

Environmental Assessment

Bike & Hike Trail Realignment at  
Brandywine Road

Prepared for:  
The U.S. Department of the Interior  
National Park Service

Prepared by:  
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# 1 Introduction / Purpose and Need

## 1.1 Background

The boundary of Cuyahoga Valley National Park (CVNP) lies within two counties and 15 communities (Appendix A). For several of these communities, the bulk of the community is either surrounded by or nearly fully encompassed by the national park. Predictably, the national park and the communities share many common interests from road maintenance and emergency services to zoning and resource protection. Also, within the boundary of the national park, there are 83 tracts of land (covering over 9,000 acres) that are also in non-federal public ownership. Nearly all of this land is held by two metropolitan park districts for use as parkland and open space. In addition, within the boundaries of the park there are an additional 17 properties, encompassing nearly 2,200 acres of land, that, while privately owned, provide recreational or educational facilities and services for the public in a manner compatible with park goals and values. Examples include ski areas, golf courses, the Blossom Music Center, Western Reserve Historical Society's Hale Farm and Village and several scout camps.

Collectively, these lands represent nearly 35% of the total land mass of the CVNP. It follows that the success of the CVNP, is ultimately dependent on partnerships between these other public and private entities. National Park Service (NPS) policies also recognize that parks are "integral parts of larger regional environments," and therefore direct managers to "work cooperatively with others to... address mutual interests in the quality of life of community residents, including matters such as compatible economic development and resource and environmental protection." For these reasons, the park regularly works with public and private entities for mutual benefit. Over the years, cooperative ventures include land consolidation through exchanges, financial assistance, joint participation in project development and cost sharing, community planning, development projects, restoration projects, recreational projects, etc. As a result, the park has been able to

- Secure land and long-term protection over sizeable private properties through conservation easements
- Construct priority public facilities
- Improve zoning of lands in and adjacent to the park,
- Expand recreational services and programming for park visitors, etc.

When appropriate, the park has also responded to requests for assistance from communities and other partners. These have included:

- Financial assistance for communities for road maintenance, emergency services and other public services
- Use of NPS land for public facilities (recreational and otherwise), and community support uses (such as recreational cooperative projects with Metro Parks, Serving Summit County)
- Technical assistance in cultural and natural resource protection, development of visitor facilities and services, engineering guidance, etc.

The park evaluates each of these, considering the expressed need, whether or not legal authority exists for the action, that the action falls within the management policies of the NPS and the enabling legislation of the park, the magnitude of the request, etc. Furthermore, when NPS land is involved, the protection of natural and cultural resources and the public interest remains the principal focus.

As stated in the *NPS Cultural Resource Management Guideline* (NPS 1997), cultural resources are “. . . the material evidence of past human activities. Finite and nonrenewable, these tangible resources begin to deteriorate almost from the moment of their creation. Once gone, they cannot be recovered.” Thus, it is imperative that “park management activities reflect awareness of the irreplaceable nature of these material resources.” If these resources “are degraded or lost, so is the parks’ reason for being.” The main cultural resources of CVNP can be categorized as archeological resources, historic structures and cultural landscape.

Cultural resources at CVNP have been categorized into six primary cultural themes: prehistoric and indigenous cultures, agriculture, transportation, settlement, recreation, and industry (NPS 1987). These cultural themes identify a resource by its primary historical significance. However, resources often exhibit overlapping cultural themes as their uses and associations have changed through time. Thus, the cultural resources of CVNP exhibit layers of cultural history that are interwoven.

The project associated with this Environmental Assessment (EA) responds to an expressed desire on the part of the Metro Parks, Serving Summit County to redirect a portion of their Bike & Hike Trail onto land that is owned by the National Park Service. The mission of the Metro Parks, Serving Summit County is:

*The Mission of Metro Parks, Serving Summit County is to acquire, conserve, and manage natural resources and to provide the public with safe outdoor recreational opportunities through a system of regional natural area parks.*

The 33.5-mile Bike & Hike Trail was one of the first “rails to trails” conversions in the country. It follows the course of the old Akron, Bedford & Cleveland (ABC) Railroad, which was the longest electric railroad of its kind when it was built in 1895. Until service was discontinued in 1932, riders could travel for 50 cents from Akron to Cleveland’s Public Square in about 2.5 hours.

East of Route 91 in Munroe Falls, the Bike & Hike Trail parallels a scenic section of the Cuyahoga River where great blue herons, Canada geese and a variety of ducks can be seen. A small pond along the north side of the trail annually hosts a chorus of spring peepers. South of Boston Mills Road in Boston Heights, the Sharon Conglomerate rock walls of the Boston Ledges rise along the trail. Farther north, the trail travels along Brandywine Road. A parking area adjacent to the bridge over I-271 offers rest and a view of Brandywine Falls which, at 75 feet, is one of the highest waterfalls in Ohio.

## **1.2 Project History**

In 2004, Metro Parks, Serving Summit County began a study of the Bike & Hike Trail in the vicinity of I-271 and Brandywine Road in northern Summit County. Presently, the trail is routed into Brandywine Road for approximately one mile. While providing access to the popular amenities in the areas, Brandywine Road is steep, without bike lanes, and vehicle speed is fairly high. A new alignment is sought that would pass through natural and partially developed areas and afford cyclists and pedestrians a more scenic and safe travel route.

## 1.3 Proposed Action

In order to provide users of the Metro Park Bike & Hike Trail a safer and more enjoyable route, Metro Parks seeks to relocate a portion of the Bike & Hike Trail onto portions of land that are owned by the CVNP.

## 1.4 Purpose and Need Statement

The purpose of this action is to provide the public with an entirely “off-road” trail in order to improve public safety and to provide the public with a scenic route for walking, hiking, jogging, and cycling.

At the present time, portions of the Bike & Hike Trail require pedestrians and cyclists to access public roads with steep hills and rapid traffic flow. Accidents and injuries have occurred in the past. Metro Park patrons have expressed concerns about this stretch of trail.

The desire for this project, at this time, is founded on the conclusion by Metro Park officials that the existing route discourages visitor use, is not enjoyable to many visitors, and is less safe than other alternatives considered in this EA.

## 1.5 Laws (Statutes), Executive Orders, Regulations, Policies and Guidelines

### 1.5.1 Cuyahoga Valley National Park’s Enabling Legislation

The resources of CVNP are protected under the authorities of the National Park Service Organic Act of 1916 (16 U.S.C. § 1), the National Park System General Authorities Act (16 U.S.C. §§ 1a-1 et seq.), Part 36 of the Code of Federal Regulations (CFR), and the park’s enabling legislation (Public Law 93-555).

The Cuyahoga Valley National Recreation Area was established by Public Law 93-555 on December 27, 1974 and was renamed Cuyahoga Valley National Park (CVNP) on October 11, 2000. Section 1 of PL 93-555 states the purpose of the Park:

*For the purpose of preserving and protecting the historic, scenic, natural, and recreational values of the Cuyahoga River and the adjacent lands of the Cuyahoga Valley and for the purpose of providing for the maintenance of needed recreational open space necessary to the urban environment, the Cuyahoga Valley National Recreation Area.... In the management of the recreation area, the Secretary of the Interior shall utilize the recreation area resources in a manner which will preserve its scenic, natural, and historic setting while providing for the recreational and educational needs of the visiting public.*

Section 4 (d) of PL 93-555 addresses the duties of the Secretary of Interior:

*The Secretary...shall inventory and evaluate all sites and structures within the recreation area having present and potential historic, cultural, or architectural significance and shall provide for appropriate programs for the preservation, restoration, interpretation and utilization of them.*

### **1.5.2 NPS Servicewide Laws, Executive Orders, Regulations and Policies**

In addition to the language presented in PL 93-555 that created Cuyahoga Valley National Park (Recreation Area), general preservation and management direction is provided by the National Park Service Organic Act of August 25, 1916. This act established the NPS and, by extension, states the overall mission for areas managed by the NPS:

*... promote and regulate the use of the Federal areas known as national parks, monuments, and reservations...by such means and measures as conform to the fundamental purpose of said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.*

Other laws, regulations and policies that have bearing on this action are referenced in Appendix B.

### **1.5.3 Metro Parks, Serving Summit County – History, Policies, and Mission Statement.**

Metro Parks, Serving Summit County was established as a metropolitan park district by the Summit County Probate Court, in accordance with Chapter 1545 of the Ohio Revised Code, December 31, 1921.

The district is governed by a three-member Board of Park Commissioners appointed by the Summit County Probate Judge. Commissioners serve overlapping three-year terms without compensation. Metro Parks manages 9,376 acres of land, including 13 developed parks, six conservation areas, and more than 120 miles of trails, including a 33.5-mile Bike & Hike Trail and 16 miles of the Ohio & Erie Canal Towpath Trail.

The mission of the Metro Parks, Serving Summit County is:

*To acquire, conserve and manage natural resources and to provide the public with safe outdoor recreational opportunities through a system of regional, natural-area parks.*

Metro Parks, Serving Summit County routinely cooperates with other government agencies, municipalities, and non-profit organizations to help accomplish mission goals. The Metro Parks, Serving Summit County often collaborates with The CVNP on natural resource and recreational endeavors. Many of the amenities of the CVNP (hiking paths, parking lots, equestrian trails) are located on property that is owned by the Metro Parks, Serving Summit County.



## 2 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 scoping (defining the range of potential issues) was conducted for this EA to identify what relationships exist between the proposed action and environmental resources. An interdisciplinary team (IDT) (Appendix C) was formed for the project and an Environmental Screening Form was prepared on September 13, 2005

Internal scoping was conducted in February 2006 and a public meeting was held in August of 2006. Early coordination with the United States Fish and Wildlife Service was conducted in November of 2005 and with the Ohio Historic Preservation Office in February of 2007. Information about the project was published on the National Park Service's Planning, Environment and Public Comment (PEPC) system on August 8, 2007 through September 22, 2007. Press releases and mailings encouraged the public to comment on the project. A total of 33 comments were received and incorporated into the document. Scoping included federal, state, and local agencies and organizations having direct and indirect jurisdiction, insight, knowledge, expertise or concern for CVNP resources. Copies of comments received from federal, state, and local agencies/governments/ organizations are included in Appendix D.

DO-12 requires an Environmental Assessment when answers to the checklist in the IDT Screening Form are listed as "yes". The following issues were identified through the internal scoping process for further consideration in an EA:

- The project lies within the range of the Indiana bat (*Myotis sodalist*), a federally listed endangered species, and within the range of the federally threatened northern monkshood (*Aconitum noveboracense*).
- There may be impacts on water resources and wetlands, endangered species, cultural landscapes, historical and archaeological resources in the area.
- There may be impacts on cultural landscapes, historical and archaeological resources in the area.

### 2.1 Issues and Impact Topics Addressed in this EA

The issues identified above were translated and focused into impact topics, or a more specific description of resources that may be impacted by the action. These impact topics are then carried through the analysis in the EA. The affected environment under each of the impact topics identified is presented in Section 4. An analysis of the impacts on these resources from each alternative is evaluated in Section 5.

#### At a Glance: Issues addressed

Visual/Scenic Resources  
Archeological Resources  
Cultural Landscapes  
Water Resources and Wetlands  
Threatened, Endangered, or Special Concern Species  
Vegetation and Wildlife  
Visitor Experience

### **2.1.1 Visual resources**

Preservation of the natural and scenic values of the Cuyahoga River and adjacent lands is central to CVNP's legislative mandate and the mission of the Metro Parks, Serving Summit County.

Brandywine Falls is a unique geologic feature that adds to the natural park setting. The visual appearance of the Brandywine Falls area remains very important to the natural resources of the park. Brandywine Falls is a unique geologic feature that attracts interesting observable wildlife and provides habitat for a variety of species of plants and animals. The area is also important as a nature viewing area from a recreational perspective.

### **2.1.2 Archeological Resources**

Sections 106 and 110 of the National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.) require the consideration of impacts on cultural resources. In addition, the NPS *Cultural Resource Management Guidelines* (Director's Order 28) and *NPS Management Policies* (2006) require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places.

In general, most archeological survey work at CVNP occurs in conjunction with projects that require ground disturbance. The planning process in relation to these projects typically provides for archeological inventory work to be completed prior to the actual ground disturbing activity. This inventory work is the initial step taken to provide data about the location of resources and the level of significance. In turn, potential impacts on archeological resources are reduced through measures such as site avoidance, project redesign, or other site protection measures. Currently, the only long-term archeological monitoring occurs in relation to actively cultivated farm fields where the fields are inventoried annually to compare and record findings over time.

Consideration of archaeological resources is critically important and some aspects of this proposed project will include significant ground disturbance, which can, in turn, impact buried artifacts and resources. In addition, prehistoric archaeological resources could be affected by the proposed project, although the area is not as well known for prehistoric resources.

### **2.1.3 Cultural Landscapes**

Sections 106 and 110 of the National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.) require the consideration of impacts on cultural resources. In addition, the NPS *Cultural Resource Management Guidelines* (Director's Order 28) and *NPS Management Policies* (2006) require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places.

According to the *NPS Management Policies* (NPS 2006) and *Cultural Resource Management Guidelines* (NPS 1997), all cultural landscapes are to be managed as cultural resources regardless of the type or level of significance. Management actions are to focus on preserving the physical attributes, biotic systems, and uses of a landscape as they contribute to historic significance.

There are numerous properties within the greater project area that are maintained by the CVNP to preserve the rural and agrarian character of the area.

### **2.1.4 Water Resources and Wetlands**

National Park Service Management Policies (NPS, 2006) state that the NPS will "perpetuate surface waters and groundwaters as integral components of park aquatic and terrestrial ecosystems" and will "manage watersheds as complete hydrological systems and minimize human-caused disturbance to the natural upland processes that deliver water, sediment and woody debris to streams." NPS Management Policies and Executive Order 11990 "Protection of Wetlands" also direct the NPS to minimize and mitigate the destruction, loss, or degradation of wetlands; preserve, enhance, and restore the natural and beneficial values of wetlands; and

avoid direct and indirect support of new construction in wetlands unless there are no practicable alternatives and the proposed action includes all practicable measures to minimize harm to wetlands.

The action alternatives involve the re-alignment of a Bike and Hike Trail and expansion of an existing parking lot, both of which could impact the quality and quantity of water resources. There are a number of streams and wetlands within the project area that could be adversely affected by the construction of the proposed project.

The U.S. Environmental Protection Agency (US EPA) has developed national recommended ambient water quality criteria for approximately 120 priority pollutants for the protection of both aquatic life and human health (through ingestion of fish/shellfish or water) (US EPA, 1999a). The Phase II storm water regulations refer to storm water discharge associated with construction that must comply with the rules and regulations of the Ohio Environmental Protection Agency (Ohio EPA)'s recent issuance of the National Pollutant Discharge Elimination System (NPDES) General Permit. The permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. Permitting for construction in Summit County also requires adherence to the Summit County Riparian Setback Ordinance 2002-154. This ordinance calls for development setbacks from streams in order to protect riparian areas. Using the 'normal high water levels' of the affected streams, the setbacks are graduated to account for the grade of the watercourse and the extent of its watershed. The Metro Parks will be required to meet these requirements in order to secure necessary construction permits. The NPS has adopted similar set-back requirements for both streams (NPS, 2002a) and wetland resources (NPS, 2002b).

### **2.1.5 Threatened, Endangered, or Special Concern Species**

The Endangered Species Act of 1973, as amended, requires federal land managers to consider the effects their planned activities may have on species listed as endangered or threatened. In response to the Scoping Letter, the U.S. Fish and Wildlife Service indicated concern for the federally endangered Indiana Bat (*Myotis sodalist*), the federally threatened northern monkshood (*Aconitum noveboracense*), and the federally protected bald eagle (*Haliaeetus leucocephalus*). Bald eagle is delisted but still federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. It is also a state endangered species.

The federally-endangered Indiana bat was recently found in the park as were nesting bald eagles. The park contains an abundance of apparently suitable roosting tree habitat for Indiana bat and suitable habitat is found within the confines of this project area. The deep ravines of the Brandywine Gorge provide suitable habitat for northern monkshood. Habitat for nesting bald eagles is less likely.

In addition to federally listed species, CVNP and Metro Park biologists coordinated with counterparts at the Ohio Department of Natural Resources Division of Natural Areas and Preserves to determine if any state listed species might be within the general confines of the study area and to determine if any impacts might occur to these species as a result of any proposed alternatives being constructed.

Two species were noted to be within, or near, the confines of the study area. Lesser ladies tresses (*Spiranthes ovalis*) and fringed gentian (*Gentianopsis crinita*) were noted from historical records. Both species are listed as potentially threatened by the State of Ohio. Metro Park biologists spent several days locating historical records and searching for additional locations for these, and other, rare, threatened, endangered, or regionally unique species of plants and/or wildlife.

### **2.1.6 Vegetation and Wildlife**

Impacts on vegetation and wildlife may be expected from any construction project. Several of the alternatives for this proposed project cross into undeveloped natural areas with potential impacts to natural plants communities and wildlife habitat.

### **2.1.7 Visitor Experience**

The Management Policies (NPS 2006) state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the National Park Service is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks.

Visitors come to both the Metro Parks, Serving Summit County and the CVNP to use and experience the parks in many different ways, but these translate into what they come to "see" and "do." These park resources can be divided into two main categories: scenic values and recreational activities. Annual Visitor Use Surveys conducted by the NPS provide information about the multitude of reasons why visitors come to CVNP, which include various types of recreational activities, educational programs, and relaxing and enjoying nature.

Walking, running, biking, and hiking on the Ohio & Erie Canal Towpath Trail is very popular. Indeed, the Towpath Trail is probably the most significant recreational resource in the park. When the towpath reconstruction was complete in 1993, park visitation increased by 1 million visitors that year alone (Schleicher et al. 1994). More than 100 miles of other trails traverse the CVNP landscape. Visitors hike, run, and cross-country ski along many of these trails, but many enjoy exploring the park by going "off-trail." The desire to get "off the beaten path," as well as the need to do scientific research, often draws people away from developed trails.

Many visitors come to observe the abundant wildlife and unique geologic features. Wildlife species that are most often viewed by visitors are white-tailed deer, beaver, and great blue heron. A large beaver marsh with an active lodge is established as a public wildlife viewing area. Two large heron rookeries are present, one of which (at Bath Road) is established as a viewing area with interpretive signage. Wildlife-viewing visitors also include a large number of amateur birdwatchers. Brandywine Falls is a very popular geologic feature that draws numerous visitors seeking a dramatic and scenic natural area.

The major objective of the proposed project is to provide an entirely "off-road" trail for pedestrian and bicycle use. With the exception of the "No-Action Alternative", all options considered in this process would improve the visitor experience.

## **2.2 Issues and Impact Topics Identified and Considered But Not Addressed in this EA**

Some issues and impact topics were brought up in the scoping process because they were thought to be problematic, but after further consideration, were thought not to be worthy of an extended analysis. These issues and impact topics are therefore not considered further in this document.

Several resources do not exist on this property and, therefore, no further analysis was conducted. These included:

- Sole or Principal drinking water aquifers
- Prime Farmlands
- Indian Trust Resources
- National Natural Landmarks

- Nationwide Rivers Inventory Status
- Ecologically Significant or Critical Areas
- Historic Structures

### **2.2.1 Invasive Species**

EO 13112 requires that federal agencies act to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Less than ten plant species known to be in CVNP are considered invasive. Invasive species are already present throughout most of the proposed study area. The location and extent of ground disturbance expected by the proposed project will be very limited and temporary thereby greatly reducing any risk of an invasive exotic species outbreak.

### **2.2.2 Air Quality**

The 1963 Clean Air Act (42 USC 7401 et seq., as amended) requires federal land managers to have an affirmative responsibility to protect a park's air quality from adverse air pollution impacts. The construction alternatives would involve the use of construction equipment that would result in emissions. However, any such emissions would be localized, temporary and inconsequential to the park's air quality.

### **2.2.3 Historic Structures/Buildings**

The National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.) and the NPS *Cultural Resource Management Guidelines* (NPS 1997) and Policies (Director's Order 28) require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places. No historic structures will be impacted by any of the proposed alternatives.

### **2.2.4 Soundscapes**

*NPS Management Policies* (NPS 2006) state that the parks will strive to preserve the natural quiet and the natural sounds associated with the physical and biological resources for the parks. Activities which cause excessive or unnecessary unnatural sounds in and adjacent to parks should be minimized so as not to adversely affect park resources, values, or visitor's enjoyment of them.

Only a short-term increase in unnatural sounds is expected during the installation of the trail and expanded parking lot. Any continuing changes to the level of unnatural sound in the national park are expected to be temporary, localized and insignificant.

### **2.2.5 Energy resources**

There will be temporary use of energy resulting from any of the 'construction' alternatives. However, these impacts are considered negligible and will not be discussed further.

### **2.2.6 Geologic Resources**

NPS regulations and NPS Management Policies provide guidance on geologic resources and processes. There are no geologic resources or processes involved with the action. Brandywine Gorge is a significant geological resource within the confines of the project area but will not be impacted by any of the proposed alternatives.

### **2.2.7 Ethnographic Resources**

NEPA requires the consideration of possible conflicts between the proposal and land use plans, policies or controls for cultural groups including Indian Tribes. Archaeological surveys conducted by the Metro Parks indicated no concerns regarding impacts to ethnographic resources. Native American Tribes were scoped during the NEPA process and solicited for feedback. Their responses are included in Appendix D of this document.

### **2.2.8 Economic factors**

NEPA requires that not only cultural and natural factors be analyzed but also the “human environment” which includes economics. This may also include land use (occupancy, income, values, ownership and type of use) and socioeconomics (employment, occupation, income changes, tax base, infrastructures, etc.). There could be minor employment and business improvements in the surrounding area from the construction of all but the “no build” alternative. However, these improvements are considered negligible and will not be discussed further.

### **2.2.9 Environmental Justice**

Executive Order 12898, Environmental Justice in Minority and Low-Income Populations directs federal agencies to assess whether their actions have disproportionately high and adverse human health or environmental effects on minority and low-income populations. There are no identifiable minority or low-income populations within CVNP or influenced by CVNP. It is therefore concluded that the actions of CVNP will have no disproportionately high and adverse human health or environmental effects on minority and low-income populations.

### 3 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. They 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.

Appendix E of this document shows an overview map of the project area with each alternative identified. Appendix F depicts land ownership in the project area. In addition, Appendix G includes a summary of ecological survey work and series of environmental summary maps that also illustrate each alternative in relation to a variety of environmental constraints.

#### 3.1 Alternative 1 - No Action Alternative

The CEQ has specified that one of the alternatives must be the “no action” alternative for two reasons. One is that it is almost always a viable choice in the range of alternatives, and the other is that it sets a baseline of existing impact that may be projected into the future against which to compare impacts of action alternatives.

Under the No Action Alternative, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road.

#### 3.2 Alternative 2 (Preferred Alternative)

Alternative 2 has been identified as the Preferred Alternative. Under Alternative 2, the rerouted Bike and Hike Trail would be constructed adjacent to Brandywine Road, cross over I-271 (via a pedestrian bridge). Once north of I-271, the trail turns westward, paralleling the south side of Stanford Road then skirting the south side of the existing parking lot that serves the Brandywine Falls overlook to the existing parking facility, then cross over Brandywine Creek using an existing bridge. From here, the new alignment would jog to the west around The Inn at Brandywine Falls before turning back to Brandywine Road.

The existing parking area at Brandywine Falls is designed for one-directional traffic, west to east, with an entrance off the south side of Stanford Road near the beginning of the boardwalk structure and an exit returning to Stanford Road about 400 feet to the east. There are two main parking bays connected end-to-end, one with 10 angled spaces to the left and 9 angled spaces to the right, and the second with 7 angled spaces on each side.

A small area for overflow parking (roughly 10 cars) is provided on occasion on the remnant of Stanford Road that is accessed off Brandywine Road north of Brandywine Creek and near The Inn at Brandywine Falls. Alternative 2 would route the trail through this overflow parking area, requiring its elimination. CVNP has indicated that it will not support these options without first expanding the primary parking area, especially since the opportunity to access the Bike and Hike Trail off-road will probably draw more people to park there.

The August 1989 plans for the parking area show a future 38-space parking bay roughly parallel and south of the existing parking lots, and a second 37-space parking bay further south, connected with a common future 20-foot drive to the exit side of the existing bays. At a minimum, Alternative 2 would expand the existing parking facility by 38 spaces.

### **3.3 Alternative 3 – Bridge over Brandywine Valley**

Alternative 3 connects the existing Hike and Bike Trail at Brandywine Road at the southern end of the study area and crosses Brandywine Road by use of a three sided box culvert, to follow the former railroad alignment. The trail would then proceed to the north, crossing Twinsburg Road on a proposed bridge then requires another proposed bridge that would span the Brandywine Creek Valley using the historic railroad bridge alignment. After crossing the valley, the trail continues through the original rail corridor to the north, crosses Brandywine Road and ties into the existing Hike and Bike Trail.

A bridge connecting the two old railroad abutments would be approximately 925 feet long. The height of the bridge deck to the ground below would be roughly as follows:

to northbound lane of 271:	57 feet
to southbound lane of 271:	72 feet
to Brandywine Creek:	100 feet

Width of bridge deck would range from 10-14 feet wide depending on funding source.

### **3.4 Alternative 4 – Pastoral Route**

Alternative 4 connects with the existing Hike and Bike Trail at Brandywine Road at the southern end of the study area. The trail is aligned atop the bank adjacent to the roadway, through private property west of, and parallel to Brandywine Road. This option continues for approximately 750 feet and then turns south into a proposed tunnel through the Carriage Trade Farm. Upon exiting the tunnel, the trail meanders through the wooded edge of the farm, passing over a ravine before reaching the top of the cut slope of I-271. Specialized construction, possibly retaining walls will be required to allow passage of the trail through the ravine. I-271 would be crossed using a proposed pedestrian bridge. Once north of I-271, the trail turns eastward, towards the existing NPS parking lot that serves the Brandywine Falls overlook. A future expansion of this parking lot is envisioned by the CVNP and would be undertaken by Metro Parks, Serving Summit County should this alternative be selected. Once past the parking bays, the trail connects to the existing paved walkway near the restroom facility, crossing Stanford Road to the north. From here, Alternative 4 crosses Brandywine Road where it meanders through a variety of natural habitat types to the original railroad corridor in the vicinity of the abutment of the now missing railroad bridge. From this point the trail follows the existing railroad grade, crosses Brandywine Road and connects with the existing Hike and Bike Trail.

The existing parking area at Brandywine Falls is designed for one-directional traffic, west to east, with an entrance off the south side of Stanford Road near the beginning of the boardwalk structure and an exit returning to Stanford Road about 400 feet to the east. There are two main parking bays connected end-to-end, one with 10 angled spaces to the left and 9 angled spaces to the right, and the second with 7 angled spaces on each side.

A small area for overflow parking (roughly 10 cars) is provided on occasion on the remnant of Stanford Road that is accessed off Brandywine Road north of Brandywine Creek and near The Inn at Brandywine Falls. Alternative 4 would route the trail through this overflow parking area, requiring its elimination. CVNP has indicated that it will not support these options without first expanding the primary parking area, especially since the opportunity to access the Bike and Hike Trail off-road will probably draw more people to park there.



The August 1989 plans for the parking area show a future 38-space parking bay roughly parallel and south of the existing parking lots, and a second 37-space parking bay further south, connected with a common future 20-foot drive to the exit side of the existing bays. At a minimum, Alternative 4 would construct expand the existing parking facility by 38 spaces.

### 3.5 Alternatives Considered But Rejected

Early in the planning stages, other alignment alternatives to the west of Brandywine Road were considered but were abandoned when preliminary ecological screening revealed that the impacts to wetland and other natural resources would be significant. Rather than evaluate innumerable alignments, routes that crossed into these areas but minimized these known impacts were evaluated in Alternatives 2 and 4.

### 3.6 Environmentally Preferable Alternative

As stated in Section 2.7.D of Director's Order #12 Handbook (NPS 2001), the environmentally preferred alternative is the alternative that would promote environmental policy as expressed in the National Environmental Policy Act (NEPA) Section 101 (b). The following table summarizes the impacts of each alternative in relation to the environmental issues considered in this document:

Table 1: Summary of Environmental Impacts

Issue	Alternative 1 (No Action) (Environmentally Preferable Alternative)	Alternative 2 (Preferred Alternative)	Alternative 3 (Bridge over Brandywine Valley)	Alternative 4 (Pastoral Route)
Visual/Scenic Resources	None	Negligible	Negligible	Long-term Major Adverse
Archaeological Resources	None	None	None	Long-term Major Adverse and Indirect Long-term Moderate Adverse
Cultural Landscapes	None	Long-term Minor Adverse	Negligible	Long-term Moderate Adverse
Water Resources and Wetlands	None	Negligible	Short-term Moderate Adverse	Long-term Moderate Adverse and Indirect Short-term Moderate Adverse
Threatened, Endangered, or Special Concern Species	None	Negligible	Long-term minor adverse	Long-term minor adverse
Vegetation and Wildlife	None	Negligible	Long-term Moderate Adverse	Long-term Major Adverse
Visitor Experience	Long-term Moderate Adverse	Long-term Moderate Beneficial	Long-term Moderate Adverse	Long-term Moderate Beneficial

The following is an evaluation of the alternatives weighed against the six criteria listed in Section 101 of NEPA:

**Criterion 1:** Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

The no-action alternative (Alternative 1) best protects resources, as no impacts are expected. Of the action alternatives, Alternative 2 results in the least intrusion into natural areas and minimizes environmental impacts.

**Criterion 2:** Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.

The no-action alternative (Alternative 1) results in the least safe environment for humans as the trail would remain on-road. The action alternatives all afford the same safety and similar levels of enjoyment to trail users.

**Criterion 3:** Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, for other undesirable and unintended consequences.

The no-action alternative (Alternative 1) best protects resources, as no impacts are expected, but also maintains higher risks to health and safety for trail users outside the park. The action alternatives all address this safety concern. Of the action alternatives, Alternative 2 results in the least intrusion into natural areas and minimizes environmental impacts while still allowing visitors to better appreciate the natural and cultural amenities of the area.

**Criterion 4:** 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.

The no-action alternative (Alternative 1) best protects resources, as no impacts are expected. Of the action alternatives, Alternative 2 results in the least impact on natural resources and Alternative 3 does not impact the cultural resources of the area.

**Criterion 5:** Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.

The no-action alternative (Alternative 1) best protects resources, as no impacts are expected. Of the action alternatives, Alternative 2 results in the least intrusion into natural areas and minimizes environmental impacts. Alternative 2 also improves the quality of life for park patrons as it provides a safe, off-road alternative to sharing a busy road with motor vehicles while best preserving the natural and cultural resources of the area.

**Criterion 6:** Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The no-action alternative (Alternative 1) best protects all resources, as no impacts are expected. The action alternatives all have negligible effects on renewable resources.

The studies and analysis performed for this project indicate that Alternative 1 (No Action Alternative) is the Environmentally Preferable Alternative as it has no effects on park cultural, natural or scenic resources.

## 4 Affected Environment and Consequences

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 less than one year, or long-term, lasting more than one year?), 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 (Alternative 1, 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 intensive field investigations, existing literature, federal and state standards, and consultation with subject matter experts and appropriate agencies.

For the purposes of analysis, the following assumptions are used for all impact topics:

<i>Short-term impacts:</i>	Those impacts occurring in the immediate future (usually 1 to 6 months).
<i>Long-term impacts:</i>	Those impacts lasting from 6 month through the next 10 years.
<i>Direct impacts:</i>	Those impacts occurring from the direct use or influence of the alternative
<i>Indirect impacts:</i>	Those impacts occurring from (activity) that indirectly alter a resource or condition. Indirect impacts are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems.
<i>Study Area:</i>	Each resource impact is assessed in direct relationship to those resources affected both inside and outside the park, to the extent that the impacts can be substantially traced, linked, or connected to the alternatives. Each impact topic, therefore, has a study area relative to the resource being assessed, and it is further defined in the impact methodology.

### Cumulative Impact

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 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 CVNP and, if applicable, the surrounding region.

Past actions that have affected the project area include farming, construction of a mill, the construction of roads and bridges over Brandywine Creek, and the construction of a rail-road bridge over the Brandywine Valley. All of these activities detracted from the natural environment and resulted in an overall loss of biodiversity from the region. Farming and agriculture in the later part of the last century has been cited as a major factor in the elimination of many top-level predators from our area (bear, wolves, mountain lion). The fragmentation of our forest resources has also been cited as having cumulative impacts on other species of wildlife such as neotropical nesting birds. However, while these activities certainly had a past negative impact on native wildlife, they also created a cultural landscape that is valued and maintained by the CVNP. Past land-use changes have impacted water resources and wetlands, threatened, endangered, and special species, and vegetation and wildlife cumulatively, but the construction of this trail does not contribute significantly to these cumulative effects.

While past cumulative effects are apparent, there are no cumulative effects identified with the construction of this proposed trail for most alternatives. There are no reasonably foreseeable future actions that would add to the impacts already noted.

### **Impairment Analysis**

The NPS *Management Policies* (NPS 2006) require an analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, as 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 to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the 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 the NPS the management discretion to allow certain impacts within a park system unit, that discretion is limited by the statutory requirement that the agency 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.

An impact to any park resource or value may constitute impairment, but an impact would be more likely to constitute impairment to the extent that it has a major or severe adverse effect upon 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 enjoyment opportunities of the park; or

Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park.

The following process was used to determine whether the alternatives had the potential to impair park resources and values:

1. CVNP's enabling legislation, the *General Management Plan*, the *Strategic Plan*, and other relevant background were reviewed with regard to CVNP's purpose and significance, resource values, and resource management goals or desired future conditions.
2. Management objectives specific to resource protection goals at CVNP were identified.
3. Thresholds were established for each resource of concern to determine the context, intensity and duration of impacts, as defined above.
4. An analysis was conducted to determine if the magnitude of impact reached the level of "impairment," as defined by NPS *Management Policies* (NPS 2006).

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

## 4.1 Impacts on Visual Resources

### 4.1.1 Impacts on Scenic Values

#### 4.1.1.1 Regulations and Policies

CVNP was created by Congress in 1974 as Cuyahoga Valley National Recreation Area for the purpose of "preserving and protecting for public use and enjoyment, the historic, **scenic**, natural, and recreational values" of the Cuyahoga Valley (Public Law 93-555, 1974). Preservation of the natural and scenic values of the Cuyahoga River valley and adjacent lands is central to CVNP's legislative mandate.

#### 4.1.1.2 Affected Environment

CVNP is composed of a largely forested landscape bisected by the Cuyahoga River, interspersed with old fields, agriculture, and historic buildings and features. The abundant scenic resources of the park, within an hour's drive of three cities (Cleveland, Akron and Canton) containing about 4 million people, make it an attractive destination, as well as a respite from the bustle of city life. Visitors perceive the park to be more remote than it is, probably due to the strong contrast with adjacent developed areas (Schleicher et al. 1994). Evidence of the long history of use by humans is contrasted by the large swaths of what appear to be more natural areas. Scenic views and vistas from either side of the valley reveal patterns of nature and of humans. Visitors also enjoy parts of the park because of what they do *not* see there - industry, signs, light pollution.

Visitors and passers-by can enjoy this landscape from the many roads and highways and more than 100 miles of trails that cross the park. Sight-seeing and pleasure driving are among the most popular activities in CVNP (Anderson et al. 1992). The scenic Cuyahoga River flows through the center of the entire 22-mile length of the park and is fed by many smaller, attractive tributaries. Riverview Road, which is designated on the state and national level as a Scenic Byway, also runs through the entire length of the park.

The natural appearance of the Brandywine Falls area remains very important to the natural resources of the park. Brandywine Falls is a unique geologic feature that attracts interesting observable wildlife and provides habitat for a variety of species of plants and animals.

#### 4.1.1.3 Methodology

In this environmental assessment, impacts to scenic values are described in terms of type, context, duration, and intensity, which is consistent with the CEQ regulations. These impact analyses are intended to comply with the requirements of the National Environmental Policy Act.

Impacts to scenic values were identified and evaluated by (1) determining the area of potential effects; (2) identifying existing scenic values present in the area of potential effects; (3) applying how the action affects the visual resource; and (4) considering ways to avoid, minimize, or mitigate impacts to scenic values. CEQ regulations and DO #12 also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g. reducing the intensity of an impact from major to moderate or minor).

For purposes of analyzing potential impacts to scenic values, the thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** Impact(s) is at the lowest levels of detection - barely perceptible and not measurable.
- Minor:** **Adverse impact(s)** would nominally affect a small number of the scenic features/resources of the site.
- Beneficial impacts** would include restoration of some of the existing scenic resources of the site through the removal of incompatible elements or improvement of site features.
- Moderate:** **Adverse impact(s)** would negatively impact numerous scenic features/resources of the site through the removal or change of contributing features or the introduction of incompatible elements. The nature and extent of impacts diminish the scenic values of the site, but do not impact the overall values of the larger study area.
- Beneficial impacts** would include the restoration of some scenic features and the protection of all scenic resources of the site.
- Major:** **Adverse impact** - impact(s) would alter major scenic features/resources of the site through the removal or change of contributing features or the introduction of incompatible elements. The nature and extent of impacts are sufficient to diminish the scenic values of the larger study area.

#### 4.1.1.4 Alternative 1 - No Action

Direct Impacts – Under Alternative 1, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road. It is expected that, without an off-road trail, visitor experience would continue to suffer from shared use with vehicle traffic and extremely steep grade.

No direct impacts are expected with Alternative 1.

Indirect Impacts – No indirect visual impacts are expected under Alternative 1.

Cumulative Impacts – No cumulative impacts are expected under Alternative 1.

Conclusion – Under this alternative, no impacts on scenic values of the property would occur. There will be no impairment to park scenic values under this alternative.

#### **4.1.1.5 Alternative 2 – Preferred Alternative**

Direct Impacts – For most of its length, Alternative 2 follows the existing Brandywine Road. The road, and road right-of-way, is already a transportation corridor for motorized vehicles and bicycles. The construction of a bike path adjacent to the existing road is consistent with the existing use of this area as a transportation route and would not result in a direct impact to the visual resources of the area.

After crossing Brandywine Creek, Alternative 2 jogs behind The Inn at Brandywine Falls; one of the three major visual resources of the area.

In this area, the proposed trail was located to closely follow the existing woodline and quickly move behind the inn. Furthermore, at this location, the trail will be constructed of crushed limestone to more closely mimic a pastoral setting. Any impacts to the visual resource associated with this alternative are expected to be negligible.

Indirect Impacts – No indirect impacts have been identified.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – Under this alternative, negligible impacts on scenic values of the property would occur. There will be no impairment to park scenic values under this alternative.

#### **4.1.1.6 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – Construction of Alternative 3 would result large bridge spanning the Brandywine Valley. To some, this would be viewed as an adverse impact. However, others might equally consider it beneficial as it would somewhat restore a prominent feature from a historical time period. Direct impacts are thus negligible.

Indirect Impacts – No indirect impacts have been identified.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – Any impacts associated with this alternative are considered negligible. There will be no impairment to park scenic values under this alternative.

#### **4.1.1.7 Alternative 4 – Pastoral Route**

Direct Impacts – Construction of Alternative 4 would result in a long-term major adverse impact to the visual nature of the area. Over 900-feet of agricultural fields would be bisected by the construction of a bike and hike trail. The pastoral landscape is a major element contributing to the cultural and aesthetic value of this area and would be permanently damaged by the construction of this alternative.

Indirect Impacts – No indirect visual impacts have been identified. However, Wade Johnson, owner of the Carriage Trade Farm has commented that the construction of this alternative would have negative impacts on his ability to operate his business.

Cumulative Impacts – No cumulative impacts have been identified..

Conclusion – Alternative 4 would result in a long-term major adverse impact to the visual and aesthetic quality of the area. However, there will be no impairment to park scenic values under this alternative.

## 4.2 Impacts on Cultural Resources

As stated in the *NPS Cultural Resource Management Guideline* (NPS 1997), cultural resources are “. . . the material evidence of past human activities. Finite and nonrenewable, these tangible resources begin to deteriorate almost from the moment of their creation. Once gone, they cannot be recovered.” Thus, it is imperative that “park management activities reflect awareness of the irreplaceable nature of these material resources.” If these resources “are degraded or lost, so is the parks’ reason for being.” The main cultural resources of CVNP can be categorized as archeological resources, historic structures and cultural landscape.

Cultural resources at CVNP have been categorized into six primary cultural themes: prehistoric and indigenous cultures, agriculture, transportation, settlement, recreation, and industry (NPS 1987). These cultural themes identify a resource by its primary historical significance. However, resources often exhibit overlapping cultural themes as their uses and associations have changed through time. Thus, the cultural resources of CVNP exhibit layers of cultural history that are interwoven.

### 4.2.1 Impacts on Archeological Resources

#### 4.2.1.1 Regulations and Policies

Archeological resources will be managed in situ, unless the removal of artifacts or physical disturbance is justified by research, consultation, preservation, protection, or interpretive requirements. Preservation treatments will include proactive measures that protect resources from vandalism and looting, and maintain or improve their condition by limiting damage due to natural and human agents. Data recovery actions will be taken only in the context of planning, consultation, and appropriate decision- making. Preservation treatments and data recovery activities will be conducted within the scope of an approved research design. Archeological research will use non- destructive methods of testing and analysis wherever possible. The Park Service will incorporate information about archeological resources into interpretive and educational, and preservation, programs. Artifacts and specimens recovered from archeological resources, along with associated records and reports, will be maintained together in the park museum collection.

*(Also see 36 CFR Part 79; Secretary of the Interior’s Standards and Guidelines for Archeological Documentation [48 FR 44734- 737]; Museum Handbook)*

#### 4.2.1.2 Affected Environment

Archeological resources are distributed throughout CVNP. More than half (51%) of the park has been archeologically surveyed. A total of 289 archeological sites have been recorded including prehistoric and historic sites. Five archeological sites are listed on the National Register of Historic Places. In general, most archeological survey work at CVNP occurs in conjunction with projects that require ground disturbance. The planning process in relation to these projects typically provides for archeological inventory work to be completed prior to the actual ground disturbing activity. This inventory work is the initial step taken to provide data about the location of resources and the level of significance. In turn, potential impacts on archeological resources are reduced through measures such as site avoidance, project redesign, or other site protection measures. Currently, the only long-term archeological monitoring occurs in relation to actively cultivated farm fields where the fields are inventoried annually to compare and record findings over time.

The project area supports a number of culturally significant features. As part of our due diligence, Metro Parks funded a cultural resource inventory of the greater study area with emphasis on



determining potential impacts associated with each proposed alternative. A report from the University of Akron is presented in Appendix H of this document.

#### 4.2.1.3 Methodology

The analysis of impacts on the archeological resources is a qualitative assessment based on a review of existing NPS and park policies on the protection of archeological sites, existing park data on archeological resources, and consultation with resources specialists (regional archaeologists and the park's Section 106 coordinator).

Potential impacts on archeological resources may occur from any undertaking that includes any project, activity, or program that can result in changes in ground disturbance. Protecting and preserving the archeological sites of the park is one of the principal goals for cultural resource protection. Thus, the one of the primary goals in this EA is to protect these resources.

In this environmental assessment, impacts to archeological resources are described in terms of type, context, duration, and intensity, which is consistent with the CEQ regulations. These impact analyses are intended to comply with the requirements of the National Environmental Policy Act.

Impacts to archeological resources were identified and evaluated by (1) determining the area of potential effects; (2) identifying resources present in the area of potential effects (3) applying how the action affects the resource; and (4) considering ways to avoid, minimize, or mitigate adverse effects. CEQ regulations and DO #12 also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g. reducing the intensity of an impact from major to moderate or minor).

For purposes of analyzing potential impacts to archeological resources, the thresholds of change for the intensity of an impact are defined as follows:

**Negligible:** Impact(s) is at the lowest levels of detection - barely perceptible and not measurable.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Minor:** **Adverse impact** - impact(s) to archeological resources would be shallow and small in their extent and would not affect the integrity this National Register of Historic Places eligible site.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Beneficial impact** – preservation of some archeological features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Moderate:** **Adverse impact** – impact(s) to the site could be deeper but small in extent or be shallow over a wider extent. Extent of disturbance could jeopardize the site's eligibility for listing onto the National Register of Historic Places.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Beneficial impact** – preservation of most archeological features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Major:** **Adverse impact** – impact(s) to the site would be extensive both in extent and depth. The level of impact would be significant enough to render the site ineligible for listing onto the National Register of Historic Places.

*For purposes of Section 106, the determination of effect would be an adverse effect.*

**Beneficial impact** – preservation of all archeological features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Impairment** – Some of the major adverse impacts described above might be impairment of the park resource if severity, duration, and timing resulted in the permanent elimination of the resource.

#### **4.2.1.4 State Historic Preservation Office Review**

The State of Ohio Historic Preservation Office provided early comments in March of 2007. The National Park Service further coordinated the project with the State of Ohio Historic Preservation Office. The State of Ohio Historic Preservation Office, the CVNP, and the Metro Parks, Serving Summit County prefer Alternative 2 pending the inclusion of mitigative techniques described below.

#### **4.2.1.5 Alternative 1 - No Action**

Direct Impacts – Under Alternative 1, the park would maintain the status quo of the study area and no impacts would occur.

Indirect Impacts – Under the No Action alternative, no indirect impacts are expected.

Cumulative Impacts – Under Alternative 1, no cumulative impacts are expected.

Conclusion – Under the No Action alternative, no impacts to archeological resources is expected. Therefore, no impairment of park resources is expected to result under selection of this alternative.

#### **4.2.1.6 Alternative 2 – Preferred Alternative**

Direct Impacts – Under Alternative 2, a small portion of the proposed trail would cross the Wallace Site National Register Boundary. Field investigations indicate that there are no archaeological artifacts within the confines of this corridor. The trail will be sensitively designed and located and paving surfaces softened so that it is more compatible to the surrounding landscape.

No direct impacts to archaeological resources are anticipated with the construction of Alternative 2.

Indirect Impacts – No indirect impacts have been identified.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – No impacts to archaeological resources are anticipated with the construction of Alternative 2. There will be no impairment to park archaeological resources under this alternative.

#### **4.2.1.7 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – There are no archaeological resources within the vicinity of Alternative 3. No archaeological resources would be impacted as part of Alternative 3.

Indirect Impacts – No indirect impacts have been identified.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – No impacts to archaeological resources are anticipated with the construction of Alternative 3. There will be no impairment to park archaeological resources under this alternative.

#### **4.2.1.8 Alternative 4 – Pastoral Route**

Direct Impacts – Under Alternative 4, the trail would pass directly through archaeological site 33 Su 446, the George Y. Wallace farmstead and store and the Brandywine Mills – Wallace Farm National Register Property. There is no possible way to divert the trail around the remnants of this resource as wetlands surround the area.

Alternative 4 would result in long-term major adverse impacts to the above mentioned archaeological resource as it would require partial destruction of the site and would jeopardize the site's eligibility for listing on the National Register of Historic Places.

Indirect Impacts – Site 33 Su 446 is currently not accessible by the public. Introduction of a public trail in this area would likely lead to indirect long-term moderately adverse impacts associated with vandalism.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – Alternative 4 would incur direct long-term major adverse as well as indirect long-term moderate adverse impacts to a significant archaeological resource. This alternative would not result in impairment to the park resource.

### **4.2.2 Impacts on Cultural Landscapes**

#### **4.2.2.1 Regulations and Policies**

As stated in the *NPS Cultural Resource Management Guideline* (NPS 1997), cultural resources are “. . . the material evidence of past human activities. Finite and nonrenewable, these tangible resources begin to deteriorate almost from the moment of their creation. Once gone, they cannot be recovered.” Thus, it is imperative that “park management activities reflect awareness of the irreplaceable nature of these material resources.” If these resources “are degraded or lost, so is the parks' reason for being.”

Specific standards and guidelines for the treatment of cultural resources are provided in The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating,

Restoring, and Reconstructing Historic Buildings, and Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes.

Additionally, *NPS Management Policies* (NPS 2006) and *Cultural Resource Management Guidelines* (NPS 1997), state that all cultural landscapes are to be managed as cultural resources regardless of the type or level of significance. Management actions are to focus on preserving the physical attributes, biotic systems, and uses of a landscape as they contribute to historic significance.

Other laws, regulations, and policies have general application for cultural resource management throughout the NPS. These include the Antiquities Act, the Historic Sites Act, the National Historic Preservation Act, the National Environmental Policy Act, the Archeological and Historic Preservation Act, the Archeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act (see Appendix B and Section 1.4 of this EA). Protection of cultural resources is also in accordance with Executive Order 11593, *Protection and Enhancement of the Cultural Environment*, 1971 (see Appendix B).

#### **4.2.2.2 Affected Environment**

Cultural landscapes are the least tangible of the cultural resources. According to NPS Management Policies (NPS 2006) and Cultural Resource Management Guidelines (NPS 1997), all cultural landscapes are to be managed as cultural resources regardless of the type or level of significance. Management actions are to focus on preserving the physical attributes, biotic systems, and uses of a landscape as they contribute to historic significance. Landscapes differ from other cultural resources as changes from both natural processes and human activities are inherent. 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.

There are a number of fields/features identified by the CVNP that are considered part of the cultural landscape. These resources are shown on the Cultural Resources Map that is presented as part of Appendix G. The Brandywine Mills/Wallace Farm NHP is a significant cultural landscape area as well as the noted archeological site. The fields around the Carriage Trade Farm are mowed and used for horse pasture which helps maintain the rural character of the area. In addition, there are a number of outbuildings and access roads that are also identified and add to the cultural richness of the site.

#### **4.2.2.3 Methodology**

The analysis of impacts on the cultural landscape is a qualitative assessment based on a review of existing park policies on the treatment of cultural landscapes, existing park data on cultural landscapes, and consultation with park cultural resources specialists (supervisory landscape architect/park section 106 coordinator, historical landscape architect and historian).

Potential impacts on the cultural landscape may occur from any undertaking that includes any project, activity, or program that can result in changes in the character or use. Protecting and preserving the historic character of the landscape is the principal goal for cultural landscape management. Thus, one of the goals of this EA is to preserve the cultural landscape by protecting the historic rural character of the landscape.

Impacts will be analyzed by comparing each alternative's ability to portray the historic rural character of the landscape. In general, the historic character of a landscape is defined by its function, visual quality, spatial organization, land use patterns, and character-defining features. In turn, it is assumed that the historic character of a landscape is more accurately portrayed when the greatest numbers of the above criteria are met.

In this environmental assessment, impacts to cultural landscapes are described in terms of type, context, duration, and intensity, which is consistent with the CEQ regulations. These impact analyses are intended to comply with the requirements of the National Environmental Policy Act.

Impacts to cultural landscapes were identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects (3) applying how the action affects the cultural resource; and (4) considering ways to avoid, minimize, or mitigate adverse effects. CEQ regulations and DO #12 also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g. reducing the intensity of an impact from major to moderate or minor).

For purposes of analyzing potential impacts to cultural landscapes, the thresholds of change for the intensity of an impact are defined as follows:

**Negligible:** Impact(s) is at the lowest levels of detection - barely perceptible and not measurable.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Minor:** **Adverse impact** - impact(s) would not affect the character defining patterns and features of a landscape contributing to the National Register of Historic Places.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Beneficial impact** – preservation of character defining patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Moderate:** **Adverse impact** - impact(s) would alter a character defining pattern(s) or feature(s) of the cultural landscape but would not diminish the integrity of this landscape contributing to the National Register Historic Places.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Beneficial impact** – rehabilitation of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Major:** **Adverse impact** - impact(s) would alter a character defining pattern(s) or feature(s) of the cultural landscape, diminishing the integrity of the landscape to the extent that it is no longer contributing feature to the National Register of Historic Places.

*For purposes of Section 106, the determination of effect would be an adverse effect.*

**Beneficial impact** – restoration of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*.

*For purposes of Section 106, the determination of effect would be no adverse effect.*

**Impairment** – Some of the major adverse impacts described above might be impairment of the park resource if severity, duration, and timing resulted in the permanent elimination of the resource.

#### **4.2.2.4 State Historic Preservation Office Review**

The State of Ohio Historic Preservation Office provided early comments in March of 2007. The National Park Service further coordinated the project with the State of Ohio Historic Preservation Office. Both agencies prefer Alternative 1 pending the inclusion of mitigative techniques described below.

#### **4.2.2.5 Alternative 1 - No Action**

Direct Impacts - Under the No Action Alternative, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road. It is expected that, without an off-road trail, visitor experience would continue to suffer from shared use with vehicle traffic and extremely steep grade. No direct impacts to cultural landscapes are anticipated as a result of the No Action Alternative.

Indirect Impacts – No indirect impacts are anticipated under the No Action Alternative.

Cumulative Impacts – No cumulative impacts are anticipated under the No Action Alternative.

Conclusion – No impacts are anticipated under the No Action Alternative. There will be no impairment to park cultural landscapes under this alternative.

#### **4.2.2.6 Alternative 2 – Preferred Alternative**

Direct Impacts – Under Alternative 2, a small portion of the proposed trail would cross the Wallace Site National Register Boundary. The trail will meander through the wooded area behind the Inn. Alternative 2 has been planned to incorporate into the cultural landscape of The Inn at Brandywine Falls. Construction methods will involve building elements that are modern but compatible to the surrounding landscape. The desire is that within the historic boundary of the Brandywine Mills/Wallace Farm NRHO Nomination, that the trail be more sensitively located and paving surface softened so that it is more compatible to the surrounding. Pending these mitigative techniques, direct impacts to the cultural landscape are anticipated to be long-term minor adverse.

Indirect Impacts – No indirect impacts are anticipated under this alternative.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – Pending the mitigative techniques described above, Alternative 2 would result in long-term minor adverse impacts to the cultural landscape. There will be no impairment to park cultural landscapes under this alternative.

#### **4.2.2.7 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – Under Alternative 3, a pedestrian and bicycle bridge will be constructed over the Brandywine Valley at a location where a historical railroad bridge once existed. This alternative would result in negligible impacts.

Indirect Impacts – No indirect impacts are anticipated under this alternative.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 3 would result in negligible impacts to the cultural landscape of the region. There will be no impairment to park cultural landscapes under this alternative.

#### **4.2.2.8 Alternative 4 – Pastoral Route**

Direct Impacts – Under Alternative 4, the re-routed Bike and Hike trail would traverse through agrarian fields utilized by the Carriage Trade Farm. Although these fields are not listed in the National Register of Historic Places, they are listed in the park's Cultural Landscape Reports as well as the Rural Landscape Management Program's Environmental Impact Statement as contributing to the park's cultural landscape. The proposed trail would severely bisect these fields and result in a long-term moderate adverse impact to the cultural landscape.

Indirect Impacts – Wade Johnson, owner of the Carriage Trade business, has indicated that this alternative would have adverse impacts on his ability to operate his business. Given the nature of this alternative, it is reasonable to assume long-term minor indirect impacts to the business of the Carriage Trade Farm.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 4 would result in long-term moderate adverse impacts to cultural landscapes and indirect impacts to the business of the Carriage Trade Farm. There will be no impairment to the park's cultural landscape under this alternative.

### **4.3 Impacts on Water Resources and Wetlands**

#### **4.3.1 Regulations and Policy**

Section 4.6.3 of the NPS Management Policies (NPS 2006) state that NPS will “take all necessary actions to maintain or restore the quality of surface waters and ground waters within parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations.” Simply stated, a water quality standard defines the water quality goals of a waterbody by designating uses to the water, by setting minimum criteria to protect the uses, and by preventing degradation of water quality through antidegradation provisions. The antidegradation policy is only one portion of a water quality standard. Part of this policy (40 CFR 131.12(a)(2)) strives to maintain water quality at existing levels if it is already better than the minimum criteria. Antidegradation should not be interpreted to mean that “no degradation” can occur, as even in the most pristine waters, degradation may be allowed for certain pollutants as long as it is temporary and short-term (NPS 2002c).

NPS Management Policies (NPS, 2006) direct CVNP to manage wetlands in compliance with the Clean Water Act, the Rivers and Harbors Appropriation Act of 1899, and Executive Order (EO) 11990 “Protection of Wetlands.” Director's Order #77-1: Wetland Protection and its associated Procedural Manual, establishes NPS policies, requirements and standards for implementing EO 11990. These documents direct the NPS to minimize and mitigate the destruction, loss, or

degradation of wetlands; preserve, enhance, and restore the natural and beneficial values of wetlands; and avoid direct and indirect support of new construction in wetlands unless there are no practicable alternatives and the proposed action includes all practicable measures to minimize harm to wetlands. Director's Order #77-1 states that the CVNP will use "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al., 1979) as the standard for defining, classifying, and inventorying wetlands.

NPS has implemented a Riparian Zone Buffer Plan for Proposed Agricultural Lands (NPS 2002a) and a Wetland Protection Plan for Proposed Agricultural Lands (NPS 2002b) in CVNP which outline protocols to explicitly prevent most direct and indirect river, stream and wetland impacts from NPS activities on agricultural lands through riparian and wetland identification, wetland delineation, wetland quality assessment, buffer zone establishment, and monitoring.

#### **4.3.2 Affected Environment**

More than 22 miles of the Cuyahoga River pass through CVNP. The river has been designated as an American Heritage river. The Cuyahoga River drains more than 800 square miles of Northeastern Ohio; only 6.5% of this drainage area is within CVNP. Valley walls and tributary ravines characterize the watershed with steep forested slopes rising 100 to 600 feet above the floodplain. According to topographical maps published by the U. S. Geological Survey, more than 20 perennial streams totaling over 200 miles in length exist within CVNP boundary. Some of the larger tributaries (e.g., Tinkers Creek and Furnace Run) drain areas larger than 50 square miles while most others range between 2-20 square miles. Additional unmapped ephemeral streams and headwaters also exist.

Water quality in the Cuyahoga River has been historically poor with ongoing major concerns relating to Akron's Waste Water Treatment Plant discharges, combined sewer overflows, faulty septic systems, increased urbanization and erosion (Ohio EPA 1999). Similar impacts affect water quality in park streams. Water quality, habitat quality, and macro invertebrate communities vary across park streams from good to poor (Stewart et al. 1998). In general, most park streams meet the warm water habitat standards set by the State of Ohio (Ohio EPA 1999). CVNP annually monitors nineteen streams for physical and chemical water quality characteristics.

Brandywine Creek is a tributary to the Cuyahoga River and the dominate aquatic feature within the confines of this study area. The stream drains approximately 26 square miles and is typical of urbanized streams in northeast Ohio. Designated as Warmwater Habitat by the Ohio EPA, the stream suffers from increased impervious surface. Although these impacts are real and growing, the stream still manages to maintain the biological and chemical criteria associated with its designation. By far, the most dramatic geological feature of Brandywine Creek is the 65-foot Brandywine Falls.

Many wetland areas exist in CVNP. A park-wide wetland inventory indicates that more than 1,200 wetland areas encompassing approximately 1,700 acres exist in CVNP (Davey Resource Group 2001). Most CVNP wetlands are small, with only 190 greater than an acre in size and only 35 greater than 10 acres in size. Additional small wetlands may yet remain undetected. Wetland types found in CVNP include marshes, wet meadows, scrub/shrub wetlands and forested wetlands. The largest wetlands are located within the Cuyahoga River floodplain and include emergent, shrub, and forested areas. Small emergent wetlands occurring in isolated depressions fed by surface water are most common. Small wetlands are also often found at the head of small, intermittent drainage ways, adjacent to ponds or as hillside seeps where groundwater flows out of a hillside. Many wetlands are partially or completely forested or include a shrub component. All ponds except one are human-made (i.e., artificial), with many originally created to serve as small farm ponds.



For due diligence, Metro Parks conducted a formal wetland study within the confines of the project areas. Utilizing respective protocols, federal/state wetlands were delineated throughout the study area and Cowardin (1979) wetlands were additionally delineated on NPS lands. These two types of wetlands have been conglomerated for evaluation purposes, which were performed using version 5.0 of the Ohio Rapid Assessment Method (ORAM) for wetlands (Mack 2001). Aquatic buffers were based on minimums provided by the CVNP. Streams were delineated according to federal guidelines and also buffered based on NPS guidelines (NPS 2002b).

#### **4.3.3 Methodology**

The analysis of impacts on water resources is based on a review of existing park natural resource data, formal field investigation performed by Metro Park wetland scientists, park planning documents, professional opinion, and scientific literature. As part of our due diligence, Metro Parks performed formal wetlands delineations and quality evaluations. Those data are presented in Appendix G of this document.

It was assumed that unless otherwise specified, protective buffers prescribed in CVNP's Riparian Buffer Plan for Proposed Agricultural Lands and the Wetland Protection Plan for Proposed Agricultural Lands would be implemented prior to action and that these buffers would effectively prevent most direct and indirect impacts to water resources. When buffers cannot be maintained due to the layout of the project area, impacts were assessed.

It was assumed that the management of stormwater and wastewater would follow Best Management Practices and only proceeds as permitted by the Ohio EPA and Summit County Engineer, and that these would reduce impacts to water quality and wetlands to below a negligible level unless such systems failed.

All impacts were considered both quantitatively and qualitatively in this analysis based on best professional judgment.

The following impact thresholds were established in order to describe the relative changes in water quality in rivers and streams (both overall, localized, short and long-term, cumulatively, adverse and beneficial) and effects on individual wetland values and functions under the management alternatives.

**Negligible:** Water quality: Impacts are chemical, physical, or biological effects that would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.

Wetlands: Situations where direct and indirect impacts would not be detectable (i.e., where planned activities are outside wetlands and their prescribed buffer areas).

**Minor:** Water quality: Impacts (chemical, physical, or biological effects) would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.

Wetlands: Temporary (short-term) disturbance of the wetland or its buffer or long-term disturbance of buffers that reduced effective buffer area by less than 25%.

**Moderate:** Water quality: Impacts (chemical, physical, or biological effects) would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis.

Wetlands: This classification is for long-term adverse impacts that would disturb less than 0.1 acres of wetland or long-term disturbance of buffers that reduced effective buffer area by 25-75%. The threshold of 0.1 acres was selected because this is the amount of adverse impact allowed where compensation may be waived if the loss of wetland functions is considered to be minimal (see Section 5.2.C of Procedural Manual #77-1).

**Major:** Water quality: Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be slightly and singularly exceeded on a short-term basis.

Wetlands: This classification is for long-term adverse impacts that would disturb more than 0.1 acres of wetland area or reduced effective buffer area by more than 75%, requiring mitigation of impacts.

**Impairment:** Water quality: Impacts are chemical, physical, or biological effects that would be detectable and that would be substantially and frequently altered from the historical baseline or desired water quality conditions and/or water quality standards, or criteria would be exceeded several times on a short-term and temporary basis. In addition, these adverse, major impacts to park resources and values would contribute to a deterioration of CVNP's water quality and aquatic resources to the extent that CVNP's purpose could not be fulfilled as established in its enabling legislation; affect resources key to CVNP's natural or cultural integrity or opportunities for enjoyment; or affect the resource whose conservation is identified as a goal in CVNP's general management plan or other park planning documents.

Wetlands: Long-term adverse impacts to special, unique wetland areas with high educational or scientific research value and/or potential.

#### **4.3.3.1 Alternative 1 - No Action**

Direct Impacts - Under the No Action Alternative, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road. It is expected that, without an off-road trail, visitor experience would continue to suffer from shared use with vehicle traffic and extremely steep grade. No direct impacts to water resources or wetlands are anticipated as a result of the No Action Alternative.

Indirect Impacts – No indirect impacts are anticipated under the No Action Alternative.

Cumulative Impacts – No cumulative impacts are anticipated under the No Action Alternative.

Conclusion – No impacts are anticipated under the No Action Alternative. There will be no impairment to park water resources or wetlands under this alternative.

#### **4.3.3.2 Alternative 2 – Preferred Alternative**

Direct Impacts – Under Alternative 2, a pedestrian and bicycle trail will be constructed along the berm of Brandywine Road, around The Inn at Brandywine Falls, and back onto the Brandywine Road. Approximately 0.059 acres of wetlands lie within this path. All wetlands within this alternative would be bridged with boardwalk and helical piers so no direct impacts would occur. The trail would move through areas designated as buffer but the disturbance to these buffers are below the threshold for consideration as even minor and are thus considered negligible.

Indirect Impacts – Although wetlands will not be filled, the boardwalk material may shade some plant species and slow or prevent growth. Normally these would be considered indirect impacts but since the total wetland area affected is less than 0.1-acres, these indirect impacts are considered negligible.

Cumulative Impacts – Past land-use changes have impacted wetlands and water resources cumulatively, but the construction of this trail does not contribute significantly to these cumulative effects.

No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 2 would result in negligible impacts to water resources or wetlands. There will be no impairment to park water resources or wetlands under this alternative.

#### **4.3.3.3 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – This alternative involves the construction of a new bridge at a location where a historic railroad bridge existed over the Brandywine Valley. This alternative would construct piers and structures in the riparian zone of Brandywine Creek and the construction of a temporary access road. However, the bridge could be planned so that piers would not be constructed within the ordinary high water mark of Brandywine Creek. The proximity of construction to the riparian zone of Brandywine Creek would result in short-term moderate adverse impacts commonly encountered at construction sites including soil erosion, siltation and sediment runoff. No wetlands would be impacted as a result of the construction of Alternative 3.

Indirect Impacts – As long as piers can be construction outside the ordinary high water mark, no indirect impacts are anticipated under this alternative.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 3 would result in short-term moderate adverse impacts to the water quality of Brandywine Creek. There will be no impairment to park water resources or wetlands under this alternative.

#### **4.3.3.4 Alternative 4 – Pastoral Route**

Direct Impacts – Under Alternative 4, the re-routed Bike and Hike trail would traverse through agrarian fields utilized by the Carriage Trade Farm and cross a steep ravine and headwater stream. This crossing would be made with a span bridge but would result in direct impacts to the steep slopes of the stream valley. Overall impacts are expected to be long-term moderately adverse as the stream edge and ordinary high water mark would both fall within the construction zone. In addition, approximately 0.007 acres of wetlands fall within the path of Alternative 4. These wetlands areas would be boardwalked to avoid direct impacts. Due to the small size of these wetlands, and avoidance of fill, impacts to these resources are considered negligible.

Indirect Impacts – Indirect impacts would be short-term moderately adverse and would result from typical construction activities including soil erosion, siltation and sedimentation. Indirect impacts to wetlands result from shading of plant species and reduced growth that often results from the construction of boardwalks. Due to the small size of the impact area, these indirect impacts are considered negligible.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 4 would result in long-term moderately adverse impacts to water resources and negligible indirect impacts to wetlands. There would also be indirect short-term moderately adverse impacts associated with construction activities. There will be no impairment to park water resources or wetlands under this alternative.

## 4.4 Impacts on Threatened, Endangered, and Special Concern Species

### 4.4.1 Regulations and Policy

The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of CVNP's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise they are protected from harvest, harassment, or harm by human activities. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and the ecological integrity of plants and animals.

EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) directs Federal agencies to avoid taking actions that have a measurable negative effect on migratory bird populations.

### 4.4.2 Affected Environment

The Cuyahoga Valley is a refuge for a number of rare and endangered species of plants and animals. A federally endangered Indiana bat was found within park boundaries in July 2002, the first instance of that species ever recorded in the park. Nesting bald eagles, which are federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, successfully fledged young in 2007 and 2008 from a nest in Cuyahoga County along the Cuyahoga River.

Piping plover (*Charadrius melodus*) is a federally listed endangered species that occurs in Cuyahoga County, but is not found within the park. No suitable breeding habitat for piping plovers exists within park boundaries.

The park is also within the range of the eastern massasauga (*Sistrurus catenatus catenatus*) rattlesnake, a candidate species for listing under the Endangered Species Act (ESA) and listed as endangered by the State of Ohio. The species has not been detected within the park, but the type of wet habitat this snake prefers is found in CVNP.

There are no federally-designated critical habitats or wilderness areas within the vicinity of the park.

Many state-listed plant and animal species have been recorded in CVNP (Appendix I). Forty-one state-listed rare plant species (ODNR 2006) are known to occur in CVNP. These plants occur in various habitats in the park. At least 38 bird species observed in the park are of conservation concern in Ohio (ODNR 2002), or at regional and national levels as determined by the international conservation consortium, Partners in Flight (Hunter et al. 1993; PIF 2002). Most of these species of concern have exhibited steep population declines throughout their range or regionally due to habitat loss and degradation. Three state-listed turtles have been recorded in or near the park.

Metro Parks coordinated this project with resource managers at CVNP and the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, and the United States Fish and

Wildlife Service. In addition to the species previously noted, several state-listed species were determined to be within, or near, the confines of this project area. These species include fringed gentian (*Gentainopsis crinita*) (state potentially threatened) and lesser ladies-tresses (*Spiranthes ovalis*) (state potentially threatened). Field surveys for these and additional species were performed as described below.

#### 4.4.3 Methodology

The analysis of impacts on Endangered, Threatened, and Species of Special Concern was made based on exhaustive species inventories performed by Metro Parks staff and an evaluation of secondary source data provided by The CVNP.

Several known state listed species were identified from NPS and the Natural Heritage Database requests, and additionally located during site visits. Three federally listed species are known to occur in Summit County, including the endangered Indiana bat (*Myotis sodalis*), the federally protected bald eagle (*Haliaeetus leucocephalus*), and federally threatened northern monkshood (*Aconitum noveboracense*). Metro Parks initiated coordination with the United States Fish and Wildlife Service (USFWS). The USFWS indicates that the site is within a five-mile radius of several known Indiana bat sites (one at Liberty Park and the second within the CVNP). Data indicates that the Indiana bat is a year-round resident in these areas and extra care is required when planning projects that might impact forested habitats. The USFWS further indicates that bald eagle and northern monkshood are not likely to be impacted as part of this project due to the type, size, and location of the study area.

Because of the crepuscular habits and widespread distribution of the Indiana bat, summering habitat assessments are now widely used to verify possible existence and document impacts. This type of survey is typically done by identifying individual trees that may be suitable for roosting. Because identification of each suitable tree within the study area was time prohibitive, an assessment of approximate suitable tree densities was performed within several habitat types using randomly placed plots. Based on this information, approximations within each habitat were provided for the alternatives analysis.

Appendix G of this document includes a summary map of all known endangered species. These data were compiled from secondary sources and intensive field inventories.

The following impact thresholds were established in order to describe the relative impacts to protected species. (both overall, localized, short and long-term, cumulatively, adverse and beneficial) and effects on individual wetland values and functions under the management alternatives.

**Negligible:** There would be no observable or measurable impacts to protected species, their habitats, or the natural processes sustaining them. Impacts would be of short duration and well within natural fluctuations.

**Minor:** Impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on protected species, their habitats, or the natural processes sustaining them. Population numbers, population structure, genetic variability, and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Key ecosystem processes might have short-term disruptions that would be within natural variation. Sufficient habitat would remain functional to maintain viability of all protected species. Impacts would be outside critical reproduction periods for

protected native species.

**Moderate:** Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in CVNP unit.

Impacts on protected species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability for short periods of time. Population numbers, population structure, genetic variability, and other demographic factors for species might have short-term changes, but would be expected to rebound to pre-impact numbers and to remain stable and viable in the long-term. Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting short-term population levels. Key ecosystem processes might have short-term disruptions that would be outside natural variation (but would soon return to natural conditions). Sufficient habitat would remain functional to maintain viability of all protected species. Some impacts might occur during critical periods of reproduction or in key habitat for sensitive native species.

**Major:** Impacts on protected species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Breeding colonies of protected species might relocate to other portions of CVNP. Key ecosystem processes might be disrupted in the long-term or permanently. Loss of habitat might affect the viability of at least some native species.

**Impairment:** Some of the major impacts described above might be an impairment of park resources if their severity, duration, and timing resulted in the elimination of a protected species or significant population declines in a protected species, or they precluded CVNP's ability to meet recovery objectives for protected species.

#### **4.4.3.1 Alternative 1 - No Action**

Direct Impacts - Under the No Action Alternative, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road. It is expected that, without an off-road trail, visitor experience would continue to suffer from shared use with vehicle traffic and extremely steep grade. No direct impacts to listed species are anticipated as a result of the No Action Alternative.

Indirect Impacts – No indirect impacts are anticipated under the No Action Alternative.

Cumulative Impacts – Past land-use changes have impacted threatened, endangered and species of concern cumulatively, but the construction of this trail does not contribute significantly to these cumulative effects.

Conclusion – No impacts are anticipated under the No Action Alternative. There will be no impairment to rare, threatened, or endangered species under this alternative.

#### **4.4.3.2 Alternative 2 – Preferred Alternative**

Direct Impacts – There are no protected species within this corridor that would be impacted as part of this alternative. Approximately 37.2 trees lie within the proposed path of Alternative 2 that support characteristics suitable for maternity colonization by the Indiana bat. Efforts would be made to weave around these trees. If individual trees would need to be impacted, site specific surveys would be conducted to more accurately evaluate the possible impacts to Indiana bat. At the present time, no direct impacts to Indiana bat are anticipated.

Indirect Impacts – No indirect impacts are identified associated with Alternative 2.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 2 would result in negligible impacts to protected species. There will be no impairment to rare, threatened, or endangered species under this alternative.

#### **4.4.3.3 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – This alternative involves the construction of a new bridge at a location where a historic railroad bridge existed over the Brandywine Valley. This alternative would construct piers and structures in the riparian zone of Brandywine Creek and the construction of a temporary access road. Approximately 37 trees fall within the proposed construction corridor for Alternative 3. Given the structural requirements of a bridge and access road, it is unlikely that any of these trees could be avoided and would have to be removed. Direct long-term negative impacts are anticipated as a result of Alternative 3. However, these impacts are expected to be minor assuming the following mitigative measure is taken: All disturbances to trees will take place outside of the roosting season for Indiana bat.

Indirect Impacts – No indirect impacts are anticipated as part of Alternative 3.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 3 would result in a long-term direct minor adverse impact to the federally threatened Indiana bat. There will be no impairment to rare, threatened, or endangered species under this alternative.

#### **4.4.3.4 Alternative 4 – Pastoral Route**

Direct Impacts – Under Alternative 4, the re-routed Bike and Hike trail would traverse through agrarian fields utilized by the Carriage Trade Farm and cross a steep ravine and headwater stream. This crossing would be made with a span bridge but would result in direct impacts to steep slopes of the stream valley. There are no identified protected species within the confines of this proposed corridor. However, the corridor falls within the path of 87 trees with suitable characteristics for the Indiana bat. Given the nature of this proposed route and the extent of forested area through which it travels, it is not likely that the trail could be placed to avoid all impacts to these trees. Long-term direct impacts to suitable roost trees would occur. However, the impacts would be minor provided the following mitigative measure is taken: All disturbance to suitable roost trees would take place outside of the roosting season for Indiana bat.

Indirect Impacts – No indirect impacts are anticipated as a result of this proposed alternative.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 4 would result in long-term minor adverse impacts to the federally endangered Indiana bat. There will be no impairment to rare, threatened, or endangered species under this alternative.

## **4.5 Impacts on Vegetation and Wildlife**

### **4.5.1 Regulations and Policy**

The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of CVNP's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise they are protected from harvest, harassment, or harm by human activities. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and the ecological integrity of plants and animals.

EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) directs Federal agencies to avoid taking actions that have a measurable negative effect on migratory bird populations.

### **4.5.2 Affected Environment**

The previous section addressed threats specific to federally and state listed species that are threatened, endangered, or of special concern. This section more broadly addresses threats to all plants, wildlife, and associated habitats.

Cuyahoga Valley National Park encompasses a diverse mosaic of natural vegetation types interspersed among various human-developed land uses. Located in the glaciated Allegheny Plateau of northeastern Ohio, natural vegetation of the Park is currently composed of approximately 80% mixed-mesophytic forest (i.e., forests adapted to a moist environment) predominantly of oak-hickory associations but also including maple-oak, oak-beech-maple, maple-sycamore, pine-spruce, and hemlock-beech associations. The long history of intensive land uses has left the Park with forests possessing vast differences in community age and structure.

Interspersed among these forests are other natural habitats including older field habitats in various stages of succession (approximately 6%), wet meadows, and other wetland habitats (approximately 5%). Suburban lands comprise approximately 3% of the landscape, and include regularly mowed open areas such as lawns, golf courses, and cemeteries. Cultivated agricultural lands make up approximately 4% of the park. Over 940 plant species occur in the various habitats within CVNP.

Faunal species that have been detected in CVNP include 194 species of birds, 91 aquatic macroinvertebrates, 43 fish, 32 mammals, 22 amphibians, and 20 species of reptiles.

### **4.5.3 Methodology**

The analysis of impacts on vegetation and wildlife was made based on an inventory of vegetation cover types and standard practices to protect habitats and wildlife. Specifically, the analysis of impacts draws heavily on Conservation Thresholds for Land Use Planners (Environmental Law Institute, 2003). For purposes of this analysis, a habitat is roughly defined as a distinct vegetation community. Appendix G of this document includes an executive summary and maps of the ecological survey that was performed.



The following impact thresholds were established in order to describe the relative impacts to protected species. (both overall, localized, short and long-term, cumulatively, adverse and beneficial) and effects on individual wetland values and functions under the management alternatives.

**Negligible:** The proposed action does not disturb a natural habitat. There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be of short duration and well within natural fluctuations.

**Minor:** The proposed action bisects at least one natural habitat. Impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on native species, their habitats, or the natural processes sustaining them. Population numbers, population structure, genetic variability, and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Key ecosystem processes might have short-term disruptions that would be within natural variation. Sufficient habitat would remain functional to maintain viability of all species. Impacts would be outside critical reproduction periods for sensitive native species.

**Moderate:** The proposed action would bisect two natural habitats. Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in CVNP unit.

Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability for short periods of time. Population numbers, population structure, genetic variability, and other demographic factors for species might have short-term changes, but would be expected to rebound to pre-impact numbers and to remain stable and viable in the long-term. Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting short-term population levels. Key ecosystem processes might have short-term disruptions that would be outside natural variation (but would soon return to natural conditions). Sufficient habitat would remain functional to maintain viability of all native species. Some impacts might occur during critical periods of reproduction or in key habitat for sensitive native species.

**Major:** The proposed action would bisect three or more natural habitats. Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Breeding colonies of native species might relocate to other portions of CVNP. Key ecosystem processes might be disrupted in the long-term or permanently. Loss of habitat might affect the viability of at least some native species.

**Impairment:** Some of the major impacts described above might be an impairment of park resources if their severity, duration, and timing resulted in the elimination of a native species or significant population declines in a native species, or they precluded CVNP's ability to meet recovery objectives for listed species. In addition, these adverse, major impacts to park resources and values would contribute to deterioration of CVNP's wildlife resources and values to the extent that CVNP's purpose could not be fulfilled as established in its enabling legislation; affect resources key to CVNP's natural or cultural integrity or opportunities for enjoyment; or affect the resource whose conservation is identified as a goal in CVNP's general management plan or other park planning documents.

#### **4.5.3.1 Alternative 1 - No Action**

Direct Impacts - Under the No Action Alternative, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road. It is expected that, without an off-road trail, visitor experience would continue to suffer from shared use with vehicle traffic and extremely steep grade. No direct impacts to vegetation and wildlife are anticipated as a result of the No Action Alternative.

Indirect Impacts – No indirect impacts are anticipated under the No Action Alternative.

Cumulative Impacts – Past land-use changes have impacted vegetation and wildlife cumulatively, but the construction of this trail does not contribute significantly to these cumulative effects.

Conclusion – No impacts are anticipated under the No Action Alternative. There will be no impairment to park vegetation and wildlife under this alternative.

#### **4.5.3.2 Alternative 2 – Preferred Alternative**

Direct Impacts – Under Alternative 2, a pedestrian and bicycle bridge will be constructed along the berm of Brandywine Road, around The Inn at Brandywine Falls, and back onto the Brandywine Road. A moderately mature forest exists behind The Inn at Brandywine Falls that will be impacted through the construction of this alternative. This forest is already somewhat degraded from the presence of existing pedestrian trails and overall direct impacts are anticipated to be negligible.

Indirect Impacts – No indirect impacts are identified associated with Alternative 2.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 2 would result in negligible impacts to one vegetation community.

#### **4.5.3.3 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – This alternative involves the construction of a new bridge at a location where a historic railroad bridge existed over the Brandywine Valley. This alternative would construct piers and structures in the riparian zone of Brandywine Creek and the construction of a temporary access road. Three natural vegetation communities will be impacted as part of this proposed alternative. The existing railway right-of-way has partially recovered and is presently dominated by a shrub-scrub plant community. The entire length of this community along this proposed alternative would be impacted. In addition, a small portion of an oak-maple forest just south of I-271 would be bisected to clear the way for alternative 3. The greatest impact would result from the clearing of an access road and construction of a bridge within the riparian zone of Brandywine

Creek. Here the proposed alternative would bisect a mixed floodplain forest. Given the structural requirements of a bridge and access road, it is unlikely that these impacts could be avoided. Direct impacts are anticipated as a result of Alternative 3. These impacts are expected to be long-term moderate and not easily mitigated.

Indirect Impacts – No indirect impacts are anticipated as part of Alternative 3.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 3 would result in a long-term moderate direct impacts to the natural vegetation communities and associated wildlife. There will be no impairment to park vegetation and wildlife under this alternative.

#### **4.5.3.4 Alternative 4 – Pastoral Route**

Direct Impacts – Under Alternative 4, the re-routed Bike and Hike trail would traverse through agrarian fields utilized by the Carriage Trade Farm and cross a steep ravine and headwater stream. This crossing would be made with a span bridge but would result in direct impacts to steep slopes of the stream valley. This route would bisect four large tracks of natural plant communities including the forest that dominates a steep ravine that would have to be bridged. Given the deep intrusions to natural areas and the nature of the proposed path, long-term direct impacts associated with this alternative are anticipated to be major. There are no on-site methods to mitigate these impacts.

Indirect Impacts – No indirect impacts are anticipated as a result of this proposed alternative.

Cumulative Impacts – No cumulative impacts are anticipated under this alternative.

Conclusion – The construction of Alternative 4 would result in long-term major adverse impacts to the vegetation and wildlife. There will be no impairment to park vegetation and wildlife under this alternative.

## 4.6 Impacts on Visitor Experience

### 4.6.1 Regulations and Policies

CVNP was created by Congress in 1974 as Cuyahoga Valley National Recreation Area for the purpose of “preserving and protecting for public use and enjoyment, the historic, scenic, natural, and recreational values” of the Cuyahoga Valley (Public Law 93-555, 1974). Preservation of the natural and scenic values of the Cuyahoga River valley and adjacent lands is central to CVNP’s legislative mandate.

The term “visitor experience” can be defined as the opportunity for visitors to experience a park’s resources and values in a manner appropriate to the park’s purpose and significance, and appropriate to the resource protection goals for a specific area or management zone within that park. In other words, visitor experience is primarily a resource-based opportunity appropriate to a given park or area within a park, rather than a visitor-based desire.

Visitor uses of parks will only be allowed if they are appropriate to the purpose for which a park was established, and if they can be sustained without causing unacceptable impacts to park resources or values (NPS 2006, Sec. 8.1 and 8.2). While the fundamental purpose of all parks also includes providing for the “enjoyment” of park resources and values by the people of the United States, enjoyment can only be provided in ways that leave the resources and values unimpaired for the enjoyment of future generations (NPS 2006, Sec. 1.4.3).

While many visitor activities are allowed or even encouraged in parks consistent with the above policies, virtually all visitor activities are limited or restricted in some way (e.g., through carrying capacity determinations, implementation plans, or visitor use management plans), and on a park- or area-specific basis, some visitor activities are not allowed at all.

The degree to which a given activity is consistent with, or moves the condition of a resource or a visitor experience toward or away from a desired condition is one measure of the impact of the activity.

### 4.6.2 Affected Environment

CVNP is composed of a largely forested landscape bisected by the Cuyahoga River, interspersed with old fields, agriculture, and historic buildings and features. The abundant scenic resources of the park, within an hour’s drive of three cities (Cleveland, Akron and Canton) containing about 4 million people, make it an attractive destination, as well as a respite from the bustle of city life. Visitors perceive the park to be more remote than it is, probably due to the strong contrast with adjacent developed areas (Schleicher et al. 1994). Evidence of the long history of use by humans is contrasted by the large swaths of what appear to be more natural areas. Scenic views and vistas from either side of the valley reveal patterns of nature and of humans. Visitors also enjoy parts of the park because of what they do *not* experience there - industry, signs, light pollution.

Visitors and passers-by can enjoy this pastoral landscape from the many roads and highways and more than 100 miles of trails that cross the park. Sight-seeing and pleasure driving are among the most popular activities in CVNP (Anderson et al. 1992). The scenic Cuyahoga River flows through the center of the entire 22-mile length of the park and is fed by many smaller, attractive tributaries. Riverview Road, which is designated on the state and national level as a Scenic Byway, also runs through the entire length of the park.

The historic integrity and appearance of the Brandywine Falls area remains very high. The Inn at Brandywine Falls is of particular importance as it remains on the National Register of Historic Places and is a focal point of interest in this area. Protecting the historic character of the area is

an equal consideration to any changes to individual features within the area.

Brandywine Falls is a unique geological feature and major attraction to the area. It is an aesthetically pleasing and prominent feature that also provides habitat for an abundance of fish and terrestrial wildlife.

#### 4.6.3 Methodology

In this environmental assessment, impacts to visitor experience are described in terms of type, context, duration, and intensity, which is consistent with the CEQ regulations. These impact analyses are intended to comply with the requirements of the National Environmental Policy Act.

Impacts to visitor experience were identified and evaluated by (1) determining the area of potential effects; (2) identifying existing visitor experience values present in the area of potential effects; (3) applying how the action affects the visitor experience; and (4) considering ways to avoid, minimize, or mitigate impacts to the visitor experience. CEQ regulations and DO #12 also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g. reducing the intensity of an impact from major to moderate or minor).

For purposes of analyzing potential impacts to scenic values, the thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** Impact(s) is at the lowest levels of detection - barely perceptible and not measurable.
- Minor:** **Adverse impact(s)** would nominally affect the overall visitor experience.
- Beneficial impacts** would include an improvement to some aspects of the overall visitor experience through the removal of incompatible elements or improvement of site features.
- Moderate:** **Adverse impact(s)** would negatively impact numerous aspects of the visitor experience of the site through the perpetuation, removal or change of contributing features or the introduction of incompatible elements. The nature and extent of impacts diminish the visitor experience of the site, but do not impact the overall values of the larger study area.
- Beneficial impacts** would include the improvement or restoration of some aspect of the visitor experience and the protection of all visitor experiences of the site.
- Major:** **Adverse impact** - impact(s) would alter major visitor experiences of the site through the perpetuation, removal or change of contributing features or the introduction of incompatible elements. The nature and extent of impacts are sufficient to diminish the visitor experience of the entire study area.

#### 4.6.4 Alternative 1 - No Action

Direct Impacts – Under Alternative 1, Metro Parks would continue with the status quo. The Bike and Hike Trail would continue to parallel Brandywine Road. It is expected that, without an off-road trail, visitor experience would continue to experience health and safety risks and concerns from shared use with vehicle traffic and extremely steep grade.

Under the No Action Alternative, cyclists would have to continue to share a common road with motorists and would result in long-term moderate adverse impacts to the visitor experience.

Indirect Impacts – No indirect impacts are expected under Alternative 1.

Cumulative Impacts – No cumulative impacts are expected under Alternative 1.

Conclusion – Under this alternative, long-term moderate adverse impacts would occur as cyclists would continue to share a common road with motorists.

#### **4.6.5 Alternative 2 – Preferred Alternative**

Direct Impacts – For most of its length, Alternative 2 follows the existing Brandywine Road. The road, and road right-of-way, is already a transportation corridor for motorized vehicles and bicycles. The construction of a bike path adjacent to the existing road is consistent with the existing use of this area as a transportation route and would not result in a direct impact to the visual resources of the area. This alternative removes the health and safety risks associated with sharing the road.

After crossing Brandywine Creek, Alternative 2 jogs behind The Inn at Brandywine Falls; one of the three major visual resources of the area.

In this area, the proposed trail was located to closely follow the existing woodline and quickly move behind the inn. Furthermore, at this location, the trail will be constructed of crushed limestone to more closely mimic a pastoral setting. This route would provide the cyclists with an entirely off-road route that would also be more scenic than the existing path. This route would also allow the cyclist greater access to the Brandywine Falls area. Overall impacts to visitor experience would be long-term, moderate and beneficial.

Indirect Impacts – No indirect impacts have been identified.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – Under this alternative, overall impacts to visitor experience would be long-term, moderate and beneficial.

#### **4.6.6 Alternative 3 – Bridge over Brandywine Valley**

Direct Impacts – Construction of Alternative 3 would result in a long-term moderate adverse impact to the visitor experience. To a few, this alternative might be viewed as beneficial as this alternative removes the health and safety risks associated with sharing the road. However, it is expected that the majority of cyclists would avoid a narrow bridge over such a deep valley. Furthermore, this alternative would not provide greater access to the Brandywine Falls area. Overall impacts to the visitor experience would be long-term, moderate and adverse.

Indirect Impacts – No indirect impacts have been identified.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – Alternative 3 does have the potential for long-term moderate adverse impacts to the visitor experience due to the expected avoidance of crossing the long bridge over the valley and highway.

#### **4.6.7 Alternative 4 – Pastoral Route**

Direct Impacts – Construction of Alternative 4 would remove the health and safety risks associated with sharing the road and provide access to scenic route through a pastoral landscape. The pastoral landscape is a major element contributing to the cultural and aesthetic

value of this area. However, some visitors may consider it permanently damaged by the construction of this alternative which requires that 900-feet of agricultural fields be bisected by the construction of a bike and hike trail. Nevertheless, this alternative is expected to result in a long-term moderate beneficial impact to the visitor experience of the area.

Indirect Impacts – Wade Johnson, owner of the Carriage Trade Farm has commented that the construction of this alternative would have negative impacts on his ability to operate his business which includes visitor services such as carriage rides and hay rides.

Cumulative Impacts – No cumulative impacts have been identified.

Conclusion – Alternative 4 would result in overall long-term moderate beneficial impacts to the visitor experience.

## 5 Consultation and Coordination

### 5.1 Public Involvement

An interdisciplinary team was formed for the project and an Environmental Screening Form was prepared on September 13, 2005.

Internal scoping was conducted February 2006 and a public meeting was held in August of 2006. Early coordination with the United States Fish and Wildlife Service was conducted in November of 2005 and with the Ohio Historic Preservation Office in February of 2007.

Information about the project was published to the National Park Service's Planning, Environment and Public Comment (PEPC) system on August 8, 2007 through September 22, 2007. Press releases and mailings encouraged the public to comment on the project. A total of 33 comments were received and incorporated into the document. Scoping included federal, state, and local agencies and organizations having direct and indirect jurisdiction, insight, knowledge, expertise or concern for CVNP resources. Copies of comments received from federal, state, and local agencies/governments/ organizations are included in Appendix D.

### 5.2 Individuals and Agencies Consulted

A list of organizations and individuals that were sent a public scoping letter and a copy of the public scoping letter are presented in Appendix D of this document.

### 5.3 Preparers and Contributors

Table 2. List of Preparers and Contributors

<b>Metro Parks, Serving Summit County and CVNP Preparers and Members of the project interdisciplinary team</b>	
<b>Name</b>	<b>Title, Responsibility</b>
Michael Johnson	EA primary author and Chief of Natural Resource Management for the Metro Parks, Serving Summit County
Darlene Kelbach	Cuyahoga Valley National Park, Historical Landscape Architect
Kevin Skerl	Cuyahoga Valley National Park, Ecologist, NEPA Coordinator, Editor
Kim Norley	Cuyahoga Valley National Park, Landscape Architect
Paul Wilkerson	Project Manager, Metro Parks, Serving Summit County



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