing wetlands complex that the Park has targeted for restoration. One area is along the sewer access road near Pleasant Valley Road, and two other areas are on either side of Fitzwater Road. NPS policies encourage the restoration of such wetlands.

1.5 SCOPING

Internal Scoping

Scoping is an early and open process to determine the extent of environmental issues and alternatives to be addressed. An internal scoping meeting was held in mid-December 2004 and attended by the Park and FHWA to discuss issues. As a result of that meeting concerns regarding maintaining access to the maintenance yard as well as maintaining access to the Towpath Trail during construction were raised. Concerns were also raised regarding impacts to threatened and endangered species and wetlands.

External Scoping

A scoping letter was sent to the Park's mailing list on November 1, 2006, and a Public Notice was placed in the Akron Beacon Journal and the Plain Dealer on October 31, 2006, announcing the start of the 45-day public scoping comment period. A press release was issued through the NPS.

Public Scoping

Six comments were received from the public. Comments included concern with the impacts caused by construction, including soil compaction, erosion of disturbed soils and contaminants from the project site, and disruption of wildlife movements. Incorporating canoe access into the project was suggested, and one commenter expressed that they would like to see rehabilitation of the existing Truss Bridge.

Agency Scoping

Correspondence and scoping materials were sent to the United States Fish and Wildlife Service (FWS), the Ohio Department of Natural Resources (ODNR), and the Ohio Historic Preservation Office (OHPO). The FWS stated that the Indiana bat and the eastern massasauga may be impacted by the proposed project. The ODNR provided information regarding state listed species that may be found in the area. The OHPO stated its support that the new Waste Weir Bridge be constructed on the existing alignment, and that the existing Fitzwater Truss Bridge be rehabilitated. The OHPO also stated that an archeological survey may be required for bridge construction on a new alignment and the construction of a new trailhead and parking area.

Issue Identification

Issues as discussed in NEPA describe the relationships between the action being proposed and the environmental (natural, cultural and socioeconomic) resources. Issues describe an association or a link between the action and the resource. Issues are not the same as impacts, which include the intensity or results of those relationships. Internal and external scoping (defining the range of potential issues) was conducted for this EA to identify what relationships exist between the proposed action and environmental resources.

- Maintain access to the Cuyahoga Valley Scenic Railroad maintenance yard
- Severe deterioration of Fitzwater Truss Bridge
- Working within the floodplains of the Cuyahoga River
- Canal prism and Towpath is listed in the National Register of Historic Places
- Towpath Trail is widely used; limit closures and detours during construction

1.6 IMPACT TOPICS

Derivation of Impact Topics

Specific impact topics were developed to address potential natural, cultural, and social impacts that might result from the proposed construction work. These topics are derived from the issues identified above and address federal laws, regulations and orders, Park management documents, and Park knowledge of limited or easily impacted resources. Each impact topic relates to a specific aspect of the Park and its surrounding community, which are essential to protect.

Impact Topics Requiring Further Analysis

Vegetation

NEPA requires an examination of impacts on the components of affected ecosystems. NPS policy requires the protection of the natural abundance and diversity of all the Park's naturally occurring communities. The Park encompasses 51 square miles (32,900 acres) of land and includes a diverse mosaic of natural vegetation types alongside various human-developed land uses. The proposed project area includes a portion on alluvial (floodplain) open woodland dominated by Japanese knotweed (*Polygonum cuspidatum*) immediately adjacent to the Cuyahoga River. Farther inland, an open canopy of cottonwood (*Populus deltoides*), black willow (*Salix nigra*), and silver maple (*Acer saccharinum*) dominate. Here, the herbaceous layer, while sparse in some spots, is completely dominated by reed canary grass (*Phalaris arundinacea*). Between the alluvia woodland and the railroad tracks lies an open meadow dominated by a variety of herbaceous species including broom sedge (*Andropogon virginicus*), Queen Anne's lace (*Daucus carota*), teasel (*Dipsacus sylvestris*), common goldenrod (*Solidago Canadensis*), hemp dogbane (*Apocynum cannabinum*), and path rush (*Juncus tenuis*). The construction of a parking area for visitors to access the Towpath Trail and any new roadway approaches to bridges constructed on a new alignment would impact vegetation; therefore this impact topic requires further discussion in this EA.

Cultural Landscapes

According to NPS Management Policies (NPS, 2006); the treatment of a cultural landscape will be based on a cultural landscape's historical significance over time, existing conditions, and use. The treatment of a cultural landscape will preserve significant physical attributes, biotic systems, and uses when those uses contribute to historical significance. Landscapes differ from other cultural resources due to inherent changes brought about by both natural processes and human activities. Because of this innate, dynamic quality, preservation treatments seek to protect and preserve the historic character of a landscape over time through the continuity of distinctive characteristics. Thus, the emphasis is on maintaining the character and feeling rather than on preserving a specific appearance or time period.

The Canal, Alexander Mill, the Lock Tender's House, Locks 37 and 38, and the Tinkers Creek Aqueduct together comprise a National Historic Landmark listed in the National Register of Historic Places. As noted in the Cuyahoga Valley National Recreational Area Cultural Landscape Report (NPS, 1987), the Canal contributes to the park's cultural resource theme of transportation. Its location, setting, and pattern of use on the land has altered the natural landscape and imposed defining characteristics on the environs that are considered historically significant. Replacement of the bridges may impact the cultural landscape; therefore this impact topic requires further discussion in this EA.

Streamflow Characteristics

The stream flow characteristics analysis assessed potential construction, permanent, and cumulative effects of the proposed alternatives on patterns of stream flow in the Cuyahoga River. Stream flow characteristics include the magnitude, frequency, duration, timing, and rate of change in flows. Effects assessment was determined through a review of literature on the effects of increases in impervious surfaces on stream flows. The Fitzwater Truss Bridge currently constricts the westward meander of the Cuyahoga River. This is evident by the scour of the bridge abutment. The possible replacement of the Fitzwater Truss Bridge would impact the streamflow characteristics of the Cuyahoga River; therefore this impact topic requires further discussion.

Floodplains

Development within floodplains and floodways is regulated by Federal and State laws to reduce the risk of property damage and loss of life due to flooding, as well as to preserve the natural benefits floodplain areas have on the environment. Executive Order 11988: Floodplain Management requires all federal agencies to avoid construction within 100-year floodplains unless no other practical alternative exists. Generically, the term "floodplain" refers to the area near streams that may be submerged by floodwaters. The study area is located in a Federal Emergency Management Agency (FEMA) Zone A Floodplain. A detailed study has not been completed for this area; therefore approximate methods have been used to determine the floodplain limits. In order to assess the impacts associated with the proposed improvements, a detailed hydraulic study of the study area will be completed. The project area is located within a

floodplain, and any change in the bridges and the construction of a parking area may impact floodplains. Therefore this impact topic will be discussed further.

Visitor Use and Experience

NPS *Management Policies 2006* state that the fundamental purpose of all Parks includes providing for the enjoyment of Park resources and values by the people of the United States. The enjoyment that is contemplated by the statute is broad; it is the enjoyment of all the people of the United States and includes enjoyment both by people who visit parks and by those who appreciate them from afar. Congress, recognizing that the enjoyment by future generations of the national Parks can be ensured only if the superb quality of Park resources and values is left unimpaired, has provided that when there is a conflict between conserving resources and values and providing for enjoyment of them, conservation is to be predominant. Disruptions to traffic patterns, and visitors using the Towpath Trail during the construction activities could occur; therefore this impact topic will be discussed further.

Health and Safety

The NPS *Management Policies 2006* state that while recognizing that there are limitations on its capability to totally eliminate all hazards, the NPS and its concessionaires, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees. Trail detours may be necessary while the bridges are under construction, which may cause visitor conflicts and an increase in safety concerns, therefore this impact topic will be discussed further.

Park Operations

Routine maintenance activities for the Park include maintenance of the trails, mowing, and snow plowing. Park staff use Fitzwater Road and the bridges to access the maintenance yard for the Park. This maintenance yard for the Cuyahoga Valley Scenic Railroad is where train rolling stock (engines, coaches, and on-track maintenance equipment) are housed and maintained. Maintenance on the two bridges would decrease with a new structure. The bridges are no longer safe for visitors or Park staff, and require rehabilitation and/or replacement. The construction of a parking area for the Towpath Trail would be a new area for the Park to maintain. The project may impact Park operations; therefore this impact topic will be discussed further.

Impact Topics Dismissed From Further Analysis

Wildlife and Wildlife Habitat

The NPS Organic Act, which directs Parks to conserve wildlife unimpaired for future generations, is interpreted by the NPS to mean that native animal life should be protected and perpetuated as part of the Park's natural ecosystem. Surrounded by urban areas, the Park provides a refuge for wildlife. The Park's 33,000 acres contain forest, field, river, and wetland habitats that offer food, water, shelter, and open space to wild animals. Rehabilitating or replacing bridges on the existing alignment would not impact wildlife habitat. Replacement of the bridges on a new alignment would temporarily impact wildlife habitat, but once the new bridges and roadway approaches are

constructed, the previous bridges and roadway approaches would be removed and the area would be re-vegetated, causing a temporary and negligible impact to wildlife habitat. Wildlife habitat would also be impacted by the construction of the maintenance yard access road, however once the new bridges are open to traffic, the road would be removed and the area would be revegetated. During construction wildlife would be impacted by the increased noise associated with construction, but the impact would be temporary. Any impacts would be temporary and negligible and approximately 33,000 acres of similar habitat remain throughout the Park; therefore this impact topic does not require further discussion in this EA.

Wetlands

Executive Order 11990: Protection of Wetlands requires an examination of impacts to wetlands. For purposes of compliance with this executive order, the NPS uses “Classification of Wetlands and Deepwater Habitats of the United States” (FWS/OBS-79/31; Cowardin et al. 1979) as the standard for defining, classifying, and inventorying wetlands. The U.S. Army Corps of Engineers (Corps) is responsible for the administration of Section 404 of the Clean Water Act and the issuance of permits for the discharge of dredged or fill material into jurisdictional wetlands. A wetland delineation was performed for the bridge replacement study area, including the access road alignment along the rail line. The replacement of the Fitzwater Truss Bridge and the Waste Weir Bridge on a new alignment would have short-term minor adverse impacts to stream channel wetlands, however upon the demolition of the existing bridges, the approximate same area as was impacted by the new bridge would be restored to natural conditions. Impacts to some wetland areas have been avoided, and where the impact was unavoidable it was minimized to the extent possible. The maintenance access road was reduced from a two-lane road to a one lane road with pullouts. The pullout locations were also adjusted to minimize wetland impacts. The maintenance yard access road would impact approximately 0.093 acres of wetlands. The road would be removed once the new bridges are open to traffic, alleviating the temporary impact to the wetlands. Should the access road remain in place longer than expected, site-specific wetland replacement at a minimum of 2:1 ration would be implemented using sites and methods outlined in the Degraded Wetlands Restoration Plan. The proposed action meets Procedural Manual 77-1, excepted action G, and the Best Management Practices and Conditions listed in Appendix 2 have been applied and met. Therefore, this impact topic does not require further discussion in this EA.

Archeological Resources

An archeological investigation of the area of potential effect for the proposed bridge replacement found one previously undocumented archeological site. Site 33CU358 would be avoided during construction activities, and temporary barrier fencing and monitoring would be implemented as recommended by OHPO. Mechanical testing of the area proposed for deep excavation to construct the west end bridge abutment was completed, and found no evidence of intact historic ground surfaces or potential historic or prehistoric occupations, no was there any suggestion that such a feature was likely to exist in the vicinity of the area of potential ground disturbance. The maintenance yard access road would be constructed in a previously disturbed area; therefore an archeological investigation of this area was not necessary. This work also meets Stipulation iV.B.7 of the 1995 Programmatic Agreement between the NPS, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Offices; and therefore, an

undertaking to be reviewed for Section 106 purposes within the NPS, without further review by the Council or Ohio SHPO. Monitoring for cultural resources would continue throughout any ground disturbing activities. If archeological artifacts are encountered during excavation operations, construction shall be halted immediately. The NPS Superintendent for the Park, the Wyandotte Nation, and the Ohio State Historic Preservation Office would be notified. Therefore, this impact topic does not require further discussion in this EA.

Historic Structures

The Fitzwater Truss Bridge and Waste Weir Bridge are not eligible for the National Register of Historic Places. Between the Fitzwater Truss Bridge and the Waste Weir Bridge, a culvert crosses the Canal. Adjacent to this culvert is one of 44 locks along the Canal, Lock 37. The Canal, Alexander Mill, the Lock Tender's House (currently the Canal Visitor Center), Locks 37 and 38, and the Tinkers Creek Aqueduct together comprise a national historic Landmark listed in the National Register of Historic Places. Lock 37 is directly adjacent to the culvert. Removal and/or replacement of the culvert would be further investigated to ensure that Lock 37 is not damaged. If it appears that removal of the culvert would damage the culvert, it would be left in place. Therefore, this impact topic does not require further discussion in this EA.

Ethnographic Resources

Certain important questions about human culture and history can only be answered by gathering information about the content and context of cultural resources. Questions about contemporary peoples or groups, their identity, and heritage have the potential to be addressed through ethnographic resources. As defined by the NPS, an ethnographic resource is a site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. Some such specific places of traditional cultural use may be eligible for inclusion in the National Register of Historic Places if they meet National Register criteria for traditional cultural properties (TCPs). Letters were sent to potentially affiliated tribes during external scoping. The Wyandotte Nation reviewed the scoping documents and found that the Wyandotte National has no known historic properties documented within the project area that meet the criteria of traditional value.

No ethnographic resources would be impacted as a result of this project; therefore this impact topic does not require further analysis in this EA.

Museum Collections

No museum collections would be impacted as a result of this project; therefore this impact topic does not require further analysis in this EA.

Special Status Species

Federal agencies are required to consult with the FWS to ensure that any action authorized, funded, and/or carried out by an Agency does not jeopardize the continued existence of any listed species or critical habitat. NPS policy also requires examination of the impacts on Federal

candidate species, as well as State-listed threatened, endangered, candidate, rare, declining, or sensitive species. A Biological Assessment was completed to determine the presence of any federally listed or candidate species, and the impacts of the project on the species. Two potential roost trees for the Indiana bat were identified along the proposed access road alignment; and would be noted in the project plans to not be removed. Also, no tree clearing would occur between April 1st and September 30th. The FWS concurred that the proposed project, including the construction of the access road, is not likely to adversely affect the Indiana bat or the eastern massasauga rattlesnake.

ODNR's Natural Heritage Database contains no records of rare species in the study area. ODNR stated that the project is located within the historical ranges of the King rail, Yellow-bellied sapsucker, Peregrine falcon, Golden-winged warbler, Black bear, and Bobcat. If any of these species is encountered during construction of the project, work would be immediately stopped and the ODNR Division of Wildlife would be contacted. Also, no in-water work is recommended in the Cuyahoga River from March 15 to June 30 to reduce impact to aquatic species. Therefore, this impact topic does not require further discussion in this EA.

Water Quality

NPS *Management Policies 2006* states that the NPS will work with appropriate governmental bodies to obtain the highest possible standards available under the Clean Water Act for the protection for park waters. Ground disturbing activities associated with construction projects produce additional sediment during rainfall events. All construction activities would include Best Management Practices to address sediment and erosion control. A sediment and erosion control plan utilizing Best Management Practices would be prepared and included in the final construction plans. The Best Management Practices include: silt fences and hay bales placed at the foot of slopes and at other locations to contain excavated material and to filter sediment from stormwater runoff; temporary berms and stream diversion channels to separate stream and other significant drainage flow from erodible soil; and temporary seeding of slopes for short-term re-stabilization. The proposed action would cause short-term negligible adverse impacts to water quality with the implementation of a sediment and erosion control plan during construction. This project would be reviewed by the Ohio Environmental Protection Agency to ensure that Best Management Practices are used, and that the project conforms to the state guidelines. Therefore this impact topic is dismissed from further analysis in this EA.

National Wild and Scenic River System

An eight-mile segment from State Route 82 to Peninsula is listed on the Nationwide Rivers Inventory, a register of rivers that may be eligible for inclusion in the National Wild and Scenic River System. This segment is outside of the study area; therefore, this impact topic is dismissed from further analysis in this EA.

Socioeconomic Environment

Socioeconomic issues are defined as actions that have the potential to create a negative change to the demographics, housing, employment, and economy of an area. The proposed action would

have temporary negligible beneficial impacts because during construction there would be an increase in employment and the utilization of local services. Therefore this impact topic does not require further analysis in this EA.

Air Quality

The 1963 Clean Air Act, as amended (42 U.S.C. 7401 et seq.) requires Federal land managers to protect Park air quality. Section 118 of the CAA requires the NPS to meet all Federal, State, and local air pollution standards. For purposes of the Clean Air Act, the Environmental Protection Agency (EPA) has determined that Cuyahoga County is a non-attainment area for ozone (8-hour) and sulfur dioxide, i.e. pollution levels are above the National Ambient Air Quality Standards (NAAQS). The area is in compliance with other pollutants included in the NAAQS. Construction may have a temporary negligible adverse impact on air quality as a result of dust and vehicle emissions; but the impact would end at the completion of the project. Therefore this impact topic was dismissed from further analysis in this EA.

Sound Environment/Soundscape

The NPS *Management Policies 2006* state that the NPS will preserve, to the greatest extent possible, the natural soundscapes of parks. Park natural soundscape resources encompass all the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes. This is the basis for determining the "affected environment" and impacts on a Park soundscape. Traffic capacity would not increase as a result of this project, but there would be short-term minor impact to the soundscape from the presence of heavy equipment during construction. Therefore this impact topic does not require further analysis in this EA.

Environmental Justice

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority and Low Income Populations forbids Federal agencies from disproportionately affecting minority and/or low-income communities. No minority or low-income populations exist within the study area. Therefore environmental justice does not require further discussion in this EA.

Geology and Soils

The soil types in the project area include Chagrin silt loam, and Geeburg-Mentor silt loams, 25 to 70 percent slopes. Neither of these soils is listed as a hydric soil by the Natural Resources Conservation Service. The proposed alternatives include limited excavation due to the relatively flat topography; therefore this impact topic does not require further analysis in this EA.

2 DESCRIPTION OF ALTERNATIVES

The CEQ has provided guidance on the development and analysis of alternatives under NEPA. A full range of alternatives, framed by the purpose and need, must be developed for analysis for any federal action. The alternatives should meet the project/proposal purpose and need, at least to a large degree. They should also be developed to minimize impacts to environmental resources. Alternatives should also be “reasonable,” which CEQ has defined as those that are economically and technically feasible, and show evidence of common sense. Alternatives that could not be implemented if they were chosen (for economic or technical reasons), or do not resolve the need for action and fulfill the stated purpose in taking action to a large degree, are therefore not considered reasonable.

2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE

Under Alternative A, the No Action Alternative; no substantial improvements would be performed other than in accordance with routine maintenance operations. The Waste Weir Bridge and Canal Culvert would continue to deteriorate and experience reduced load capacity. The Fitzwater Truss Bridge would continue to be closed to vehicular traffic. The Park would not be able to access their maintenance yard via the Fitzwater Road bridges and visitors would no longer be able to access the Towpath Trail at this location.

ACTIONS ASSOCIATED WITH ALL ACTION ALTERNATIVES

A public trailhead with associated parking would be constructed on the west side of the Cuyahoga River south of Fitzwater Road. A trail would be constructed to connect the parking area to the Towpath Trail, but trail users would have to cross the Fitzwater Truss Bridge within the vehicle lanes. The parking area would accommodate approximately 20 vehicles. The configuration and size of the parking area would be finalized during the design process.

In order to provide necessary access to the Cuyahoga Valley Scenic Railroad maintenance yard while the Fitzwater Truss Bridge is closed to vehicular traffic because of safety concerns, an access road would be constructed following the existing sewer access road from Pleasant Valley Road and running adjacent to the existing rail line, ending at Fitzwater Road. The one lane access road would include several pullouts to allow vehicles to pass. The road would be used only by the Park and Cuyahoga Valley Scenic Railroad, and would be closed to the public. The road would also be removed once the new bridges are constructed and open to vehicular traffic.

The Action Alternatives all include bridge demolition and construction. Bridge demolition typically consists of saw-cutting or chipping the structure into smaller pieces. The smaller pieces are then removed using cranes. The remaining material is then cleared away. Any new bridge structures would likely be concrete slab or beam bridges. Bridge construction typically consists of pile driving or excavating to place the piers and abutments. Forms are constructed in which the concrete is poured for the bridges. Some of the parts can be constructed off-site, and put into place using cranes.

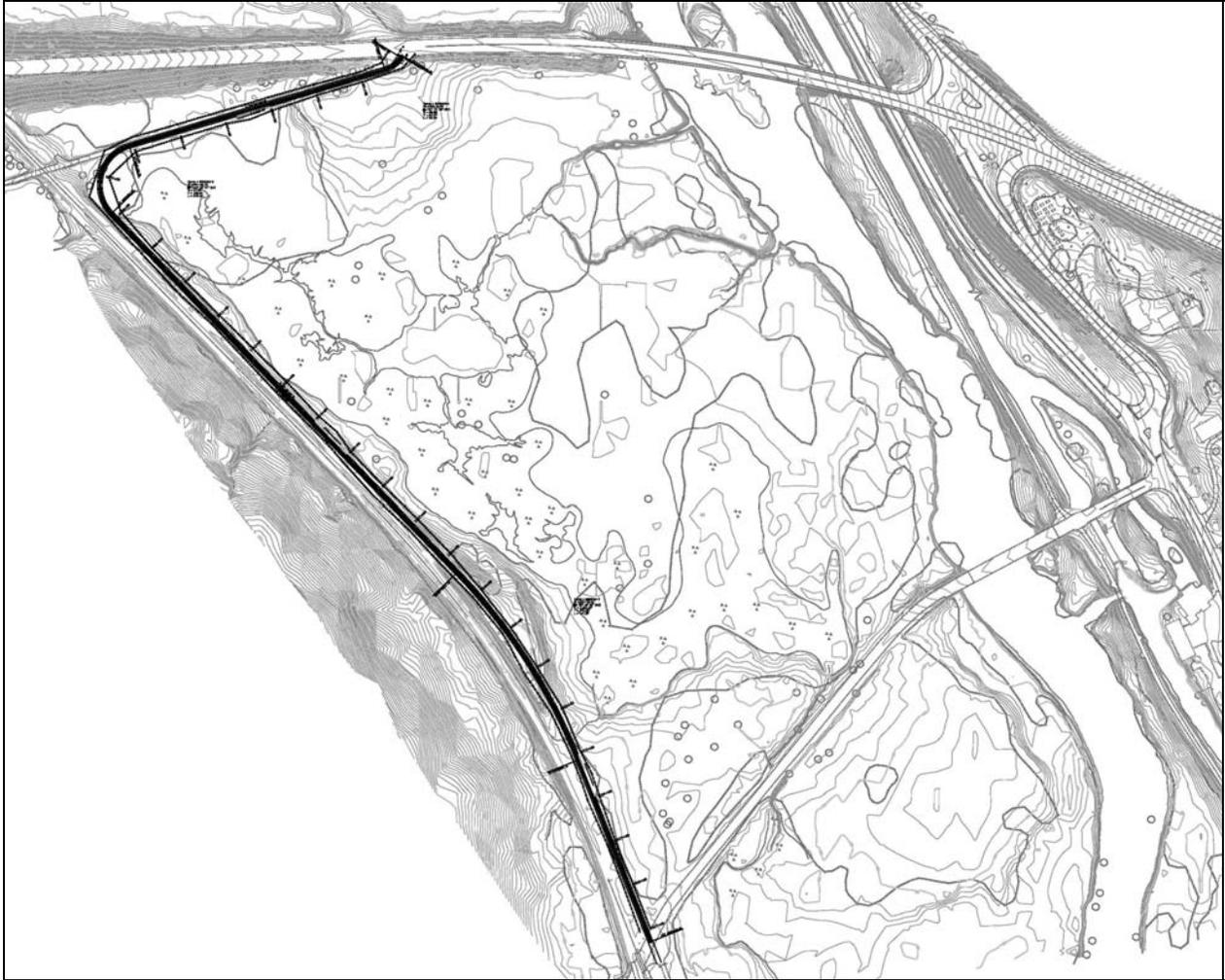


Figure 6. The approximate location of the access route is shown following the existing sewer access road and rail line to provide necessary access to the maintenance yard.

2.2 ALTERNATIVE B – REHABILITATE FITZWATER TRUSS BRIDGE AND REPLACE WASTE WEIR BRIDGE

Alternative B, Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge; would consist of leaving the existing structure of the Fitzwater Truss Bridge in place and replacing individual structural members and hardware that have deteriorated such as beams, truss chords, concrete deck, cover plates, railing, joints, and bearings. The abutments and wingwalls would be either replaced or repaired. The abutments would be protected from scour caused by the forces of flowing river water by the placement of rip rap around the base of each abutment. The box culvert in the Canal would be replaced with a similar structure. The existing Fitzwater Truss Bridge structure may have problems that are difficult to correct with rehabilitation, however rehabilitation is still possible. This Alternative would also include the demolition of the existing structure over the Waste Weir and the construction of a new approximately 70-foot long bridge.

2.3 ALTERNATIVE C – REPLACE BOTH BRIDGES ON THE EXISTING ALIGNMENT

Alternative C, Replace Both Bridges on the Existing Alignment; would consist of removing the entire existing structure of the Fitzwater Truss Bridge and constructing a new bridge, approximately 270 feet in length, in its place. The Replacement Alternative would also include the construction of a new approximately 70-foot long bridge over the Waste Weir. The box culvert in the Canal would be replaced with a similar structure.



Figure 7. Alternative C is shown on an aerial photograph.

Fitzwater Road would be raised to meet the bridge abutment at west side of the Cuyahoga River, and would transition down to the raised Fitzwater Road at a 5% grade (American Disability Act requirements allow a maximum grade of 5%). The length of Fitzwater Road would be scarified, fill material would be added to raise the road by approximately three feet, and the road would be paved with asphalt. The Towpath Trail would be raised to cross Fitzwater Road at grade and the raised crossing would be transitioned to the existing Towpath Trail at a maximum 5 % grade.

2.4 ALTERNATIVE D – REPLACE BOTH BRIDGES ON A NEW ALIGNMENT

Alternative D, Replace Both Bridges on a New Alignment; would consist of the replacement of the Fitzwater Truss Bridge and the Waste Weir Bridge along a new roadway alignment spurring from the existing Fitzwater Road. The existing bridges would be demolished. The asphalt approaches to the bridges would be obliterated and the area regraded and revegetated.

Fitzwater Road would be raised to meet the bridge abutment at west side of the Cuyahoga River, and would transition down to the raised Fitzwater Road at a 5% grade. The length of Fitzwater Road would be scarified, fill material would be added to raise the road by approximately three feet, and the road would be paved with asphalt. The Towpath Trail would be raised to cross Fitzwater Road at grade and the raised crossing would be transitioned to the existing Towpath Trail at a maximum 5 % grade.

Option 1 – Fitzwater Road Aligns to a Four-Way Intersection with Canal Road (Preferred Alternative)

The Fitzwater Truss Bridge would be replaced with an approximately 270-foot long bridge downstream (north) from its existing location. A second bridge, approximately 160 feet in length, would be constructed to cross the Waste Weir and the Canal. The existing Fitzwater Truss Bridge and Waste Weir Bridge would be removed; however the existing culvert spanning the Canal would be left in place and rehabilitated to avoid impacting the Canal. Depending on the type of structure used to cross the Cuyahoga River, it may be necessary to place two piers in the river. A pier would also be necessary for the Waste Weir Bridge. The new alignment would meet Canal Road approximately 130 feet north of its existing location to tie into the stop light at the intersection of Fitzwater Road and Canal Road to create a four-way intersection.



Figure 8. Alternative D - Option 1 is shown on an aerial photograph.

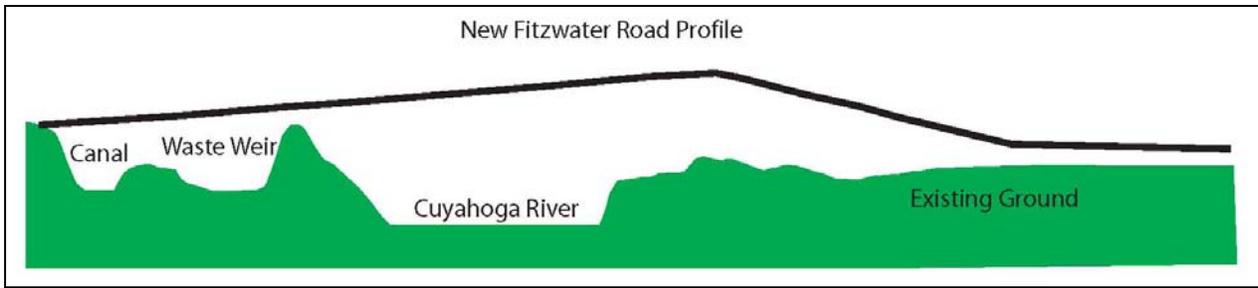


Figure 9. The profile of the new bridges and roadway would be higher than the existing roadway.

Option 2 – Fitzwater Road Aligns to a T-Intersection with Canal Road

The Fitzwater Truss Bridge would be replaced with an approximately 175-foot long bridge approximately 350 feet downstream (north) from its existing location. A second bridge, approximately 60 feet in length, would be constructed to span the Canal. The new alignment would tie into Canal Road at a stop sign to create a T-intersection. The existing Fitzwater Truss Bridge and Waste Weir Bridge would be removed; however the existing culvert spanning the Canal would be left in place and rehabilitated to avoid impacting the Canal.

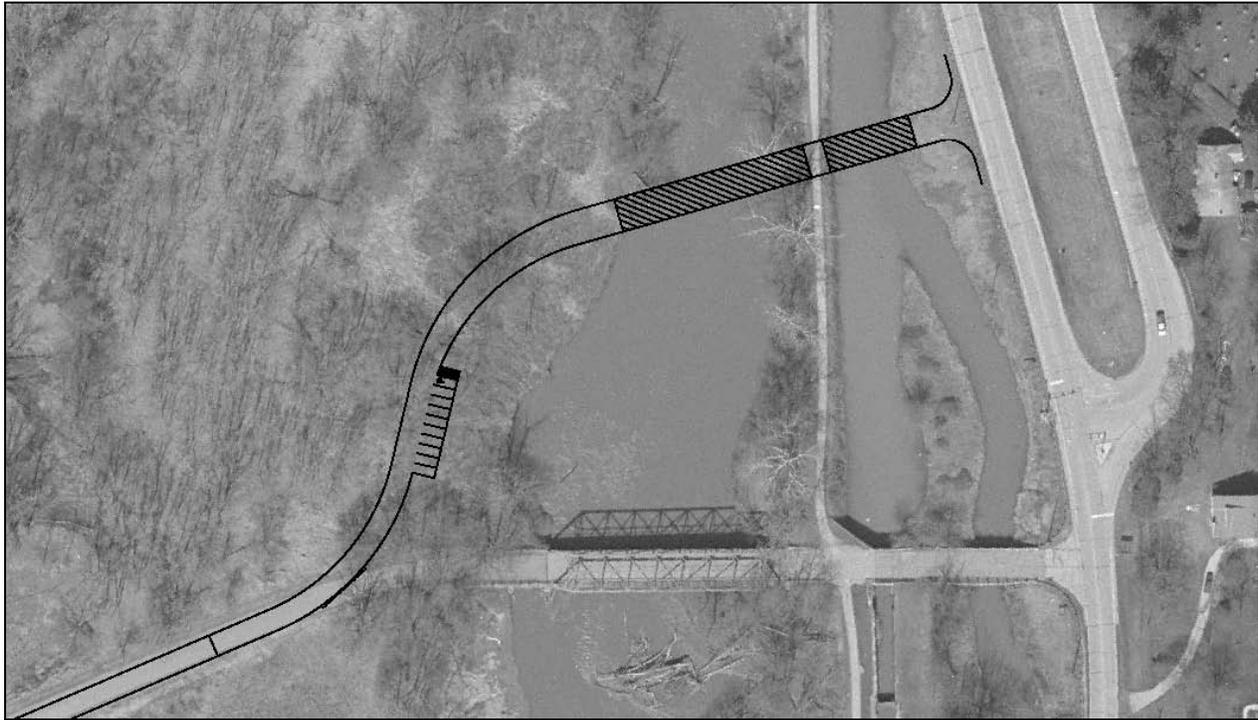


Figure 10. Alternative D - Option 2 is shown on an aerial photograph.

2.5 ALTERNATIVES CONSIDERED BUT DISMISSED

As mentioned previously, alternatives should be “reasonable.” Unreasonable alternatives may be those that are unreasonably expensive; that cannot be implemented for technical or logistic reasons; that do not meet park mandates; that are inconsistent with carefully considered, up-to-date park statements of purpose and significance or management objectives; or that have severe environmental impacts (DO-12 Handbook).

Rehabilitation of Waste Weir Bridge

Rehabilitation of the Waste Weir Bridge was dismissed from further consideration because the current structure has problems that are not correctable with rehabilitation. The existing concrete slab structure is functionally obsolete, has insufficient load carrying capacity, is susceptible to scour and has substandard geometry.

Replace Both Bridges with a Single Bridge

Both the Fitzwater Truss Bridge and Waster Weir Bridge would be removed, and an approximately 440-foot, three-span; steel plate girder-bridge would be constructed along the same alignment. This would span the entire length of the Cuyahoga River and the wastewater flume of the Canal spillway. The existing asphalt approach roadway would be removed, and the ground would be restored to its natural contours. The intersections with cross roads would be relocated. A new, short approach roadway would be constructed. The box culvert between the two existing bridges would be removed and not replaced. The Towpath Trail currently crossed in between the Fitzwater Truss Bridge and the Canal culvert. Creating a single bridge to span the Cuyahoga River, Waste Weir, and Canal would cause the Towpath Trail to be excavated to pass under the bridge, or elevated at a fairly steep grade, or over a large length to intersect with the bridge. These changes to the Towpath Trail would have the potential to adversely impact the safety of trail users and the accessibility, which is considered unacceptable. This alternative was dismissed from further consideration because of the potential impacts to the Towpath Trail.

Alignments South of the Fitzwater Road

Alignments south of Fitzwater Road were investigated; however these alignments would impact a field of wetlands associated with the historic Frazee House. Because of the wetland impacts and potential impact to the historic Frazee House, these alignments were dismissed from further consideration.

Replace Both Bridges on an Adjacent Alignment with Phased Construction

Build half of the bridges over the Cuyahoga River, Canal, and Waste Weir immediately adjacent to the existing bridge. Traffic would be diverted to the new half bridge and the existing Fitzwater Truss Bridge, Waste Weir Bridge, and culvert would be demolished. The remaining half of the bridges and culvert would then be constructed. Vehicular access would remain open throughout construction. Movement of Fitzwater Road approximately 20 feet to the north would not align Fitzwater Road to create a four-way intersection, rather, it would create a difficult turn movement

for vehicles turning left (north) from Fitzwater Road at the Waste Weir Bridge. Vehicles would have to negotiate vehicles stopped at the light in addition to oncoming traffic from the north. The existing culvert is part of Lock 37, which is part of the National Landmark comprised of the Canal, Alexander Mill, the Lock Tender's House, Locks 37 and 38, and the Tinkers Creek Aqueduct. This alternative was dismissed because of the potentially adverse effect to the National Landmark through the movement of the culvert associated with Lock 37, and the possible adverse impacts to the safety of visitors driving the area and their enjoyment of the area.

Cuyahoga Valley Scenic Railroad Maintenance Yard Access

Fitzwater Road Extension - The detour route would follow the existing Fitzwater Road west of the rail maintenance yard, and a new roadway would be constructed around the slide area to reconnect with Riverview Road. Large trucks carrying heavy equipment would need to maneuver a steep grade, which would become increasingly difficult in the winter time with icy conditions. This option was dismissed because of concerns about the stability and steepness of the slope.

Temporary Bridge – The existing Fitzwater Truss Bridge would be removed and a temporary bridge would be installed in the same location using the existing bridge abutments. This option was dismissed because of concerns regarding the deterioration, scour, and undermining of the existing bridge abutments.

2.6 PREFERRED ALTERNATIVE

The Preferred Alternative was determined to be Alternative D, Replace Both Bridges on a New Alignment, Option 1, Fitzwater Road Aligns to a Four-Way Intersection with Canal Road. The Preferred Alternative would improve vehicular movements along Fitzwater Road because a four-way signalized intersection would be constructed. The four-way signalized intersection would also be safer for vehicles. The new bridge would include a separate lane or sidewalk for pedestrians, improving safety. Trail users would experience improved and safer access to the Towpath Trail from the new trailhead parking area because they would not have to park along Canal Road to access the Towpath Trail.

Resource Area	Mitigation Measure
Park Operations	-Access to the maintenance yard must be maintained at all times. -All staging would occur within previously disturbed areas of the Park. The maintenance area and Fitzwater Road could both be used for staging
Visitor Use and Experience	-Closures and detours of the Towpath Trail would be limited to the extent possible.
Water Quality	-An erosion and sediment control plan would be prepared to meet Ohio and NPS standards and guidelines. All Best Management Practices to limit erosion and sedimentation would be incorporated to the extent possible. - In order to reduce the impact of adding asphalt (impervious surface) to the area, options to make the parking area less impervious would be evaluated during the design process and implemented if feasible.
Cultural Resources	-If any archeological resources are discovered during the construction of the project, all work would stop, and the appropriate agency personnel would be notified. -In the unlikely event that human remains or cultural items subject to the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered, all work would stop, and the appropriate provisions of NAGPRA would be followed.

2.7 ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferable alternative is the alternative that will promote the national environmental policy expressed in NEPA (Sec. 101 (b)). This includes alternatives that:

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities.
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Simply put, “this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (Q6a). In the NPS, the No Action alternative may also be considered in identifying the environmentally preferable alternative.

Alternative D-1, Replace Both Bridges on a New Alignment, Fitzwater Road Aligns to a Four-Way Intersection with Canal Road, would be the Environmentally Preferred Alternative. There is not one alternative that has the least impact to all of the historic, cultural, and natural resources; however, Alternative D-1 is the alternative that best balances those impacts. Alternative A would

have the least impact on vegetation, because there would be no action. However, the temporal impact to vegetation from the clearing needed to construct the access road and the new bridge alignment of Alternative D-1 would be compensated by revegetation of the existing road and bridge alignments and the revegetation of the access road after construction is completed. Alternative B would have the least impact to the cultural landscape because there would be no impact to the Towpath Trail from raising the bridge over the Cuyahoga River and the river crossing would remain in its original location, however, Alternative D-1 moves the road alignment only slightly north and minimizes impacts to the Towpath Trail. The existing Canal culvert would also remain in place to allow visitors to interpret the original road crossing location. Alternative C would have the least impact to the floodplains; however the short-term impacts from Alternative D-1 would end after the abutments of the existing Fitzwater Truss Bridge are removed from the Cuyahoga River. Alternatives C and D-1 would have the least impact to streamflow characteristics because the additional bridge length would minimize channel constriction and reduce flow velocities through the bridge.

Table 2.2 Impact Summary

	A-No Action Alternative	B-Replace Waste Weir Rehabilitate Fitzwater Truss	C-Replace Waste Weir Replace Fitzwater Truss on Existing Alignment	D-1-Replace Waste Weir Replace Fitzwater Truss on New Alignment Option 1	D-2-Replace Waste Weir Replace Fitzwater Truss on New Alignment Option 2
Vegetation	Alternative A, the No Action Alternative, would have no impact to vegetation, and since there would be no impact to vegetation, there could be no cumulative impact.	Alternative B would have a long-term negligible adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation.	Alternative C would have a long-term negligible adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation.	Alternative D Option 1 would have a long-term minor adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation.	Alternative D Option 2 would have a long-term minor adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation.
Cultural Landscape	Alternative A would have a long-term minor adverse impact to the cultural landscape. There would be a long term minor adverse cumulative impact to the cultural landscape.	Alternative B would have a short-term negligible adverse impact to the cultural landscape. There would be a long-term negligible adverse cumulative impact to the cultural landscape.	Alternative C would have the short-term minor adverse impacts and long-term negligible adverse impacts to the cultural landscape. There would be a long-term negligible adverse cumulative impact to the cultural landscape.	Alternative D, Option 1 would have long-term minor adverse impacts to the cultural landscape. There would be a long-term minor adverse cumulative impact to the cultural landscape.	Alternative D Option 2 would have long-term moderate adverse impacts to the cultural landscape. There would be a long-term minor adverse cumulative impact to the cultural landscape.
Floodplains	Alternative A would have a long-term minor adverse impact to floodplains. There would be a long-term minor adverse cumulative impact to floodplains.	Alternative B would have a long-term minor adverse impact to floodplains. There would be a long-term minor adverse cumulative impact to floodplains.	Alternative C would have long-term minor beneficial impacts to floodplains. There would be a long-term minor beneficial cumulative impact to floodplains.	Alternative D Option 1 would have short-term minor adverse impacts and long-term minor beneficial impacts to floodplains. There would be a long-term minor beneficial cumulative impact to floodplains.	Alternative D Option 2 would have short-term minor adverse impacts and long-term minor beneficial impacts to floodplains. There would be a long-term minor beneficial cumulative impact to floodplains.

Table 2.2 Impact Summary, Continued

	A-No Action Alternative	B-Replace Waste Weir Rehabilitate Fitzwater Truss	C-Replace Waste Weir Replace Fitzwater Truss on Existing Alignment	D-1-Replace Waste Weir Replace Fitzwater Truss on New Alignment Option 1	D-2-Replace Waste Weir Replace Fitzwater Truss on New Alignment Option 2
Streamflow	Alternative A would have a long-term minor adverse impact to streamflow characteristics. There would be long-term minor adverse cumulative impacts to streamflow characteristics.	Alternative B would have a long-term minor adverse impact to streamflow characteristics. There would be a long-term minor adverse cumulative impact to streamflow characteristics.	Alternative C would have a long-term minor beneficial impact to streamflow characteristics. There would be long-term negligible beneficial cumulative impacts to streamflow characteristics.	Alternative D Option 1 would have a long-term minor beneficial impact to streamflow characteristics. There would be a long-term negligible beneficial cumulative impact to streamflow characteristics.	Alternative D Option 2 would have a long-term negligible beneficial impact to streamflow characteristics. There would be a long-term negligible beneficial cumulative impact to streamflow characteristics.
Visitor Use and Experience	Alternative A would have a long-term moderate adverse impact to visitor use and experience. There would be long-term negligible adverse cumulative impacts to visitor use and experience.	Alternative B would have a long-term minor beneficial impact to visitor use and experience. There would be long-term moderate beneficial cumulative impacts to visitor use and experience.	Alternative C would have a short-term moderate adverse impact and a long-term minor beneficial impact to visitor use and experience. There would be long-term moderate beneficial cumulative impacts to visitor use and experience.	Alternative D Option 1 would have a short-term minor adverse impact and a long-term moderate beneficial impact to visitor use and experience. There would be a long-term moderate beneficial impact to visitor use and experience.	Alternative D Option 2 would have a short-term minor adverse impact and a long-term minor beneficial impact to visitor use and experience. There would be a long-term moderate beneficial impact to visitor use and experience.
Health and Safety	Alternative A would have a long-term minor adverse impact to health and safety. There would be a long-term minor adverse cumulative impact to health and safety.	Alternative B would have a short-term minor adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term minor beneficial cumulative impact to health and safety.	Alternative C would have a short-term minor adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term minor beneficial cumulative impact to health and safety.	Alternative D Option 1 would have a short-term negligible adverse impact and a long-term moderate beneficial impact to health and safety. There would be a long-term moderate beneficial cumulative impact to health and safety.	Alternative D Option 2 would have a short-term negligible adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term minor beneficial cumulative impact to health and safety.

Table 2.2 Impact Summary, Continued

	A-No Action Alternative	B-Replace Waste Weir Rehabilitate Fitzwater Truss	C-Replace Waste Weir Replace Fitzwater Truss on Existing Alignment	D-1-Replace Waste Weir Replace Fitzwater Truss on New Alignment Option 1	D-2-Replace Waste Weir Replace Fitzwater Truss on New Alignment Option 2
Park Operations	Alternative A would have a long-term moderate adverse impact to park operations. There would be a long-term moderate adverse cumulative impact to park operations	Alternative B would have a long-term minor adverse impact to park operations. There would be a long-term minor adverse cumulative impact to park operations.	Alternative C would have a long-term moderate beneficial impact to park operations. There would be a long-term minor beneficial cumulative impact to park operations.	Alternative D Option 1 would have a long-term moderate beneficial impact to park operations. There would be a long-term minor beneficial cumulative impact to park operations.	Alternative D Option 2 would have a long-term moderate beneficial impact to park operations. There would be a long-term minor beneficial cumulative impact to park operations.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

For each impact topic identified in Section 2.1, a process for impact assessment was developed based on the directives of Sections 2.9 and 4.5(g) of the DO-12 Handbook. NPS units are directed to assess the extent of impacts on Park resources as defined by the context, duration, and intensity of the effect. While measurement by quantitative means is useful, it is even more crucial for the public and decision-makers to understand the implications of those impacts in the short and long term, cumulatively, and within context, based on an understanding and interpretation by resource professionals and specialists. With that interpretation, one can ascertain whether a certain impact intensity to a Park resource is “minor” compared to “major” and what criteria were used to base that conclusion.

Methodology

To determine impacts, methodologies were identified to measure the change in park resources that would occur with the implementation of each alternative. Thresholds were established for each impact topic to help understand the severity and magnitude of changes in resource conditions, both adverse and beneficial, of the various alternatives.

Potential impacts are described in terms of type (Are the effects beneficial or adverse?), context (Are the effects site-specific, local, or even regional?), duration (Are the effects short-term, lasting during construction, or long-term, lasting permanently?), and intensity (Are the effects negligible, minor, moderate, or major?). Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this document.

Each alternative is compared to a baseline to determine the context, duration, and intensity of resource impacts. For purposes of impact analysis, the baseline is the continuation of current management (the No Action Alternative) projected over the next 10 years. In the absence of quantitative data, best professional judgment was used to determine impacts. In general, the thresholds used come from existing literature, Federal and State standards, and consultation with subject matter experts and appropriate agencies.

Cumulative Impacts

The CEQ regulations (40 CFR 1508.7) require the assessment of “cumulative impacts” which are defined as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

In January 1997, the CEQ published a handbook entitled Considering Cumulative Effects Under the National Environmental Policy Act (see <http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>).

The introduction to the handbook opens with, “Evidence is increasing that the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time.”

Cumulative impacts are considered for all alternatives, including the no-action alternative. They were determined by looking at each resource (impact topic), determining which past, present, and future actions would impact the resource for the determined spatial and temporal boundaries, and then combining the impacts of the alternative being considered with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at the Park and, if applicable, the surrounding region.

Past projects:

Construction of the canal began in 1825 and was completed seven years later. The canal became the main means of transportation of wheat to the eastern states, and at its peak, included more than 1,000 miles of main line canals, feeders, and side cuts. The Canal that lifted canal boats 395 feet in elevation between Cleveland and Akron. In operation from 1827 to 1913, this lock raised or lowered a canal boat about 9 feet. Associated with the construction of the trail is the construction of the towpath. It was originally a path used by animals pulling canal boats, and the path itself was on top of the soil excavated during the construction of the canals.

In 1852-1853, the Alexander Mill was built at Lock #37 on the Canal in Valley View. Alexander's Mill, capitalized on the spillway water from the lock, utilizing the water's power to grind flour and later feed.

In 1880, the Valley Railway began operations, transporting coal to Cleveland, Akron, and Canton from the Tuscarawas River Valley and providing passenger service along the way. After a decade of operation, the Valley Railway became part of the Baltimore & Ohio Railroad. In the 20th century, competition from automobiles, trucks, and buses caused the decline of both freight and passenger service. Interest in the line was renewed in 1972 as a scenic excursion route and the Cuyahoga Valley Preservation and Scenic Railway Association was born. Originally known as the Cuyahoga Valley Line, the scenic railroad now operates as Cuyahoga Valley Scenic Railroad.

In 1922, the Fitzwater Road Truss Bridge, a steel Pratt truss bridge with concrete abutments and the Waste Weir Bridge were constructed. It is presumed that the bridges were constructed to replace the previous spans that may have been damaged in an extensive flood in 1913.

In 1974 approximately 33,000 acres of land in the Cuyahoga Valley were preserved when they were designated as a National Park Unit.

In the early 1980's the area bordered by Pleasant Valley Road, Fitzwater Road, the Cuyahoga River, and the rail line was used as a topsoil extraction site. In 1984, the Park restored this area to form a wetland complex, which included removing a service road that once existed along the rail line.

Present projects:

The historic Valley Railway is one of the resources maintained at the Park. The Cuyahoga Valley Scenic Railroad is a not-for-profit organization that operates passenger excursion trains on the Valley Railway. The northern boarding area is located off Old Rockside Road in Independence, Cuyahoga County, Ohio. The proposed project is to expand and improve the existing 149 space gravel parking area by 70 additional spaces to accommodate increase use and future train service to Cleveland. The boarding area platform would be expanded by 120-feet to allow visitors to board the train without blocking Old Rockside Road and local businesses. A trail bridge over the Cuyahoga River is proposed to allow pedestrian and bicycle access from the boarding area to Lock 39 Trailhead servicing the Towpath Trail.

Future projects:

The Towpath Trail follows the Ohio & Erie National Heritage Canalway, which was a simple dirt path on which to lead animals pulling canal boats. The project would extend the existing trail by 6 miles to connect downtown Cleveland and Lake Erie. The trail extension would follow a new trail alignment, as the historic trail and canal were filled in and are now part of a rail freight yard. The trail construction would include earth movement and the construction of structures and underpasses to span existing features. The first phase of the trail extension is expected to begin in 2010. There are also several additional plans to connect other trails to the Towpath Trail.

The Cuyahoga Valley Scenic Railroad plans to extend into downtown Cleveland. The existing 51-mile passenger rail service would extend eight miles along existing CSX track.

The surrounding city of Independence and village of Valley View are continuing to grow. Their location between Cleveland and Akron allows for commuting to either city. The bridges are located in the southern portion of the Village of Valley View, where the land use is a mix of residential, light manufacturing and parkland. The business park east of the bridges is still developing and new houses continue to be built. A rise in the population of the surrounding communities may increase use of the Park and Towpath Trail.

Impairment

NPS Director's Order 12 requires an impairment finding for actions that impact NPS resources. The 'fundamental purpose' of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve Park resources and values. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on Park and monument resources and values. However, the laws do give NPS management discretion to allow impacts to Park resources and values when necessary and appropriate to fulfill the purposes of a Park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given NPS management discretion to allow certain impacts within Parks, that discretion is limited by statutory requirement that the NPS must leave Park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of Park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any Park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the Park;
- key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park; or
- identified as a goal in the Park's Master Plan, or General Management Plan or other relevant NPS planning documents.

The impact analysis includes any findings of impairment to park resources and values for each of the alternatives.

3.1 VEGETATION

Affected Environment

The study area includes a portion of alluvial open woodland dominated by Japanese knotweed (*Polygonu cuspidatum*) immediately adjacent to the Cuyahoga River. Farther inland, an open canopy of cottonwood (*Populus deltoids*), black willow (*Salix nigra*), and silver maple (*Acer saccharinum*) dominate. Here, the herbaceous layer, while sparse in some spots, is completely dominated by reed canary grass (*Phalaris arundinacea*). Between the alluvial woodland and the railroad tracks is an open meadow dominated by a variety of herbaceous species including broom sedge (*Andropogon virginicus*), Queen Anne's lace (*Daucus carota*), teasel (*Dipsacus sylvestris*), common goldenrod (*Solidago Canadensis*), hemp dogbane (*Apocynum cannabinum*), and path rush (*Juncus tenuis*).

Methodology

Available information on vegetation and vegetative communities potentially impacted by the proposed alternatives was compiled. A resource survey documented the vegetative species present in the study area. Predictions about short-term and long-term impacts to vegetation were based on previous experience with projects of similar scope and vegetative characteristics. Analyses of the potential intensity of impacts on vegetation were derived from the available information on the Park and the professional judgment of the Park resource specialists. The duration for short-term impacts to vegetation was determined to be four years because the construction is expected to be completed in two years, and vegetation would re-establish in two year.

Definition of Intensity Levels:

Negligible	Some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be on a small scale and no sensitive vegetation communities would be affected.
Minor	The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting sensitive vegetation communities, could be required and would be effective.
Moderate	The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some sensitive vegetation communities could also be affected.
Major	The alternative would have a considerable effect on native plant populations, including sensitive vegetation communities, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed
Impairment	The alternative would decimate native plant populations on a regional scale. Sensitive vegetation communities would be eliminated. Mitigation measures would not be effective.

Definition of Duration:

Short-term: Effects lasting less than three years

Long-term: Effects lasting longer than three years

Cumulative Impact Scenario

The spatial boundary for the cumulative impact assessment has been defined as the vegetated area of the Cuyahoga Valley bordered to the north and south by Pleasant Valley Road and Fitzwater Road. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the canal through 10 years in the future. Past actions that would have contributed to cumulative impacts include the construction of the Canal, the construction of Alexander's Mill and associated Waste Weir, the construction and operation of Valley Rail Line, the designation of the Park, use of the area as a topsoil extraction site, and wetland restoration. Native vegetation in the study area has been repeatedly disturbed through natural alluvial processes and human activities, and invasive species now comprise a large portion of the area. Present and future actions that would contribute to cumulative impacts include continued development of the Valley View area, use of the maintenance yard, and recreational use of the area. The present and future actions would have a minor long-term adverse impact to vegetation because continued disturbance of the vegetative communities would continue to introduce invasive species and disrupt native species and their succession.

Environmental Effects

Alternative A - No Action Alternative

The No Action Alternative would have no impact to vegetation.

Cumulative Impacts. There can be no cumulative impacts since there is no impact to vegetation.

Conclusions. Alternative A, the No Action Alternative, would have no impact to vegetation, and since there would be no impact to vegetation, there could be no cumulative impact. There would

not be an impairment of Park resources or values because there is no impact to vegetation.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

The rehabilitation of the Fitzwater Truss Bridge and the replacement of the Waste Weir Bridge and canal culvert would disturb approximately 0.2 acres of vegetation for the new parking area, since the existing structures would be improved in the same location, and approximately 0.6 acres would be cleared for the maintenance yard access road. Alternative B would have a long-term negligible adverse impact to vegetation.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to vegetation. These actions combined with the long-term negligible adverse impacts from Alternative B would have a long-term minor adverse cumulative impact to vegetation.

Conclusions. Alternative B would have a long-term negligible adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation. The adverse impact to vegetation would not be an impairment of Park resources or values.

Alternative C – Replace Both Bridges on the Existing Alignment

Since the bridges would be replaced where they currently are located, vegetation impacts as a result of Alternative C would be limited. The proposed parking area and walkway to connect to the Towpath trail would require clearing of vegetation. Vegetation would also be cleared to raise Fitzwater Road to meet the new bridge across the Cuyahoga River from the new parking area. Fitzwater Road would be raised slightly from the parking area to the railroad crossing. Approximately 0.2 acres of vegetation would be cleared for the bridge replacements, and approximately 0.6 acres would be cleared to construct the maintenance yard access road. All areas, except for the parking area would be returned to natural conditions and revegetated after the construction of the new bridges are completed. It would likely take several years for the vegetation to completely return; therefore Alternative C would have a long-term negligible adverse impact to vegetation.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to vegetation. These actions combined with the long-term negligible adverse impacts from Alternative C would have a long-term minor adverse cumulative impact to vegetation.

Conclusions. Alternative C would have a long-term negligible adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation. The adverse impact to vegetation would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment – Option 1 (Preferred Alternative)

Vegetation would be cleared to construct the new bridges over the Cuyahoga River, Waster Weir Canal, and parking area. Approximately 1.2 acres of vegetation would be cleared to construct the

parking area, new bridges, roadway approaches, and to raise Fitzwater Road, and approximately 0.6 acres would be cleared to construct the maintenance yard access road. Once the new bridges are open to traffic, the existing bridges and road would be obliterated. This area would be re-vegetated using native species. It would likely take several years for the vegetation to completely return; therefore Alternative D - Option 1 would have a long-term minor adverse impact to vegetation.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to vegetation. These actions combined with the long-term minor adverse impacts from Alternative D - Option 1 would have a long-term minor adverse cumulative impact to vegetation.

Conclusions. Alternative D - Option 1 would have a long-term minor adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation. The adverse impact to vegetation would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment – Option 2

Vegetation would be cleared to construct the new bridges over the Cuyahoga River, Waster Weir Canal, and parking area. Approximately 1.8 acres of vegetation would be cleared to construct the parking area, new bridges, and roadway approaches, and approximately 0.6 acres would be cleared to construct the maintenance yard access road. Once the new bridges are open to traffic, the existing bridges and road would be obliterated. This area would be re-vegetated using native species. It would likely take several years for the vegetation to completely return; therefore Alternative D - Option 2 would have a long-term minor adverse impact to vegetation.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to vegetation. These actions combined with the long-term minor adverse impacts from Alternative D - Option 2 would have a long-term minor adverse cumulative impact to vegetation.

Conclusions. Alternative D - Option 2 would have a long-term minor adverse impact to vegetation. There would be a long-term minor adverse cumulative impact to vegetation. The adverse impact to vegetation would not be an impairment of Park resources or values.

3.2 CULTURAL LANDSCAPE

Affected Environment

The Canal, Alexander Mill, the Lock Tender's House, Locks 37 and 38, and the Tinkers Creek Aqueduct together comprise a National Historic Landmark listed in the National Register of Historic Places. As noted in the Cuyahoga Valley National Recreational Area Cultural Landscape Report (NPS, 1987), the Canal contributes to the Park's cultural resource theme of transportation. Its location, setting, and pattern of use on the land has altered the natural landscape and imposed defining characteristics on the environs that are considered historically significant. The Canal was constructed from Cleveland to Akron between 1825 and 1827. Canals were the

interstate highways of their time and created a transportation revolution in the early 19th century. The canal route totaled 308 miles, crossing 13 counties stretching from northeast to central and south central Ohio. Several metric tons of dirt per mile were excavated to construct the canals. Animals pulling canal boats traveled along the excavated soil, creating the towpath. The canal was an important means of transportation of goods to the eastern states. Alexander's Mill was built near Lock 37 and capitalized on the spillway water from the lock, utilizing the water's power to grind flour and later feed. The introduction of railroads and poor management of the canal caused its decline in the late 1800s. In 1913, when a great flood struck, the canal was abandoned.

Methodology

A cultural resource survey was completed to identify historic and archeological resources in the study area. Predictions about short-term and long-term impacts to the cultural landscape were based on previous experience with projects of similar scope and characteristics. Information regarding the proposed alternatives was provided to the Ohio Historic Preservation for their review and comment. A copy of their responses can be found in Appendix A. Information regarding the proposed project was also provided to the Ohio Canal Corridor group for their review and input. Analyses of the potential intensity of impacts on the cultural landscape were derived from the available information on the Park and the professional judgment of the park resource specialists. The duration for short-term impacts to the cultural landscape was determined to be two years, the maximum duration of construction.

Definition of Intensity Levels:

Negligible	Impact(s) is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for §106 would be <i>no adverse effect</i>
Minor	Alteration of a pattern(s) or feature(s) of the landscape would not diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>no adverse effect</i> . Mitigation measures identified through coordination with the State Historic Preservation Office reduce the intensity of the impact under NEPA from moderate to minor.
Moderate	Alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>adverse effect</i> . A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.
Major	Alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>adverse effect</i> . Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).
Impairment	Alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>adverse effect</i> . Measures to minimize or mitigate adverse impacts would be ineffective in reducing the intensity of the impact. Character defining features and/or the landscape would be de-listed from the National Register of Historic Places.

Definition of Duration:

Short-term: Effects lasting less than two years

Long-term: Effects lasting longer than two years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the area of the Park that includes the Canal, Alexander Mill, the Lock Tender's House, Locks 37 and 38, and the Tinkers Creek Aqueduct. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Park through 10 years in the future. The other past, present, and future actions that contribute to the cumulative impact to the cultural landscape include the construction of the Canal, the construction of Alexander's Mill and associated Waste Weir Canal, the construction and operation of Valley Rail Line, and the designation of the Park. The present and future actions would have a long-term negligible adverse impact to the cultural landscape because although the Mill and Canal Lock are part of the Park and protected from adverse impacts, the area surrounding this National Historic Landmark site would continue to develop.

Environmental Effects

Alternative A - No Action Alternative

Alternative A would have a long-term minor adverse impact to the cultural landscape because the existing Fitzwater Truss Bridge, Waste Weir Bridge, and Canal culvert would continue to deteriorate. Structural members of the Fitzwater Truss Bridge are already starting to fall from the bridge. The falling pieces of concrete from the Waste Weir Bridge and the rusting and falling pieces of the Truss would be visible and impact the historic character of the area.

Cumulative Impacts. The present and future actions would have a long-term negligible adverse impact to the cultural landscape. These actions combined with the long-term minor adverse impacts from Alternative A would have a long-term minor adverse cumulative impact to the cultural landscape.

Conclusions. Alternative A would have a long-term minor adverse impact to the cultural landscape. There would be a long-term minor adverse cumulative impact to the cultural landscape. The adverse impact to the cultural landscape would not be an impairment of Park resources or values.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

Alternative B would have short-term negligible adverse impacts to the cultural landscape. Construction to replace the existing Waste Weir Bridge and culvert over the Canal would temporarily disrupt the historic setting of the area. The bridges would continue to be located in their historic location near the Mill. The Waste Weir Bridge would be recognizable as new construction, and would be constructed to minimize detraction from the historic setting. Visitors would be able to view the mill and lock from the Waste Weir Bridge, and would not confuse the

bridge as being associated with the same time frame.

Cumulative Impacts. The other past, present and future actions would have a long-term negligible adverse impact to the cultural landscape. These actions combined with the short-term negligible adverse impacts from Alternative B would have a long-term negligible adverse cumulative impact to the cultural landscape.

Conclusions. Alternative B would have a short-term negligible adverse impact to the cultural landscape. There would be a long-term negligible adverse cumulative impact to the cultural landscape. The adverse impact to the cultural landscape would not be an impairment of Park resources or values.

Alternative C – Replace Both Bridges on the Existing Alignment

Replacement of the bridges on the existing alignment would retain the historic crossing location of Fitzwater Road. The bridges would be easily identifiable as new construction, and would be constructed to minimize detraction from the historic setting. The Towpath Trail would be raised to cross Fitzwater Road at grade, which would require a transition along the trail to keep the grade at a 5 % maximum. The total trail impacted would be approximately 80 feet. Alternative C would have a long-term negligible adverse impact to the cultural landscape and a short-term minor adverse impact during construction due to the presence of construction equipment and the demolition of the existing bridges.

Cumulative Impacts. The other past, present and future actions would have a long-term negligible adverse impact to the cultural landscape. These actions combined with the long-term negligible adverse and short-term minor adverse impacts from Alternative C would have a long-term negligible adverse cumulative impact to the cultural landscape.

Conclusions. Alternative C would have the short-term minor adverse impacts and long-term negligible adverse impacts to the cultural landscape. There would be a long-term negligible adverse cumulative impact to the cultural landscape. The adverse impact to the cultural landscape would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment – Option 1 (Preferred Alternative)

The new bridges would be located adjacent to the existing Fitzwater Truss Bridge on the west embankment of the Cuyahoga River, and would tie into the existing traffic light at Canal Road and Fitzwater Road. The bridges would be easily identifiable as new construction; however, they would also be constructed to minimize detraction from the Canal, Lock, and Mill sites. Alternative D - Option 1 would have a long-term minor adverse impact to the cultural landscape, because although the culvert crossing the Canal would be abandoned in place, allowing for interpretation of the crossing, the new bridges crossing the Cuyahoga River, Waste Weir and Canal would be in a new location. The Towpath Trail would be raised by approximately four feet to meet the abutment of the bridge spanning the Cuyahoga River, changing this character defining feature of the cultural landscape. Approximately 250 feet of the Towpath Trail would be impacted to transition the trail at a maximum 5% graded to blend in with appearance of the

surrounding trail on both sides of the bridges.

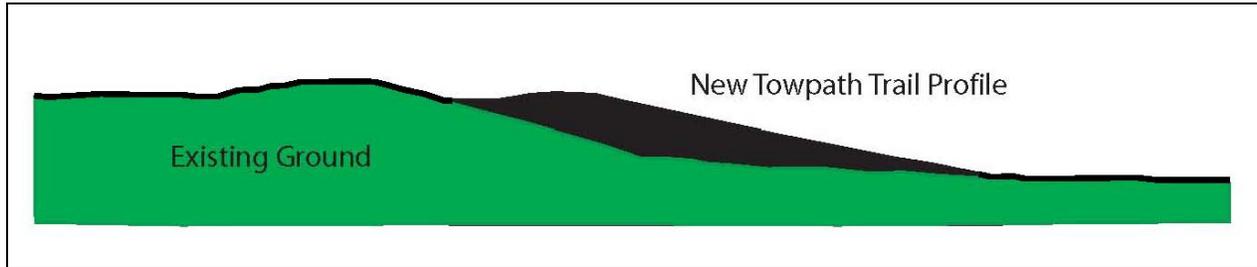


Figure 11. New Towpath Trail Profile.

Cumulative Impacts. The other past, present and future actions would have a long-term negligible adverse impact to the cultural landscape. These actions combined with the long-term minor adverse impacts of Alternative D - Option 1 would have a long-term minor adverse cumulative impact to the cultural landscape.

Conclusions. Alternative D - Option 1 would have the long-term minor adverse impacts to the cultural landscape. There would be a long-term minor adverse cumulative impact to the cultural landscape. The adverse impact to the cultural landscape would not be an impairment of Park resources or values. In a letter dated June 12, 2008, the Ohio Historic Preservation Office concurred with the finding that the proposed project would have no adverse effect on historic properties.

Alternative D – Replace Both Bridges on a New Alignment – Option 2

The new bridges would be located approximately 350 feet downstream (north) of the existing bridges, creating a new crossing area. These bridges would be easily identifiable as new construction, and would be located far enough away to not be associated with the Canal Lock and Mill sites. The Towpath Trail would be raised by approximately six feet to meet the abutment of the bridge spanning the Cuyahoga River, altering this character defining feature of the cultural landscape. Approximately 450 feet of the Towpath Trail would be impacted to transition the trail at a maximum 5% graded to blend in with appearance of the surrounding trail on both sides of the bridges. The culvert crossing the Canal would be abandoned in place, which would allow for interpretation of the historic crossing; therefore Alternative D - Option 2 would have a long-term moderate adverse impact to the cultural landscape.

Cumulative Impacts. The other past, present and future actions would have a long-term negligible adverse impact to the cultural landscape. These actions combined with the long-term moderate adverse impacts and Alternative D - Option 2 would have a long-term minor adverse cumulative impact to the cultural landscape.

Conclusions. Alternative D - Option 2 would have the long-term moderate adverse impacts to the cultural landscape. There would be a long-term minor adverse cumulative impact to the cultural landscape. The adverse impact to the cultural landscape would not be an impairment of Park resources or values.

3.3 FLOODPLAINS

Affected Environment

River channels have a limited capacity for water and when this is exceeded, flooding of the adjoining land (or floodplain) occurs, which then act to convey and store this water. Floodplains are a vital part of our environment and their flooding a natural occurrence. In the vicinity of Fitzwater Road, the main channel of the Cuyahoga River meanders within a floodplain approximately 1600 feet wide. At the Fitzwater Road crossing, the main channel is relatively straight and is situated towards the east side of the floodplain. Large parts of the floodplain are wooded, and there is evidence of woody debris in the channel. The formation and movement of sandbars and debris piles at the site create variable flow conditions through the bridge for high flows. The existing Fitzwater Truss Bridge has no freeboard and is partially submerged during a 50-year flood. Freeboard is measured as the distance between the surface of the water at the 50-year flood water level and the bridge. The existing Waste Weir Bridge is elevated above the 50-year flood elevation, but freeboard is not as important at this bridge since flood flows from the river are not conveyed in the Canal or wasteway channel.

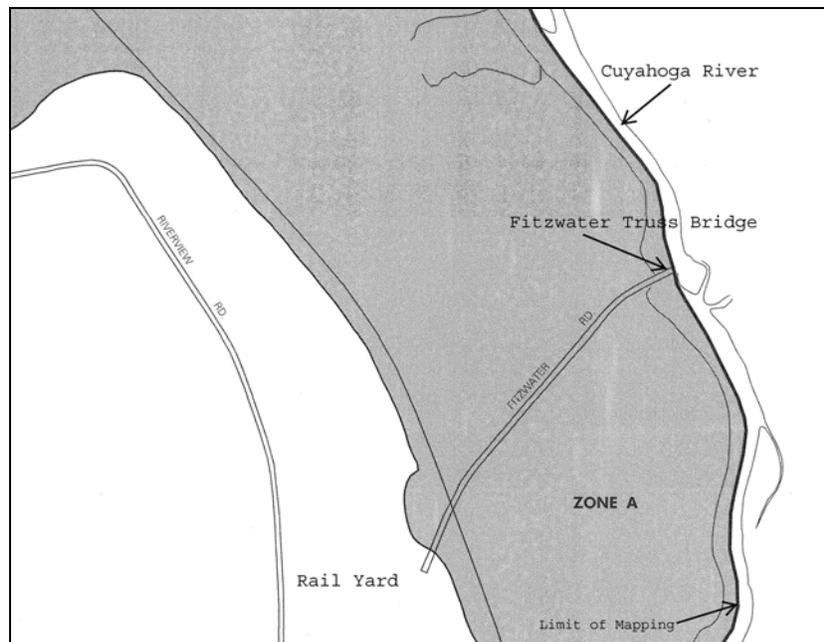


Figure 12. Zone A, shown shaded, is the 100-year floodplain.

Methodology

A FEMA Flood Insurance Rate Map was obtained and evaluated for the study area. Hydraulics analysis determined the freeboard of the existing bridge structures, and also the freeboard of the proposed new bridge structures. The structures were also evaluated in respect to their location along the Cuyahoga River, and whether piers would be placed in the Cuyahoga River. One of the bridge design criteria is to provide 2 feet of freeboard for the 50-year event. This operational criterion is aimed at providing adequate waterway opening capacity at a certain level of risk for the public. The second design criterion is to limit the increase in water surface elevations to 1 foot for the 100-year event. This is an FHWA policy developed to consider flood risks to property owners and developmental impacts to natural and beneficial floodplain values. Impact analysis was based on the on-site inspection of the study area, review of existing literature and studies, and professional judgment. A detailed hydraulic study would be completed; however FEMA does not require that this study be submitted to them. A certification that the proposed improvements would not cause more than a one foot rise in water surface during a 100-year flood is required. The duration for short-term impacts to floodplains was determined to be two years, the maximum duration of construction.

It is NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding. If a proposed action is found to be in an applicable regulatory floodplain and relocating the action to a non-floodplain site is considered not to be a viable alternative, then flood conditions and associated hazards must be quantified as a basis for management decision making and a formal Statement of Findings (SOF) must be prepared. The SOF can be found in Appendix C.

Definition of Intensity Levels:

Negligible	Floodplain characteristics (flow rate, level of water, etc.) would not be affected, or changes would be either non-detectable or if detected, would have effects that would be considered slight and local.
Minor	Changes to floodplain characteristics would be measurable, although the changes would be small and the effects would be localized. No mitigation measures associated with hydrology would be necessary.
Moderate	Changes to floodplain characteristics would be measurable and have both localized and regional scale impacts. Mitigation measures would be necessary and the measures would likely succeed.
Major	Changes to floodplain characteristics would be readily measurable and would have substantial consequences on a local and regional level. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the stream channel would be expected.
Impairment	Changes to floodplain characteristics would be readily measurable and would have substantial consequences on a regional level. The rise in the 100-year flood water surface elevation would exceed 1.0 feet and cannot be mitigated.

Definition of Duration:

Short-term: Effects lasting less than two years

Long-term: Effects lasting longer than two years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the floodplain in the Valley View area. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Canal through 10 years in the future. Past actions that would have contributed to cumulative impacts include the construction of the Canal, the construction of Alexander's Mill and associated Waste Weir, the construction and operation of Valley Rail Line, and the designation of The Park. The construction of the Canal and Waste Weir greatly altered the floodplain in this vicinity. Present and future actions that would contribute to cumulative impacts include development in Valley View and new development occurring upstream of Valley View that drains into the Cuyahoga River. The present and future actions would have a long-term minor adverse impact to floodplains because additional development could increase areas subject to flooding

Environmental Effects

Alternative A - No Action Alternative

Alternative A would continue to have a long-term minor adverse impact to the floodplain. The Fitzwater Truss Bridge would continue to be partially submerged during the 50-year event and restrict the floodplain, creating a potential for the bridge to be struck by debris. The Cuyahoga River would continue to scour the western abutment of the Fitzwater Truss Bridge and undermine the structure.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to floodplains. These actions combined with the long-term minor adverse impacts from Alternative A would have a long-term minor adverse cumulative impact to floodplains.

Conclusions. Alternative A would have a long-term minor adverse impact to floodplains. There would be a long-term minor adverse cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

The Fitzwater Truss Bridge would continue to lack freeboard and would continue to be partially submerged during the 50-year event. The scour at the west and east abutments would be further evaluated, and a riprap abutment protection or some other scour countermeasure must be designed and installed at the west abutment. The analysis may also indicate a need for scour protection along the east abutment or stream bank. Fill material would be placed to raise Fitzwater Road by two to three feet and construct the parking area and walkway for the parking area. Fill material would also be placed to construct the maintenance yard access road. Alternative B would have a long-term minor adverse impact to floodplains since the Fitzwater Truss Bridge would not provide freeboard.

Cumulative Impacts. The other past, present and future actions would have a long-term minor

adverse impact to floodplains. These actions combined with the long-term minor adverse impacts from Alternative B would have a long-term minor adverse cumulative impact to floodplains.

Conclusions. Alternative B would have a short-term and long-term minor adverse impact to floodplains. There would be a long-term minor adverse cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.

Alternative C – Replace Both Bridges on the Existing Alignment

The existing Fitzwater Truss Bridge would be replaced and this structure would be designed to provide 2.0 feet of freeboard to provide adequate clearance for debris during a 50-year storm event. The new bridge over the Cuyahoga River would be approximately 70 feet longer, minimizing the channel constriction. Therefore, this alternative would have a long-term minor beneficial impact on floodplains. Fill material would be placed to construct the maintenance yard access road. Fill would also be added to the floodplain to raise the Towpath Trail by approximately three feet, raise Fitzwater Road by roughly two to three feet, and transition the bridge abutment to the roadway; however this would not cause a rise in the water surface elevation of the 100-year flood event.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to floodplains. These actions combined with the long-term minor beneficial impacts from Alternative C would have a long-term minor beneficial cumulative impact to floodplains.

Conclusions. Alternative C would have the short-term minor adverse impacts and long-term minor beneficial impacts to floodplains. There would be a long-term minor beneficial cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment – Option 1 (Preferred Alternative)

The new bridges would be constructed north (downstream) of the existing bridges to align with Canal Road to create a four-way intersection. During construction the existing bridges and the new bridges would both be present; therefore there would be a short-term minor adverse impact to floodplains. Fill would be added to the floodplain to raise the Towpath Trail by approximately three feet, raise Fitzwater Road by roughly two to three feet, and transition the raised bridge to the roadway. Fill material would also be placed to construct the maintenance yard access road. However, the addition of fill material would not cause a rise in the water surface elevation of the 100-year flood event. Although some flow conveyance area in the overbank would be decreased, the conveyance area in the main channel is significantly increased with the longer bridge. This structure would be designed to provide 2.0 feet of freeboard to provide adequate clearance for debris during a 50-year storm event; therefore this alternative would have a long-term minor beneficial impact on floodplains.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to floodplains. These actions combined with the long-term minor beneficial impacts from Alternative D - Option 1 would have a long-term minor beneficial cumulative impact to floodplains.

Conclusions. Alternative D - Option 1 would have long-term minor beneficial impacts to floodplains. There would be a long-term minor beneficial cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment – Option 2

The new bridges would be constructed approximately 350 feet downstream of the existing bridges. Fill would be added to the floodplain to raise the Towpath Trail by approximately six feet, raise Fitzwater Road by roughly two to three feet, and transition the bridge abutment to the roadway. Fill material would also be placed to construct the maintenance yard access road. However, the addition of fill material would not cause a rise in the water surface elevation of the 100-year flood event. During construction the existing bridges and the new bridges would both be present; therefore there would be a short-term minor adverse impact to floodplains. This structure would be designed to provide 2.0 feet of freeboard to provide adequate clearance for debris during a 50-year storm event; therefore this alternative would have a long-term minor beneficial impact on floodplains.

Cumulative Impacts. The other past, present and future actions would have a long-term minor adverse impact to floodplains. These actions combined with the long-term minor beneficial impacts from Alternative D - Option 2 would have a long-term minor beneficial cumulative impact to floodplains.

Conclusions. Alternative D - Option 2 would have long-term minor beneficial impacts to floodplains. There would be a long-term minor beneficial cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.

3.4 STREAMFLOW CHARACTERISTICS

Affected Environment

The Cuyahoga River begins its 100 mile (160 km) journey in Geauga County, then flows south to Cuyahoga Falls, where it turns sharply north and flows through the Park. It then flows through Cleveland where it empties into Lake Erie. The river drains 813 square miles (2,105 km²) of land in portions of six counties. In the study area, the Cuyahoga River is meandering westward and is scouring the west abutment of the Fitzwater Truss Bridge. The flow is impacted by the constriction of the existing Fitzwater Truss Bridge, as this increases the velocity of the Cuyahoga River through the bridge. The bank erosion along the west side of the Cuyahoga River is likely due to the flow expansion downstream of the bridge and the associated turbulence. The trees and debris on the east bank upstream of the bridge could also be contributing to the bank erosion by redirecting flow toward the west bank. The material deposited on the east side of the river is caused by the trees and debris located upstream of the bridge. This obstruction reduces flow

velocities and causes sediment to deposit.



Figure 13. The erosion patterns surrounding the bridge are shown in this aerial view.

Methodology

Available information on streamflow characteristics potentially impacted by the proposed alternatives was compiled through a hydraulics analysis and by talking to Park staff. Predictions about short-term and long-term impacts to streamflow characteristics were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts on streamflow characteristics were derived from the available information on the Park and best professional judgment. The construction of a build alternative would most likely be two years or less, therefore the duration of the short term duration is two years. During this time frame there could be two bridges in the river at once, and cofferdams that would further alter the stream flow.

Definition of Intensity Levels:

Negligible	The alternative could result in a change in stream flow characteristics, but the change would be so small that it would not be measurable or perceptible.
Minor	The alternative could result in some change in stream flow characteristics that is measurable, but changes would be small and of little consequence with respect to effects on channel forming processes or aquatic species.
Moderate	The alternative would result in some change in stream flow characteristics that would be measurable with consequences with respect to effects on channel-forming processes or aquatic species.
Major	The alternative would result in noticeable and large changes in stream flow characteristics and result in adverse effects on channel-forming processes or aquatic species.
Impairment	The alternative would result in substantial regional changes in stream flow characteristics and have large-scale adverse effects on channel-forming processes or aquatic species.

Definition of Duration:

Short-term: Effects lasting less than two years

Long-term: Effects lasting longer than two years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as approximately 1,000 feet upstream and downstream of the Fitzwater Truss Bridge, as the constriction of the existing bridge impacts the flow patterns and velocities up to this distance. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Canal through 10 years in the future. Past actions that would have contributed to cumulative impacts include the construction of the Canal, the construction of Alexander's Mill and associated Waste Weir, the construction and operation of Valley Rail Line, the construction of Fitzwater Truss Bridge, and the designation of the Park. The creation of a canal and waste weir diverted flow that was originally part of the Cuyahoga River and permanently changed the flow volume, etc. Present and future actions that would contribute to cumulative impacts include development in Valley View and new development occurring upstream of Valley View that drains into the Cuyahoga River and could change the streamflow characteristics. These actions combined would have a long-term minor adverse impact to streamflow characteristics because additional development would create additional impervious surface and runoff into the Cuyahoga River.

Environmental Effects

Alternative A - No Action Alternative

The Fitzwater Truss Bridge would continue to constrict the Cuyahoga River and increase velocities and scour, causing a long-term minor adverse impact to streamflow characteristics. The abutments of the bridge would be armored using riprap, a permanent cover with rock and coarse stone, adequately sized to ensure that it would not be washed away by the river.

Cumulative Impacts. The other past, present, and future projects would have a long-term minor adverse impact to streamflow characteristics. When combined with the long-term minor adverse impacts from Alternative A, there would be a long-term minor adverse cumulative impact to

streamflow characteristics.

Conclusions. Alternative A would have a long-term minor adverse impact to streamflow characteristics. There would be long-term minor adverse cumulative impacts to streamflow characteristics. The adverse impact to streamflow characteristics would not be an impairment of Park resources or values.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

The Fitzwater Truss Bridge would continue to constrict the Cuyahoga River and increase velocities and scour because the size of the structure would remain the same as existing under this alternative. This alternative would have a long-term minor adverse impact to streamflow characteristics. The abutments of the bridge would be armored with riprap to prevent future erosion.

Cumulative Impacts. The other past, present, and future actions would have a long-term minor adverse impact to streamflow characteristics. When combined with the long-term minor adverse impact from Alternative B, there would be a long-term minor cumulative impact to streamflow characteristics.

Conclusions. Alternative B would have a long-term minor adverse impact to streamflow characteristics. There would be a long-term minor cumulative impact to streamflow characteristics. The adverse impact to streamflow characteristics would not be an impairment of Park resources or values.

Alternative C – Replace Both Bridges on the Existing Alignment

The replacement of the Fitzwater Truss Bridge with a longer bridge would have a long-term minor beneficial impact to streamflow characteristics because the longer structure would minimize channel constriction and reduce flow velocities through the bridge. Scour associated with the constriction and increased velocities would also be reduced. The abutments of the bridge would be armored with riprap to prevent future erosion. Although piers may be needed depending on the type of structure constructed, the slight adverse impact of the piers in the water would be outweighed by the beneficial impact of lengthening the bridge structure.

Cumulative Impacts. The other past, present, and future actions would have a long-term minor adverse impact to streamflow characteristics. When combined with the long-term minor beneficial impact from Alternative C, there would be a long-term negligible beneficial cumulative impact to streamflow characteristics.

Conclusions. Alternative C would have a long-term minor beneficial impact to streamflow characteristics. There would be long-term minor beneficial cumulative impacts to streamflow characteristics. The beneficial impact to streamflow characteristics would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment Option 1 (Preferred Alternative)

Option 1 would require roughly the same amount of riprap as Alternative C because the bridge would be located slightly north of its existing location in a part of the river with a greater potential for erosion. Alternative D - Option 1 would have a long-term minor beneficial impact to streamflow characteristics because the additional bridge length would minimize channel constriction and reduce flow velocities through the bridge. Scour associated with the constriction and increased velocities would also be reduced. The bridge may require piers to be located in the river; however the piers would be located close to the banks of the river where material is already depositing to avoid material deposition in the center of the river channel.

Cumulative Impacts. The other past, present, and future actions would have a long-term minor adverse impact to streamflow characteristics. When combined with the long-term minor beneficial impact from Alternative D - Option 1, there would be a long-term negligible beneficial cumulative impact to streamflow characteristics.

Conclusions. Alternative D – Option 1 would have a long-term minor beneficial impact to streamflow characteristics. There would be a long-term negligible beneficial cumulative impact to streamflow characteristics. The beneficial impact to streamflow characteristics would not be an impairment of Park resources or values.

Alternative D – Replace Both Bridges on a New Alignment Option 2

Option 2 would require a substantially greater amount of riprap than either Alternative C or Alternative D - Option 1, because the bridge would be located approximately 350 feet north. The river banks immediately upstream of this location are currently unstable and would need to be stabilized to maintain a desirable channel alignment through the bridge. Alternative D - Option 2 would have a long-term negligible beneficial impact to streamflow characteristics because although the bridge would minimize channel constriction, a large amount of stream bank armoring would be necessary. The bank armoring would need to extend from the new bridge upstream to the existing bridge along the west bank.

Cumulative Impacts. The other past, present, and future actions would have a long-term minor adverse impact to streamflow characteristics. When combined with the long-term negligible beneficial impact from Alternative D - Option 2, there would be a long-term negligible beneficial cumulative impact to streamflow characteristics.

Conclusions. Alternative D - Option 2 would have a long-term minor beneficial impact to streamflow characteristics. There would be a long-term negligible beneficial cumulative impact to streamflow characteristics. The beneficial impact to streamflow characteristics would not be an impairment of Park resources or values.

3.5 VISITOR USE AND EXPERIENCE

Affected Environment

Fitzwater Road is primarily used by Park maintenance vehicles and staff of the Cuyahoga Valley Scenic Railroad; however it is also used by Park visitors accessing the Towpath Trail. The Canal, which runs through the Park, was a 308-mile waterway connecting Lake Erie to the Ohio River. The Towpath Trail is a 20-mile long stretch of the Canal towpath, which has a solid crushed limestone surface. There are over 2 million visitors to the trail each year. Hiking is popular within the park; there are over 125 miles of hiking trails available. Currently, there are no AADT (Annual Average Daily Traffic) counts available for this section of the park. It is estimated that less than 100 vehicles per day cross the bridges. The Park as a whole has averaged 3.2 million visitors per year over the past three years.



Figure 14. The Towpath Trail intersects with Fitzwater Road.

Methodology

Available information regarding traffic counts was compiled by talking to Park staff. Information was accumulated from various town meetings and a public scoping mailer. Predictions about short-term and long-term impacts to visitor use and experience were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of

impacts to visitor use and experience were derived from the available information on the Park and best professional judgment. The construction of an action alternative would most likely be two years or less, therefore the short-term duration is two years.

Definition of Intensity Levels:

Negligible	Changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.
Minor	Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
Moderate	Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.
Major	Changes in visitor use and/or experience would be readily apparent and severely adverse or exceptionally beneficial. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.

Definition of Duration:

Short-term: Effects lasting two years or less
 Long-term: Effects lasting beyond two years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as an area including the Towpath Trail and the National Historic Landmark Site within the Cuyahoga Valley National Park. The temporal boundary for the cumulative impacts assessment has been defined as from the designation of the Park through 10 years in the future. Past actions that would have contributed to cumulative impacts include the construction of the Canal, the construction of Alexander’s Mill and the associated Waste Weir, and the designation of Cuyahoga Valley as a National Park. The preservation of the cultural, historical, and natural resources allow visitors to experience the past. Present and future actions that would contribute to cumulative impacts include the Valley Railway improvements and the Towpath Trail extension. These actions combined would have a moderate beneficial impact to visitor use and experience because more visitors would be able to access the Towpath Trail, and improvements to the Valley Railway would enhance the visitor’s experience.

Environmental Effects

Alternative A - No Action Alternative

The No Action Alternative would have a long-term moderate adverse impact to visitor use and experience. The Waste Weir Bridge would continue to deteriorate, increasing the safety risk to visitors crossing to access the Towpath Trailhead. The Waster Weir Bridge would have to be closed frequently for repairs to the bridge so that it could remain as an access point to the Towpath Trail. The closures of the bridge would inhibit visitor access to the trail in this area.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate

beneficial impact to visitor use and experience. When combined with the long-term moderate adverse impacts from Alternative A, there would be long-term negligible adverse cumulative impacts to visitor use and experience. The connection of the Towpath Trail to the city of Cleveland would draw more visitors than would be impacted through the closure or interruption of the trail access at Fitzwater Road.

Conclusions. Alternative A would have a long-term moderate adverse impact to visitor use and experience. There would be long-term negligible adverse cumulative impacts to visitor use and experience.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

This Alternative would have long-term minor beneficial impacts to visitor use and experience. Park visitors would be able to safely cross the Waste Weir Bridge to access the Towpath Trail. The Towpath Trail Parking Area would be constructed south of the Fitzwater Truss Bridge, so visitors would be able to safely cross the Fitzwater Truss Bridge to access the Towpath Trail. The new parking area and walkway to the Towpath Trail would create an easily accessible trailhead and improve recreational access within the Park. Visitors would also be able to use the new parking area to access the National Historic Landmark area, including Lock 37 and Alexander's Mill.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact to visitor use and experience. When combined with the long-term minor beneficial impacts from Alternative B, there would be long-term moderate beneficial cumulative impacts to visitor use and experience.

Conclusions. Alternative B would have a long-term minor beneficial impact to visitor use and experience. There would be long-term moderate cumulative impacts to visitor use and experience.

Alternative C- Replace Both Bridges on the Existing Alignment

Alternative C would have long-term minor beneficial impacts to visitor use and experience because visitors would have a new trailhead and parking area to access the Towpath Trail and the National Historic Landmark area. Visitors would also be able to safely cross the Waste Weir Bridge to travel between the Towpath Trail and the Visitor's Center on Canal Road. However, there would be short-term moderate adverse impacts to visitor use and experience during construction, because visitors would experience difficulty accessing the Towpath Trail at Fitzwater Road during certain times during the construction of the bridges. Closures and detours to the Towpath Trail would be limited to the extent possible.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact to visitor use and experience. When combined with the long-term minor beneficial impacts and the short-term moderate adverse impacts from Alternative C, there would be long-term moderate beneficial cumulative impacts to visitor use and experience.

Conclusions. Alternative C would have a short-term moderate adverse impact and a long-term minor beneficial impact to visitor use and experience. There would be long-term moderate beneficial cumulative impacts to visitor use and experience.

Alternative D – Replace Both Bridges on a New Alignment – Option 1 (Preferred Alternative)

Replacing both bridges on a new alignment would have long-term moderate beneficial impacts to visitor use and experience because vehicles would be able to easily access the new parking area via a four-way intersection of Canal Road and Fitzwater Road, and park at the trailhead parking area to access the Towpath Trail. A portion of the Towpath Trail may be closed for a short time period near the new bridge abutment to raise the grade of the trail. During this time a trail detour would be necessary. Therefore, Alternative D - Option 1 would also have a short-term minor adverse impact to visitor use and experience. Closures and detours to the Towpath Trail would be limited to the extent possible.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact to visitor use and experience. When combined with the short-term minor adverse impacts and long-term moderate beneficial impacts from Alternative D - Option 1, there would be long-term moderate beneficial cumulative impacts to visitor use and experience.

Conclusions. Alternative D - Option 1 would have a short-term minor adverse impact and a long-term moderate beneficial impact to visitor use and experience. There would be a long-term moderate beneficial impact to visitor use and experience.

Alternative D – Replace Both Bridges on New Alignment – Option 2

Replacing both bridges on a new alignment approximately 350 feet north would have long-term minor beneficial impacts to visitor use and experience because although visitors would be able to utilize a new trailhead and parking area ; visitors may still experience difficult turn movements. Vehicles heading north on Canal Road would have to turn through oncoming traffic in the opposite lane. Vehicles exiting the parking area on Fitzwater Road would have to queue at a stop sign and wait for openings in traffic to enter Canal Road. A portion of the Towpath Trail may be closed for a short time period near the new bridge abutment to raise the grade of the trail. During this time a trail detour would be necessary. Therefore, Alternative D - Option 2 would also have a short-term minor adverse impact to visitor use and experience. Closures and detours to the Towpath Trail would be limited to the extent possible.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact to visitor use and experience. When combined with the short-term minor adverse impacts and long-term minor beneficial impacts from Alternative D - Option 2, there would be long-term moderate beneficial cumulative impacts to visitor use and experience.

Conclusions. Alternative D - Option 2 would have a short-term minor adverse impact and a long-term minor beneficial impact to visitor use and experience. There would be a long-term moderate cumulative beneficial impact to visitor use and experience.

3.6 HEALTH AND SAFETY

Affected Environment

The existing Fitzwater Truss Bridge contains lead-based paint, is critically deficient, and presents a safety hazard. The bridge was closed to vehicular traffic in November of 2007 because the extensive deterioration of the structural steel. The Fitzwater Truss Bridge is also experiencing scour at the abutments. The existing Waste Weir Bridge is deficient, functionally obsolete, and requires a high degree of maintenance. Visitors trying to access the Towpath Trail at this location currently park in informal parking approximately 300-feet south along Canal Road, creating a potential conflict with vehicles traveling on Canal Road.

Methodology

Predictions about impacts were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts to safety were derived from the available information on the Park and best professional judgment. The construction of an action alternative would most likely be two years or less, therefore the short-term duration is two years.

Definitions of Intensity:

Negligible	The impact to health and safety would not be measurable or perceptible.
Minor	The impact would be measurable or perceptible, and it would be limited to a relatively small number of persons at localized areas.
Moderate	The impact to health and safety would be sufficient to cause a permanent change in accident rates at existing low accident locations.
Major	The impact to health and safety would be substantial either through the elimination of potential hazards or the creation of new areas with a high potential for serious accidents or hazards.

Definition of Duration:

Short-term: Effects lasting two years or less

Long-term: Effects lasting beyond two years

Cumulative Impacts Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the Fitzwater Road and Canal Road intersection along Fitzwater Road to the maintenance area east of the Fitzwater Truss Bridge. The temporal boundary for the cumulative impacts assessment has been defined as from the designation of the Park through 10 years in the future. Past actions that would have contributed to cumulative impacts include the designation of Cuyahoga Valley as a National Park, the construction of the bridges across the Cuyahoga River, Waste Weir, and Canal. Present and future actions that would contribute to cumulative impacts include development of the Valley View area, and the Towpath Trail extension. These actions combined would have a long-term negligible adverse impact because these actions are likely to increase the use of the Towpath Trail and the possibility for conflicts.

Environmental Effects

Alternative A - No Action Alternative

The No Action Alternative would have long-term minor adverse impacts to health and safety. Both bridges would continue to deteriorate until they were no longer operative. Increased repairs would be necessary to both bridges. Repairs to the Fitzwater Truss would expose persons making the repairs to lead-based paint, a hazardous material. Visitors would have a higher chance of incidents as the deterioration worsens over time. Visitors would also continue to face a potential conflict when trying to access the Towpath Trail from the informal parking along Canal Road.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. When combined with the long-term minor adverse impacts from Alternative A, there would be a long-term minor adverse cumulative impact to health and safety.

Conclusions. Alternative A would have a long-term minor adverse impact to health and safety. There would be a long-term minor adverse cumulative impact to health and safety.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

This Alternative would have long-term minor beneficial impacts to health and safety, because visitors, Cuyahoga Valley Scenic Railroad staff, and Park staff would be able to safely access the Towpath Trail and the maintenance area at the end of Fitzwater Road. The Towpath trailhead and associated parking area would draw additional visitors to this area, which would increase vehicles and turning movements at the intersection with Canal Road. Additional traffic would exacerbate the difficult turn movement at the intersection of Canal Road and Fitzwater Road. Visitors would be able to utilize the new parking area, avoiding a potential conflict with vehicles traveling at a higher speed on Canal Road. There would be short-term minor adverse impacts to health and safety during construction, because of the bridge demolishing activities and the introduction of heavy equipment to the area.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. When combined with the short-term minor adverse impacts and long-term minor beneficial impacts from Alternative B, there would be a long-term minor beneficial cumulative impact to health and safety.

Conclusions. Alternative B would have a short-term minor adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term minor beneficial cumulative impact to health and safety.

Alternative C – Replace Both Bridges on the Existing Alignment

Alternative C would have long-term minor beneficial impacts to visitor conflicts and safety, because visitors would be able to safely access the Towpath Trail and avoid potential conflicts with vehicles traveling on Canal Road. There would be short-term minor adverse impacts to

visitor conflicts and safety during construction, because of the bridge demolishing activities and the introduction of heavy equipment to the area. The Towpath trailhead and associated parking area would draw additional visitors to this area, which would increase vehicles and turning movements at the intersection with Canal Road. Additional traffic would exacerbate the difficult turn movement at the intersection of Canal Road and Fitzwater Road.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. When combined with the short-term minor adverse impacts and long-term minor beneficial impacts from Alternative C, there would be a long-term minor beneficial cumulative impact to health and safety.

Conclusions. Alternative C would have a short-term minor adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term minor beneficial cumulative impact to health and safety.

Alternative D –Replace Both Bridges on a New Alignment – Option 1 (Preferred Alternative)

There would be short-term negligible adverse impacts to health and safety during construction because of the introduction of heavy equipment to the area; however visitors would continue to access the trail via the existing bridges, therefore limiting potential incidents. Visitors accessing the Towpath Trailhead at Fitzwater Road would be able to utilize a parking area instead of parking along the road, which would decrease the potential for conflicts with vehicle traffic on Canal Road.

The Towpath trailhead and associated parking area would draw additional visitors to this area, which would increase vehicles and turning movements at the intersection with Canal Road. Vehicles turning north from the Fitzwater Road and bridges currently face an immediate stop light at Canal Road, which when traffic is stopped at the light, can make for difficult turn movements. This Alternative would alleviate the difficult turn movement because Fitzwater Road would align to a four-way signalized intersection, greatly improving traffic movements and decreasing potential vehicle conflicts. Alternative D - Option 1 would have long-term moderate beneficial impacts to health and safety, because visitors and Park staff would be able to safely access the Towpath Trail and the maintenance area at the end of Fitzwater Road using the new bridges.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. When combined with the short-term negligible adverse impacts and long-term moderate beneficial impacts from Alternative D - Option 1, there would be a long-term moderate beneficial cumulative impact to health and safety.

Conclusions. Alternative D - Option 1 would have a short-term minor adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term moderate beneficial cumulative impact to health and safety.

Alternative D –Replace Both Bridges on a New Alignment – Option 2

There would be short-term negligible adverse impacts to health and safety during construction because of the introduction of heavy equipment to the area; however visitors would continue to access the trail via the existing bridges, therefore limiting potential incidents. Visitors accessing the Towpath Trailhead at Fitzwater Road would be able to utilize a parking area instead of parking along the road, which would decrease the potential for conflicts with vehicle traffic on Canal Road.

The Towpath trailhead and associated parking area would draw additional visitors to this area, which would increase vehicles and turning movements at the intersection with Canal Road. Vehicles turning north from the Fitzwater Road and bridges currently face an immediate stop light at Canal Road, which when traffic is stopped at the light, can make for difficult turn movements. Alternative D - Option 2, would align Fitzwater Road to a “T” intersection at Canal Road further north than its existing location. Vehicles would face a possible decrease in sight distance looking north due to a curve in the roadway; however they would no longer face the difficult turn movement adjacent to the existing traffic signal. Alternative D - Option 2 would have a long-term minor beneficial impact to health and safety, because although traffic movements could still be difficult, the new bridges constructed to current standards would improve safety.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. When combined with the short-term negligible adverse impacts and long term minor beneficial impact from Alternative D - Option 2 there would be a long-term minor beneficial cumulative impact to health and safety

Conclusions. Alternative D - Option 2 would have a short-term minor adverse impact and a long-term minor beneficial impact to health and safety. There would be a long-term minor beneficial cumulative impact to health and safety.

3.7 PARK OPERATIONS

Affected Environment

Park operations include maintenance of all roads, trails, buildings and other structures in a safe and aesthetically pleasing condition, preventing deterioration that would render them unsightly, unsafe, or beyond efficient repair. Maintenance activities such as mowing, pothole repair, and prescribed burns are all part of park operations. A maintenance yard is located on the east end of Fitzwater Road, which houses trail rolling stock for the Cuyahoga Valley Scenic Railroad. Maintenance of train rolling stock, such as engines, coaches, and on-track maintenance equipment is also done at the maintenance yard.

Methodology

A life-cycle-cost analysis was performed for the bridge structures alone. This was done by figuring the initial cost, maintenance costs, monitoring costs, and repair costs over a 60 year time

period (the life-span of a new structure). It was assumed that rehabilitation would be necessary every 15 years, and that the interest rate would be 5%. Predictions about impacts were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts to park operations were derived from the available information on the Park and best professional judgment. The construction of an action alternative would most likely be two years or less, therefore the short-term duration is two years.

Definitions of Intensity:

Negligible	The impact would be at low levels of detection and would not have an appreciable effect on Park operations.
Minor	The impact would be detectable and would be of a magnitude that would not have an appreciable effect on Park operations.
Moderate	The impact to park operations would be sufficient to cause a permanent change in park operations in a manner noticeable to staff and to the public.
Major	The impact to park operations would be substantial and readily apparent. Park operations would be markedly different from existing operations.

Definition of Duration:

Short-term: Effects lasting two years or less
 Long-term: Effects lasting beyond two years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the Cuyahoga Valley National Park. The temporal boundary for the cumulative impacts assessment has been defined as from the designation of the Park through 10 years in the future. Past actions that would have contributed to cumulative impacts include the designation of Cuyahoga Valley as a National Park and the construction of Fitzwater Road and its associated bridges. Present and future actions that would contribute to cumulative impacts include the existing day to day and planned operations in the Park. These actions would have a long-term negligible adverse impact on park operations because the Park’s operating budget has been and would be allocated throughout the Park. These other expenses decrease the amount of money that the Park could spend maintaining the bridge structures.

Environmental Effects

Alternative A - No Action Alternative

The No Action Alternative would have a long-term moderate adverse impact to park operations because the bridges would continue to deteriorate, increasing maintenance activities and costs. There would continue to be no road access to the Cuyahoga Valley Scenic Railroad maintenance yard. A new yard would need to be constructed, or a permanent access route to the maintenance yard along another route would need to be constructed.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to park operations. When the long-term moderate adverse impacts from Alternative A are combined, there would be a long-term moderate adverse cumulative impact to park operations.

Conclusions. Alternative A would have a long-term moderate adverse impact to park operations. There would be a long-term moderate adverse cumulative impact to park operations.

Alternative B - Rehabilitate Fitzwater Truss Bridge and Replace Waste Weir Bridge

Alternative B would have long-term minor adverse impacts to park operations. Maintenance would decrease on the Waste Weir Bridge; however maintenance activities would be required with the rehabilitation of the Fitzwater Truss Bridge. The life-cycle-cost for the structures alone was estimated to be approximately \$7,160,000.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to park operations. When combined with the short-term minor adverse impacts from Alternative B, there would be a long-term minor adverse cumulative impact to park operations.

Conclusions. Alternative B would have a long-term minor adverse impact to park operations. There would be a long-term minor adverse cumulative impact to park operations.

Alternative C – Replace Both Bridges on the Existing Alignment

Alternative C would have long-term moderate beneficial impacts to park operations. Maintenance activities would decrease with the construction of new bridges. The life-cycle cost for the structures alone was estimated to be approximately \$3,645,000.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to park operations. When combined with the long-term moderate beneficial impact from Alternative C, there would be a long-term minor beneficial cumulative impact to park operations.

Conclusions. Alternative C would have a long-term moderate beneficial impact to park operations. There would be a long-term minor beneficial cumulative impact to park operations.

Alternative D – Replace Both Bridges on a New Alignment - Option 1 (Preferred Alternative

Alternative - Option 1 would have long-term moderate beneficial impacts to park operations. Maintenance activities and costs would decrease with the construction of new bridges. The existing bridges would remain open while the new bridges are being construction, therefore having less of an impact to park operations. The life-cycle cost for the structures alone was estimated to be approximately \$3,645,000.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to park operations. When combined with the long-term moderate beneficial impacts from Alternative D - Option 1, there would be a long-term minor beneficial cumulative impact to park operations.

Conclusions. Alternative D - Option 1 would have a long-term moderate beneficial impact to park operations. There would be a long-term minor beneficial cumulative impact to park operations.

Alternative D –Replace Both Bridges on a New Alignment - Option 2

Alternative D - Option 2 would have long-term moderate beneficial impacts to park operations. Maintenance activities and costs would decrease with the construction of new bridges. The existing bridges would remain open while the new bridges are being construction, therefore having less of an impact to park operations. The life-cycle cost for the structures alone was estimated to be approximately \$3,136,000.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to park operations. When combined with the long-term moderate beneficial impacts from Alternative D - Option 2, there would be a long-term minor beneficial cumulative impact to park operations.

Conclusions. Alternative D - Option 2 would have a long-term moderate beneficial impact to park operations. There would be a long-term minor beneficial cumulative impact to park operations.

4 PUBLIC INVOLVEMENT AND COORDINATION

As required by NPS policies and planning documents, it is the Park's objective to work with State, Federal, and local governmental and private organizations to ensure that the Park and its programs are coordinated with theirs, and are supportive of their objectives, as far as proper management of the Park permits, and that their programs are similarly supportive of Park programs.

4.1 PERMITS AND AGENCY COORDINATION

The Clean Water Act (CWA) of 1972 was created to restore and maintain waters of the United States. Several sections of the CWA are applicable to activities in or near waters of the United States, including both navigable waters and adjacent wetlands. Section 404 of the CWA, which is administered by the U.S. Army Corps of Engineers, regulates the discharge of dredged or fill material. The actions proposed are anticipated to impact waters of the United States, and therefore anticipated to be subject to U.S. Army Corps of Engineers review under the 404 regulatory program. Section 401 of the CWA, administered by the Ohio Environmental Protection Agency (Ohio EPA) must certify that proposed activities that would result in discharges to surface water are consistent with the CWA. The Ohio Environmental Protection Agency (Ohio EPA), as authorized by the Environmental Protection Agency, administers section 402 National Pollutant Discharge Elimination System (NPDES). Stormwater discharges from construction activities that disturb a total of 1 or more acres of land require a NPDES permit.

According to the Ohio Department of Natural Resources, a Special Flood Hazard Area (SFHA) Development Permit to the Village of Valley View would also be required. The application would need to be accompanied by a hydraulics study and report documenting that the proposed project would result in less than a 1-foot increase in water surface elevation for the base flood (100-year). Regulations enforced by the participating community address development in floodway and fringe locations. The floodway portion of the floodplain is the area of strongest current during a flood. Any proposed action in the floodway must be supported by hydrologic and hydraulic analysis to demonstrate that there would be no impact on the water surface elevations during the discharge of a 100-year flood. In fringe areas (that portion of the 100-year floodplain not identified as floodway), regulations may require development to meet certain standards to ensure its protection.

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