



BOSTON MILLS HISTORIC DISTRICT SANITARY SEWER AND TREATMENT SYSTEM

ENVIRONMENTAL ASSESSMENT



January 2010

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1. INTRODUCTION/PURPOSE AND NEED

1.1. *About this Document*

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

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

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

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

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

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

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

The Department of Interior issued its NEPA regulations as Part 516 of its Departmental Manual (516 DM), last revised in March 2004. In October 2008, the pertinent sections of

516 DM were published in the Code of Federal Regulations. The National Park Service (NPS) has issued several NEPA handbooks. In January 2001, the NPS released the Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision Making.

1.2. Purpose and Need Statement

The Historic Landscape Analysis and Design Recommendations for Boston, Ohio indicates that the Village of Boston should be maintained with a balance of public and private lands, and a mix of commercial, residential, and recreational land uses to maintain the community's historic integrity. The need for the sanitary system upgrade is to ensure the continued occupancy and use of the NPS owned structures located within and around the Boston Mills Historic District by providing adequate utility service.

Cuyahoga Valley National Park (CVNP) has prepared this EA to analyze any potential impacts resulting from each of the identified alternatives for providing sanitary services. The EA will identify and analyze potential impacts to the natural and man-made environment resulting from the "No Action" alternative, which involves continued use of the existing system until they fail, a Subsurface Drip Irrigation System and a constructed wetlands treatment system.

CVNP currently owns and maintains eleven structures located in or within close proximity to the Boston Mills Historic District. Three of the eleven buildings contain properly functioning sanitary systems, while other systems have been identified for replacement within the next five years. Due to land ownership constraints and archeology concerns, several buildings would not be able to have existing sanitary systems replaced on site and therefore would no longer be habitable. As maintaining and upgrading utilities in these structures constitutes an essential part of the preservation of the park's cultural and environmental resources, it is necessary that steps be taken to develop a permanent solution for providing sanitary services for these structures. Thus, maintaining occupied buildings to allow for continued use by providing required sanitary services is critical to preserving the historic character of the Boston Mills Historic District.

The purpose of this project is to:

- Ensure that the NPS owned buildings in and around the Boston Mills Historic District continue to have functional sanitary services through a system that is capable of achieving treatment goals that are protective of human health and the environment.
- Preserve the cultural and historic integrity of the NPS owned structures located within and around the Boston Mills Historic District.
- Preserve and protect the archeological resources within and around the Boston Mills Historic District.
- Ensure continued improvement of water quality within the Cuyahoga River Watershed.

The need for this project is to:

- Provide for the treatment of wastewater from the NPS owned structures in and around the Boston Mills Historic District as the existing on-site systems become non-functional.

1.3. Laws, Executive Orders, Regulations, Policies and Guidelines

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

A summary of other applicable statutes, regulations, executive orders, and policies that apply to the proposed action are located in Appendix A.

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.

The following issues were identified through the internal and public scoping process:

- Maintaining occupied buildings is critical to preserving the historic character of the Boston Mills Historic District.
- The continuing utilization of the structures owned by CVNP within the Boston Mills Historic District is dependant on implementation of a permanent solution to the wastewater issues identified for these structures.
- The Cuyahoga River is the most significant natural resource within CVNP. Addressing the wastewater issues associated with the CVNP structures within the Boston Mills Historic District is important to ensure continued water quality improvement within the Cuyahoga Valley watershed.
- Long-term land use is a significant issue when evaluating potential uses of park properties. The area available for construction of a wastewater treatment system was identified as open space in The Rural Landscape Management Program Environmental Impact Statement (EIS) completed by CVNP in 2003.
- The Park's actions within the Boston Mills Historic District and surrounding area can have direct impacts on adjacent private property owners.

CVNP prepared and distributed a letter on October 19, 2004 and again on July 17, 2009 to potentially interested parties for comment. Scoping was conducted with federal, state, and local agencies, organizations, and private residents of Boston Township who reside within close proximity to the project. A public open house was also held on August 11, 2009 and attended by 10 individuals, mostly private property owners from the surrounding community. Copies of comments received are included in Appendix C, along with written responses to these comments.

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 and analyzed in Chapter 4.

2.1.1 Archeological Resources

In the NPS Cultural Resource Management Guidelines (NPS, 1997), archeological resources "are the remains of past human activity and records documenting the scientific analysis of these remains." It further states, "What matters most about an archeological resource is its potential to describe and explain human behavior." Park managers are responsible for ensuring that archeological resources under their jurisdiction are identified, protected, preserved, and interpreted. This is done through a systematic program of inventory, evaluation, documentation, curation of collections and associated records, nomination of eligible resources to the National Register of Historic Places, monitoring, protection, treatment, and interpretation.

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.

The Boston Mills Historic District and surrounding area have known prehistoric and historic deposits of archeological resources and therefore this topic will be evaluated further.

2.1.2 Historic Structures/Buildings

In the NPS *Cultural Resource Management Guidelines* (NPS 1997), a historic structure is defined as "a constructed work...consciously created to serve some human activity." It also notes that "regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity. The preservation of historic structures involves two basic concerns: slowing the rate at which historic material is lost, and maintaining historic character." Buildings, monuments, dams, canals, bridges, roads, fences, mounds, structural ruins, and outdoor sculpture are all examples of historic structures.

The National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.) and the NPS *Cultural Resource Management Guidelines* (NPS 1997) and NPS 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. Such structures are managed under a stricter interpretation of the guidelines than other structures. The purpose of this action includes continued preservation through use of the historic structures by providing a long-term solution for wastewater treatment.

2.1.3 Cultural Landscapes

As described in the Park's *Cultural Landscape Report* (NPS, 1987), "cultural landscapes can broadly be defined as places which have been settled, controlled, manipulated, or altered [by

humans]. The most important cultural landscapes are those which include components, use patterns, and structures of historic significance and physical integrity." "The cultural landscape is a tangible manifestation of human actions and beliefs which have been set against and within the natural landscape."

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. Thus, the emphasis is on maintaining the character and feeling rather than on preserving a specific appearance or time period.

The proposed project is located within the Boston Mills Historic District as well as within close proximity to two other historic structures. As this historic area is considered part of the CVNP cultural landscape, the issue will be considered in this document.

2.1.4 Scenic Values

Preservation of the natural and scenic values of CVNP and adjacent lands is central to CVNP's legislative mandate. The two action alternatives involve work on a terrace of the Cuyahoga River in proximity to the towpath trail and remnants of the canal. Siting of new structures or systems and their associated support infrastructure will be evaluated carefully so as to minimize impacts on scenic values.

2.1.5 Health and Safety

The Management Policies (NPS 2006) state that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. The policies also state, "While recognizing that there are limitations on its capability to totally eliminate all hazards, the Service and its concessionaires, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees". Further, the NPS will strive to protect human life and provide for injury-free visits.

2.1.6 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 CVNP to use and experience the park 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.

Decisions regarding the management of lands and park structures may impact the visitor use/experience. Therefore, the public should be provided the opportunity to provide input during the planning process.

2.1.7 Water Resources

Effects on water resources are important indicators of whether an action has the potential to impair the existing aquatic, water supply or recreational use designations established by the Ohio Environmental Protection Agency (Ohio EPA). Presidential Executive Order (E.O.) 11990, Protection of Wetlands, requires federal agencies to take into account the effects of their actions on surface waters and wetlands. NPS Director's Order #77 established NPS policies, requirements, and standards for implementing E.O. 11990. However, no existing wetlands were identified within the project area and although one action alternative includes a constructed wetland treatment system it is exempt from Director's Order #77 since it is an artificial wetland. Only potential impacts on the Cuyahoga River will be evaluated further.

2.1.8 Wildlife and Wildlife Habitat

Faunal species that have been detected in the park include 246 species of birds, 91 aquatic macro invertebrates, 77 fish, 39 mammals, 20 amphibians, and 20 species of reptiles. In addition, 61 butterfly species have been documented in the park. The wildlife and their habitat that could be affected by specific actions under any of the alternatives will be identified in Chapter 4. The proposed project will require alteration of an existing meadow habitat, and thus this topic will be evaluated.

2.1.9 Vegetation and Invasive Species

CVNP is dominated by approximately 27,000 acres of mixed forest but also supports approximately 2,000 acres of grassland, 1,700 acres of wetland, 1,300 acres of agricultural land and 150 acres of open water. The remainder of the approximately 33,000-acre park supports roads, lawns, golf courses, buildings and other developments. The alternatives considered in this EA would affect forest and grassland habitats and site-specific details concerning these habitats are presented in Chapter 4.

In addition to native vegetation, the alternatives considered in this EA also would affect non-native plants in the project area. Approximately 200 species of non-native plants have been

documented at CVNP of which 16 are considered to be locally invasive. Executive Order 13112, *Invasive Species*, requires that federal agencies prevent the introduction of invasive plants and animals and work to control the economic, ecological, and human-health impacts of such species. The alternatives considered in this EA would affect several species of invasive plants and site-specific details concerning these species are presented in Chapter 4.

2.2. Impact Topics 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, it was decided that they do not pose substantial issues in regards to the proposed action. Therefore, the following issues and impact topics are not considered further in this document.

2.2.1 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. There is potential for the action to involve the use of construction equipment and that operation of the proposed facility will also involve vehicles that will result in emissions. Any such emissions would be localized, temporary and insignificant to the park's air quality.

While wastewater treatment systems can be a source of odors, this does not involve pollutants considered in an air quality impacts analysis. However, odors have the potential to affect visitor experience and the local community, and the issue will be addressed in those sections.

2.2.2 Nationwide Rivers Inventory Status

A reach of the Cuyahoga River from the vicinity of Chippewa Creek upstream to the Village of Peninsula is included in the Nationwide Rivers Inventory with "Outstandingly Remarkable Values (ORV's)" for Scenery, Recreation and Fish. An impact to one or more of the ORV's in this reach could impact the ability for the reach to be designated as a Wild or Scenic River in the future. Since this action is not expected to impact the ORV's for the Cuyahoga River, this topic will not be evaluated.

2.2.3 Affiliated Tribes

Decisions regarding Federal undertakings that may have significance to affiliated tribes requires due diligence in communicating any significant finds. Additionally, the park will comply with the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 as it pertains to the proposed undertaking. The proposed action is not anticipated to have any effect on affiliated tribes or on cultural resources that may be significant to affiliated tribes; however affiliated tribes will be offered the opportunity to provide comments on the EA document as part of the planning process.

2.2.4 Floodplains

Presidential Executive Order 11988, Floodplain Management, requires each Federal agency, in carrying out its activities, to take action to reduce the risk of flood loss, minimize the impacts of floods, restore and preserve the natural and beneficial values served by floodplains, and evaluate the potential effects of any actions it may take in the floodplain so as to ensure its planning programs reflect considerations of flood hazards and floodplain management. These requirements generally apply only to the 100-year floodplain where encroachments are limited to those that would cause no greater than a one-foot rise in water surface elevation, and to the floodway, where no encroachments are allowed. The proposed project is not located within the 100 year floodplain of the Cuyahoga River, and will not be evaluated further in this document.

2.2.5 Sole or Principal Drinking Water Aquifers

CVNP is not located within the limits of a designated U. S. Environmental Protection Agency Sole Source Aquifer. Therefore, no further processing is required under the Safe Drinking Water Act of 1974.

2.2.6 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 affected 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, and this topic will not be addressed further in this document.

2.2.7 Socio-economic factors

NEPA requires that not only cultural and natural factors be analyzed but also the "human environment" which includes social and economics factors. This may also include land use (occupancy, income, values, ownership and type of use) and socioeconomic (employment, occupation, income changes, tax base, infrastructures, etc.). The proposed project will not directly contribute to employment or businesses in the surrounding area, except for some negligible benefits during construction, and will not be addressed further in this document.

Other possible impacts to the local community were discussed at a recent public scoping meeting held on August 11, 2009. The meeting was attended by several local residents who provided many verbal comments related to the project but only one written comment was received. Many residents were concerned with the potential adverse impacts to their quality of life including nuisance odors, noise, traffic disruptions during construction, visual impacts,

future development by the park, potential for themselves to be serviced by the system and conversely, mandates for them to tie into the system. All of these potential issues with the exception possible tie-ins to private property will be analyzed under other impact topics. Since the park is not proposing to tie-in non-NPS properties under this project potential impacts on private lands are negligible. In the future, if a proposal is made to allow private properties to tie-in it would require further NEPA compliance since the NPS is not a public utility able to provide services to a community.

2.2.8 Unique or Unknown Environmental Risk

There are no unique environmental risks associated with any aspect of the proposed action.

2.2.9 Prime Farmland

The Federal Farmland Protection Policy Act (FPPA) of 1987 requires federal agencies to consider the adverse effects their programs may have on the preservation of farmland, review alternatives that could lessen adverse effects, and ensure that their programs are compatible with private, local and state programs and policies to protect farmland. The purpose of the FPPA is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. One of the soil map units at the proposed site for the treatment system can potentially be considered prime farmland if internal drainage has been installed (Dan Ross, Natural Resource Conservation Service, and pers.com.) Further evaluation revealed that this area does not have drainage tile and thus would not be further evaluated for consideration as prime farmland.

2.2.10 Soundscape

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 the pump station is expected to generate any sound following construction and that will be negligible. Any noise generated by installed components will be negligible, especially considering that it will be located in proximity to existing roads and interstate highways. Impacts to soundscapes will not be evaluated further.

2.2.11 Geologic Resources

NPS regulations and Management Policies provide guidance on geologic resources and processes. Since any installed wastewater treatment system would be isolated from the surrounding soils, the proposed project will not have adverse effects on geologic resources.

2.2.12 Threatened, Endangered, or Rare Wildlife Species

The Cuyahoga Valley is a refuge for a number of rare and endangered species of plants and animals. The Federally-endangered Indiana bat (*Myotis sodalis*) was found at the Brecksville Reservation in CVNP as part of the 2002/2003 bat study (NPS 2005). One adult male was mist netted on property managed by Cleveland Metroparks. The Park contains an abundance of apparently suitable habitat. Suitable breeding and roosting habitat for Indiana bats can vary widely, but typically consists of large (>8-inch-diameter) trees with peeling bark located near a permanent water source and good foraging areas. Summer foraging habitat is typically in flood plain forests and riparian areas. Southern migration to wintering limestone caves usually begins in August. Colonies will hibernate from late November until March when the colonies disperse to migrate back to northern habitat.

On August 20, 2009, the U.S. Fish and Wildlife Service (USFWS) stated that the project area lies within the known range of the Indiana bat. It was recommended that the habitat and surrounding trees be saved wherever possible. If tree removal becomes necessary, further coordination with USFWS will be required to evaluate potential impacts to Indiana bats and their habitats.

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 within the park boundary along the Cuyahoga River. The nesting area is several miles from the project site. Therefore, the proposed action will have no effects on the eagles.

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 ESA and listed as endangered by the State of Ohio. The species has not been detected within the Park. An assessment of potential habitat within the Park for this snake was conducted in 2003 (Lockhart) and concluded that much of the area proved unsuitable as potential habitat or having little potential for supporting viable populations of *S. c.catenatus*.

The NPS has made a determination of no effect on federally-listed species or critical habitat under the Endangered Species Act of 1973, as amended.

At least 38 bird species observed in the Park are of conservation concern in Ohio (Ohio Department of Natural Resources 2007a) or at regional and national levels as determined by the international conservation consortium, Partners in Flight (Rich et al. 2004). 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 but none within the area of the proposed action.

2.2.13 Threatened, Endangered, or Rare Plant Species

Although 21 State-listed species of rare plants have been documented at CVNP, no Federally-listed plant species are known to inhabit CVNP. In addition, CVNP supports no Federally-designated critical habitat for any listed species. However, CVNP is within the range of the Federally-threatened northern monkshood (*Aconitum noveboracense*), which is found in cool, shaded ravines with running water; on seeps and talus slopes; and on rock shelters and/or vertical cliff faces (Ohio Department of Natural Resources 2007b). The project area is dominated by open grassland and disturbed woodland, and no suitable habitat for northern monkshood is present in the project area. In addition, this species was not observed during a pedestrian survey of the project area on September 18, 2009, by CVNP staff (Davis, personal communication). Therefore, this species will not be considered further in this EA.

Of the 21 State-listed species of plants documented at CVNP, two are listed as endangered (drooping wood sedge [*Carex arctata*] and ground juniper [*Juniperus communis*]) and four are listed as threatened (variegated horsetail [*Equisetum variegatum*], round-fruited pinweed [*Lechea intermedia*], sessile-fruited arrowhead [*Sagittaria rigida*] and leafy goldenrod [*Solidago squarrosa*]). The remaining plants are considered “potentially threatened”. Although habitat for several of these species is present in the project area (e.g., ground juniper, leafy goldenrod, Great Plains ladies’ tresses), such species have not been documented previously in the project area and none were observed during a pedestrian survey of the project area on September 18, 2009 (Davis, personal communication). Therefore, State-listed species of plants will not be considered further in this EA.

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.

3.1. Alternative 1 - No Action

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. No action would involve allowing the existing systems to fail with subsequent abandonment of the associated structure if a replacement of the on-site treatment system is not feasible or permitted. Most systems could not be replaced due to land constraints and archeologically concerns. New systems that could be replaced at individual properties would most likely be mound systems due to current state regulations.

Although CVNP owns a considerable amount of land within Boston Township, the actual tracts associated with individual structures are small and in many cases would not support new on-site treatment systems designed to current state standards. Furthermore, ground disturbance in the Boston Mills Historic District, George Stanford and Clayton Stanford properties, as well as the Hines Hill Complex require historic preservation compliance. Previous surveys have shown that substantial historic and prehistoric archeological deposits are present in the undisturbed areas. In order to undertake new on-site treatment systems within known archeological sites, data recovery would be required which is never the preferred course of action due to the potential loss or destruction of resources.

3.2. Common Characteristics to Action Alternatives

The two action alternatives described below differ in how they treat the wastewater but the collection system required to convey the wastewater to the treatment system is identical. The collection of the wastewater from the individual structures would be through a series of gravity and pressured sewers located in previously disturbed alignments and existing rights

of way. This would be done to ensure preservation of the existing archeological resources within the park. Approved sewer alignments and pump station locations have been identified by the park's archeologists. A schematic of the entire conveyance system is shown in Appendix B.

3.3. Alternative 2 - Subsurface Drip Irrigation Treatment System

Subsurface drip irrigation (SSDI) systems are efficient methods for recycling/disposing of wastewater on-site. SSDI systems receive highly treated wastewater and are designed to slowly disperse the wastewater into plants' root zone by pressure distribution through a system of tubing installed below the ground surface. The wastewater that is introduced into the subsurface is taken up through the roots of plants. SSDI systems are typically used when there is limited vertical separation with the existing ground water table, pressure distribution of the effluent is required, or when water conservation is a priority. This alternative was also evaluated in the June 2006 Feasibility Study.

The proposed SSDI system consists of the following components:

- Septic tank,
- Secondary treatment (i.e. package plant),
- Filtering device,
- Storage tank,
- Pump tank, and
- Drip distribution system.

Wastewater introduced into a drip distribution system must be pretreated due to public health concerns, as well as to prevent clogging in the system. The initial phase of treatment, or primary treatment, would be completed in existing septic tanks, where suspended solids and grease are separated from the wastewater. Following primary treatment, wastewater must undergo secondary treatment in order to achieve a reduction in biological oxygen demand (BOD) and fecal coliform levels. In order to keep the SSDI system underground, a small package plant is proposed for secondary treatment.

Following secondary treatment, the water would be collected in a pump tank, where it would be stored until a predetermined volume is reached. As required by Ohio guidance for wastewater reuse, sufficient storage capacity must be provided for flows generated during the months of December through March when irrigation may not be possible due to winter conditions. Under winter conditions, the wastewater would be directed to a storage tank prior to collection in the pump tank. When operational, water would bypass the storage tank and be directed to the pump tank. The pump tank would then deliver the wastewater through a filtering device (e.g., sand, disk or screen filter) where small suspended solids are removed prior to distribution to the irrigation system to prevent clogging of the system.

Although disinfection is optional, it is highly recommended for sites with unrestricted public access.

Once treatment is complete, the water is directed to the distribution system. The distribution system would be equipped with the following components:

- Discharge manifold, which releases water into the system;
- Return manifold, which allows the system to back flush when necessary to prevent solids from accumulating in the tubing and clogging the system;
- Drip lines, which are typically placed approximately 12 inches below the ground surface; and 12 to 24 inches apart;
- Emitters, which evenly distribute water into the subsurface. Emitters may be either turbulent flow (operate between 15 and 25 psi) or pressure compensating (operate between 10 to 60 psi) emitters;
- Pressure regulator, which maintains a constant pressure inside the drip lines and ensures that no damage will occur to the system due to excessive pressures or surges; and
- Air vacuum release valve, which will prevent water and soil from being drawn into the emitters, and thereby potentially clogging the emitters.

A SSDI system schematic is presented in Appendix B.

To determine the feasibility of installing an SSDI system for the Boston Mills Historic District, preliminary sizing was completed, as well an analysis of operation and maintenance issues and regulatory requirements.

Calculating flows in accordance with Ohio Environmental Protection Agency (Ohio EPA) requirements, the design capacity of the SSDI system was established at 10,000 gallons per day which incorporates excess capacity to accommodate future potential flows. Preliminary sizing calculations indicate that a total of approximately four acres of land would be necessary for the SSDI system. The required septic tank design capacity is approximately 15,000 gallons, which is 1.5 times the design flow of the system, as required by Ohio EPA. Sizing of the storage tank was completed using monthly flows for the months of December through March. The storage capacity required to hold wastewater for four winter months would be approximately 580,000 gallons.

Operation and maintenance (O&M) issues associated with SSDI systems include root intrusion into the drip lines, and sediment, algae, and bacterial slime accumulation, all of which can cause internal clogging of the system. Sediment, algae, and bacterial slime accumulation can be prevented through efficient pretreatment (filtration/disinfection). Although root intrusion can be prevented through the direct application of a root intrusion chemical barrier into the tubing material at the time of installation, the life-span of these chemical barriers is approximately 15 years, at which time the system may need to be

replaced. Furthermore, SSDI systems should be back flushed to remove trapped solids and filtering systems must be checked and cleaned periodically.

In addition to operation and maintenance issues associated with the system, new rules drafted by Ohio EPA further outline monitoring requirements and frequencies, such as daily flow and pH monitoring, and total suspended solids, carbonaceous biological oxygen demand (CBOD), and fecal coliform monitoring three times per week. In accordance with the new rules, an O&M plan would be required, as well as a groundwater monitoring plan if groundwater contamination is of concern.

The new rules regarding the land application of wastewater drafted by Ohio EPA will require the owner of the system to obtain a PTI, as well as a National Pollutant Discharge Elimination System (NPDES) permit. The draft rules state that all existing or proposed systems will be covered by the rules. Thus, even if the rules do not come into effect prior to the installation of a SSDI system, if an NPDES permit is not obtained prior to the installation of the system, it will need to be obtained within five years of the effective date of the new rules.

3.4. Alternative 3 - Constructed Wetland Treatment System (NPS Preferred)

Constructed wetlands can provide an alternative to conventional wastewater treatment systems, and have been used for water quality improvement in the United States since the 1970s. At least 600 constructed wetland treatment systems are currently treating municipal, industrial, and agricultural wastewater in North America. Water treatment in constructed wetlands is primarily biological and occurs in the root zone of the wetland species. Plants provide a substrate for microorganisms (the root of the plant) and provide oxygen to the system, which creates an environment in which the microorganisms can metabolize the pollutants. Other processes, such as plant uptake, sedimentation, precipitation, and filtration also occur within the wetland, and contribute to its overall treatment efficiency. Municipalities, individual homeowners, and small commercial ventures are currently utilizing constructed wetlands for wastewater treatment. Industries including petroleum, pulp and paper, power, and mining are employing constructed wetlands to treat process effluents. Constructed wetlands are also being utilized to treat landfill leachate from both municipal and industrial (hazardous) waste landfills. Constructed wetlands are successfully utilized for water quality improvement in arid environments, as well as environments that endure harsh winters.

A constructed treatment wetland is an engineered system that is designed to meet specific effluent standards. Alternative 3 consists of the combination of solids removal in existing septic tanks, a subsurface flow wetland and a surface flow wetland. The major components of the treatment system would include the following:

- Septic tank;
- Subsurface flow wetland; and
- Surface flow wetland.

The initial phase of is the primary treatment of the influent and would be completed in the existing septic tanks. The purpose of the primary treatment is to remove settling and floating solids, which could potentially accumulate and clog the wetland entry zone. Once solids have been separated from the wastewater, secondary treatment is completed. This phase of the treatment is completed in a subsurface flow wetland. The purpose of the secondary treatment is to remove BOD and other suspended solids. Upon receiving the pre-treated wastewater, settled colloidal BOD is removed through aerobic/anaerobic decomposition. The remaining colloidal and dissolved BOD is later removed as the wastewater comes in contact with microbes inhabiting the wetland. Once the desired secondary effluent standards have been achieved, treatment will proceed to the final phase. The final phase will allow for further biological treatment of the effluent in a surface flow wetland, as well as disposal of the effluent through evapotranspiration/infiltration. A constructed wetland treatment system schematic is presented in Appendix B.

To determine whether the proposed treatment is a feasible alternative for the Boston Mills Historic District, preliminary sizing of the surface flow and subsurface flow wetlands was completed as part of the June 2006 Feasibility Study. In addition, an analysis of operation and maintenance issues and regulatory requirements was completed.

Calculating flows in accordance with Ohio EPA requirements, the design capacity of the wetland system was established at 10,000 gallons per day which incorporates excess capacity to accommodate future potential flows. Preliminary sizing calculations indicate that a total of approximately four acres of land would be necessary for the surface and subsurface wetlands. The required septic tank design capacity is approximately 15,000 gallons, which is 1.5 times the design flow of the system, as required by Ohio EPA.

Operation of the wetland treatment system would occur once the plants contained in the subsurface flow and surface flow wetlands have been established, so that treatment goals can be achieved. To ensure proper operation and maintenance of the system, an operation and maintenance plan should be prepared. Operation and maintenance issues associated with the installation of a constructed treatment wetland system include monitoring of influent and effluent water quality, water level monitoring, vegetation management, and odor control.

A state regulatory requirement that will apply to a constructed wetland system is the submittal of a Permit to Install (PTI) application to Ohio EPA, which will allow for the construction and operation of the constructed treatment wetlands as a wastewater treatment plant. No state regulations which specifically address the construction of treatment wetlands currently exist.

3.5. Alternatives Considered But Rejected

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

Additional alternatives that were considered but rejected as unreasonable for the Boston Mills Historic District surrounding areas included:

- Replacement of all existing septic systems in-kind
- Connecting to existing sanitary sewer
- Spray irrigation
- Small package plant

3.5.1 Replacement of All Existing Septic Systems In-Kind

This alternative involves replacing the existing septic systems in-kind as they fail. This option was rejected as unreasonable due to land shortages (each new septic system requires an undisturbed area) and for the resulting impacts to potential archeological resources. Previous archeological surveys show substantial historic and prehistoric resources in all undisturbed areas surrounding the existing structures. In order for new modern treatment systems to be installed extensive data recovery of all archeological sites would have to be undertaken which is not economically feasible or supported by cultural resource specialists.

3.5.2 Package Plant

A small pre-fabricated package plant could be installed to handle wastewater flows from the described historic structures. However, this alternative was eliminated because it would require an NPDES permit to discharge treated effluent to the Cuyahoga River. Since the Cuyahoga River is not in attainment of applicable water standards, an NPDES permit is not a viable option.

3.5.3 Connection to Existing Sanitary Sewer

Connecting each of the historic structures to an existing sanitary sewer was rejected as unreasonable due to the unavailability of sanitary sewers in the project area. The nearest sanitary system owned by a public utility provider is approximately 2.5 miles away and would entail a substantial vertical lift as well as a major highway crossing.

3.5.4 Spray Irrigation

Similar to subsurface drip irrigation, this alternative includes primary and secondary treatment utilizing a small package plant, with final disposal by spray irrigation. Spray irrigation would be accomplished by installing sprinkler heads up to six feet above ground to allow sufficient throw of the water to allow for infiltration without surface ponding. This alternative was rejected as unreasonable due to potential contact with park visitors due to proximity to park trails, high storage capacity requirements and limited winter discharge, high maintenance requirements, and high capital costs.

3.6. Environmentally Preferable Alternative

The environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. When identifying the environmentally preferable alternative, economic, recreational, and technical issues are not considered. The environmentally preferable alternative is the alternative that will promote the national environmental policy expressed in NEPA (Section 101(b)) as the alternative that will help the Nation:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Based on the criteria of the six goals NEPA listed above, the environmentally preferable alternative is Alternative 3 (NPS Preferred), the constructed wetland treatment system. 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	Alternative 2 Subsurface Drip Irrigation System	Alternative 3 Wetland Treatment System (NPS Preferred)
Archeological Resources	Cumulative minor long-term adverse	Direct minor long-term adverse Beneficial Impacts	Direct minor long-term adverse Beneficial Impacts
Historic Structures/Buildings	Indirect moderate long-term adverse Cumulative moderate long-term adverse	Direct moderate long-term beneficial Cumulative moderate long-term benefits	Direct moderate long-term beneficial Cumulative moderate long-term benefits
Cultural Landscapes	Direct minor short and long-term adverse Cumulative minor long-term adverse	Direct negligible short-term adverse Indirect minor long-term beneficial Cumulative moderate long-term benefits	Direct negligible short-term adverse Indirect minor long-term beneficial Cumulative moderate long-term benefits
Scenic Values	Cumulative negligible	Direct moderate short-term and long-term minor adverse	Direct moderate short-term and long-term minor adverse
Health and Safety	Direct minor short-term and long-term adverse Indirect moderate short-term adverse Cumulative minor long-term adverse	Direct negligible adverse and major long-term benefits Indirect minor short-term adverse Cumulative moderate long-term benefits	Direct negligible adverse and major long-term benefits Indirect negligible short-term adverse Cumulative moderate long-term benefits
Visitor Experience	Direct negligible short-term and moderate long-term adverse Indirect moderate long-term adverse Cumulative	Direct minor short-term adverse Indirect negligible adverse Cumulative minor long-term benefits	Direct minor short-term adverse Indirect negligible adverse Cumulative minor long-term benefits

Issue	Alternative 1 No Action	Alternative 2 Subsurface Drip Irrigation System	Alternative 3 Wetland Treatment System (NPS Preferred)
Visitor Experience Cont.	moderate long-term adverse		
Water Resources	Direct minor short adverse Indirect minor short-term adverse Cumulative moderate short-term adverse	Direct negligible short-term adverse and moderate long-term benefits Indirect minor short-term adverse Cumulative minor and moderate long-term benefits	Direct negligible short-term adverse and moderate long-term benefits Indirect minor long-term benefits Cumulative minor and moderate long-term benefits
Wildlife and Wildlife Habitat Wildlife and Wildlife Habitat Cont.	None	Direct negligible short-term adverse Indirect minor short-term adverse	Direct negligible short-term adverse
Vegetation and Invasive Species	None	Direct minor short-term adverse and minor long-term benefits	Direct minor long-term adverse and minor long-term benefits

The constructed wetland treatment system proposed in Alternative 3 (NPS Preferred) is an engineered system that relies on natural ecological processes to achieve treatment goals. Constructed wetlands have been utilized for water quality improvement in the United States since the 1970s. Case histories have demonstrated the capacity of constructed wetlands to effectively remove high levels of chemical BOD and suspended solids, as well as nitrogen, metals, trace organics, and pathogens. Adequate design, operation, and monitoring would ensure a safe and healthful environment, as well as provide an aesthetically pleasing alternative to conventional wastewater treatment systems.

The parcel of land designated for potential use for the installation of an onsite wastewater treatment system, which consists of previously disturbed land, was identified in the 2004 Rural Landscape Environmental Impact Statement as grassland habitat management area. Thus, the installation of a constructed wetland treatment system would aesthetically enhance the area.

As previously noted, maintaining and upgrading utilities of structures located within the Boston Mills Historic District constitutes an essential part of the preservation of the park's cultural, historical, and environmental resources. Providing upgraded sanitary services would ensure the continued occupancy of these structures, thereby preserving the historical character of the Boston Mills Historic District. In addition, natural aspects would be enhanced with the construction of an engineered "natural" treatment system.

Constructed wetland treatment systems achieve a balance between population and use of resources by treating and recycling wastewater. As a result of the high rate of biological activity present in wetlands, these systems are able to transform common wastewater pollutants into natural byproducts, which are in turn used by the system for additional biological activity. This alternative therefore provides improved water quality while creating a valuable ecological habitat. Alternative 3 is also the NPS preferred since it also has fewer mechanical components than Alternative 2 and therefore requires less regular maintenance and operational costs.

4. AFFECTED ENVIRONMENT AND IMPACTS

4.1. Overview

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

4.1.1 Methodology

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

Potential impacts are described in terms of type (Are the effects beneficial or adverse?), context (Are the effects site-specific, local, or even regional?), duration (Are the effects short-term, lasting less than two years, or long-term, lasting more than two years?), 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 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 except where specifically noted:

Short-term impacts: Those impacts occurring in the immediate future and lasting no more than 2 years. The build alternatives will require approximately 2 years for completion of construction and establishment of vegetation.

- Long-term impacts:* Those impacts occurring through the next 10 years.
- Direct impacts:* Those impacts occurring from the direct use or influence of the alternative.
- Indirect impacts:* Those impacts occurring from (activity) that indirectly alter a resource or condition. Such impacts occur later in time or farther in distance than the action.
- Study Area:* 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.

4.1.2 Cumulative Impacts

The CEQ regulations (40 CFR 1508.7) require the assessment of "cumulative impacts" which are defined as: *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.*

In January 1997, the CEQ published a handbook entitled Considering Cumulative Effects Under the National Environmental Policy Act (see <http://ceq.hss.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.

4.1.3 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 an impairment, but an impact would be more likely to constitute an 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
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

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.

4.2. Archeological Resources

4.2.1 Affected Environment

Archeological resources are distributed throughout CVNP and more than half (51%) of the park has been archeologically surveyed. A total of 294 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.

The Boston, Ohio area, like much of the Cuyahoga River Valley, has a prehistoric occupation history that spans over 10,000 years. Several prehistoric sites have been recorded within the community over the past 30+ years. Boston was settled by Euro-Americans, many of whom came from Connecticut and other locations on the east coast of the U.S., very early in the 19th century. This use began at a shallow area on the Cuyahoga River that served as a landing place during the first decade of the 1800s for settlers attempting to travel overland to their newly acquired parcels to the east in the former Connecticut Western Reserve.

By the 1820s era, multiple structures were present in the community, and by the middle 1830s considerable commercial activity and residential use are documented. A plat from the 1850s era depicts numerous houses and commercial buildings in the core of the community. A few of the early buildings remain (such as the Boston Store from the circa 1835 era), while many others are no longer extant. Archeological deposits have been recorded in association with extant and non-extant building locations. Given this early and extensive settlement history, the archeological record at Boston is understandably complex.

Dense, and occasionally well stratified, archeological deposits occur across much of the community and many of these sites are significant and eligible for listing on the National Register of Historic Places. Given the distribution of artifacts across all of the major landforms in Boston, careful planning is required to avoid adversely impacting the sites. Park staff members have been working closely with archeologists to identify corridors that are previously disturbed, and where there is no potential to intersect significant archeological resources, so that the new development components can be placed in a manner that will create a fully functional sanitary system while preserving the unique archeological record of the community.

4.2.2 Methodology

The most important aspect of an archeological resource is its potential to describe and explain human behavior. 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 is at the lowest levels of detection- barely measurable with no perceptible consequences to archeological resources.
Minor	Disturbance of a site(s) results in little, if any, loss of its potential to describe and explain human behavior.
Moderate	Disturbance of a site(s) does not diminish the significance or integrity of the site(s) to the extent that it loses its ability to describe and explain human behavior. Such an impact would allow sufficient time for inventory, evaluation, documentation, and curation of collections and associated records.
Major	Disturbance of a site(s) diminishes the significance and integrity of the site(s) to the extent that it loses its ability to describe and explain human behavior.
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.

4.2.3 Alternative 1 -No Action

Direct Impacts –No adverse direct impacts to archeological resources are expected under this alternative. Existing systems will not be replaced in areas where known archeological resources are present.

Indirect Impacts -No indirect impacts to archeological resources are expected under this alternative.

Cumulative Impacts – Minor long-term adverse impacts are feasible when the systems fail and maintenance activities are undertaken in an attempt to extend the useful life of a septic system. Many times, upon report of a failure, maintenance crews will mobilize with pumper trucks and excavating equipment in an attempt to revitalize the system. This can result in unintended disturbances to archeological resources.

Conclusion - No impairment to archeological resources will occur with the selection of this alternative.

4.2.4 Alternative 2 -Subsurface Drip Irrigation Treatment System

Direct Impacts –Minor long term adverse direct impacts to archeological resources are expected under this alternative specifically at one property, Boodey, which was found to have artifacts within the project area that are in a disturbed context. Due to the previous

disturbance, the artifacts have lost potential to describe and explain the human behaviors associated with them resulting in the anticipated impact being minor.

Indirect Impacts -No indirect impacts to archeological resources are expected under this alternative.

Cumulative Impacts – This alternative has the potential for minor long-term adverse impacts if the system was ever taken over by a public utility provider and private properties were permitted to tie-in. Such actions would involve extension of the collection system with the potential disturbance to currently unknown resources.

There are also benefits to the archeological resources as they would be protected in situ with little possibility of disturbance since the system would provide for permanent collection of the wastewater from all NPS owned structures. On-site wastewater treatment systems typically require more ground disturbance than other utilities.

Conclusion – No impairment to archeological resources will occur with the selection of this alternative.

4.2.5 Alternative 3 -Wetland Treatment System

Since the potential ground disturbance is nearly identical for the two action alternatives the impacts to archeological resources are the same.

4.3. Historic Structures/Buildings

4.3.1 Affected Environment

The Boston Mills Historic District is listed in the National Register of Historic Places as a significant, intact example of a century canal village and for its concentration of intact 19th century architecture. Maintaining occupied buildings is critical to preserving the historic nature of the Boston Mills Historic District. Using historic buildings such as those owned by CVNP for residential, commercial and recreational purposes creates a palpable, lived-in village landscape, reinforcing the cultural use pattern of the site. Consequently, occupied buildings are better maintained, which furthers the historic preservation ideals of the park.

The Boston Mills Historic District is made up of 30 contributing resources, 7 of which are buildings that would be serviced by the two action alternatives. Two additional properties, the George Stanford House and Clayton Stanford House are also listed in the National Register of Historic Places. The final three buildings proposed to be serviced by this project, sometimes referred to as the Hines Hill Complex, are not included in any National Register nominations but are utilized extensively by the park's non-profit partner, Cuyahoga Valley National Park Association (CVNPA).

The resources identified in the Historic District are associated with the canal era or later company town period of the village's development. The dominant building type is residential typically 1 ½ to 2 story high frame construction with gable roofs and are utilitarian in nature. Preservation of these structures is vital to the integrity of the historic district and is best achieved through continued use of the buildings. The park service made substantial investments in the rehabilitation and preservation of the NPS owned structures in the district over the last 20 years.

Under the action alternatives, the collection system would be located in the historic district as well as the George and Clayton Stanford Properties. The treatment system would not be located within or near any properties listed in the National Register of Historic Places.

4.3.2 Methodology

The analysis of impacts to historic structures is a qualitative assessment based on a review of existing park policies on the treatment of historic structures and consultation with park cultural resources management team (historical architect/park section 106 coordinator and historian). For purposes of analyzing potential impacts to historic structures/buildings, the thresholds of change for the intensity of an impact are defined as follows:

Negligible	Impact is at the lowest levels of detection- barely measurable with no perceptible consequences to historic structures.	
Minor	Adverse	Impact would not increase the rate at which the historic structure is lost and/or influence the loss of historic character of the structure.
	Beneficial	The impact would decrease the rate at which the historic structure(s) is lost and/or decrease the loss of historic character.
Moderate	Adverse	Impact would moderately increase the rate at which the historic structure(s) is lost and/or influence the loss of historic character of the structure.
	Beneficial	Preservation or rehabilitation of most historic structure(s)'s character in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> .
Major	Adverse	The historic structure would be lost, or the historic character of the structure would be lost.
	Beneficial	Restoration of all historic structure(s)'s character in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> .
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.	

4.3.3 Alternative 1 -No Action

Direct Impacts –No direct impacts to historic structures are expected under this alternative.

Indirect Impacts –Moderate long-term adverse indirect impacts would result from the eventual vacating of the various structures as existing systems failed and new ones could not be constructed. With the potential use of the structures limited to mainly storage facilities their integrity would be more likely to decline. Additionally, the structures would be more prone to vandalism due to the lack occupancy.

Cumulative Impacts –Moderate long-term adverse cumulative impacts would result as structures experience deterioration but would still be eligible to be listed in the National Register of Historic Places.

Conclusion – No impairment to historic structures will occur with the selection of this alternative.

4.3.4 Alternative 2 -Subsurface Drip Irrigation Treatment System

Direct Impacts –No direct adverse or beneficial impacts to historic structures are expected under this alternative since the work will not be done directly to the structure.

Indirect Impacts - Moderate long-term beneficial impacts to the structures would occur since the collection and treatment system would be considered a rehabilitation measure according to *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Cumulative Impacts –Moderate long-term beneficial impacts would result from this alternative since the proposed system would service all NPS owned structures within the Historic District and could service any structures in the district which the park service may acquire in the future.

Conclusion - No impairment to historic structures will occur with the selection of this alternative.

4.3.5 Alternative 3 -Wetland Treatment System

The collection and treatment systems for Alternatives 2 and 3 very similar in their design and function, therefore, the impacts to historic structures are identical.

4.4. Cultural Landscapes

4.4.1 Affected Environment

Compatible new uses are generally acceptable as a means of improving, protecting, and preserving cultural landscape's historic character. In essence with continued utilization of the buildings, the historic living and working cultural landscape of CVNP is preserved and perpetuated functionally and aesthetically.

The Historic Landscape Analysis and Design Recommendations for Boston, Ohio (September 1993) recommends that the overall preservation treatment for the Boston Mills Historic District be “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values.”

Under the action alternatives, the collection system would be located in the historic district as well as the George and Clayton Stanford Properties. The treatment system would not be located within or near any properties listed in the National Register of Historic Places.

4.4.2 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 management team (park section 106 coordinator and historical landscape architect).

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, the primary goal in this EA is to preserve the cultural landscape by protecting the historic character of the landscape within the Boston Mills Historic District. 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 is at the lowest levels of detection- barely measurable with no perceptible consequences to the cultural landscape.	
Minor	Adverse	Impact(s) would not affect the character defining patterns and features of a National Register of Historic Places eligible or listed cultural landscape.
	Beneficial	Preservation of character defining patterns and features in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes</i> .
Moderate	Adverse	Impact(s) would alter a character defining pattern(s) or feature(s) of the cultural landscape but would not diminish the integrity of the landscape to the extent that its National Register eligibility is jeopardized.
	Beneficial	Rehabilitation of a landscape or its patterns and features in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes</i> .
Major	Adverse	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 eligible to be listed in the National Register.
	Beneficial	Restoration of a landscape or its patterns and features in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes</i> .
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.	

4.4.3 Alternative 1 -No Action

Direct Impacts -Under Alternative 1, the adverse impacts would range from short-term minor to long-term minor at the individual properties. As the existing systems fail, each location will require evaluation for a replacement system which may or may not be feasible. If not feasible, the building will be vacated. If a new system is feasible, based on current Ohio EPA permitted designs, it will be a system which has potential adverse impacts to the landscape due to the need for above ground components and topographic changes.

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

Cumulative Impacts -The cumulative impact is likely to be long-term minor adverse as failing systems result in the buildings left vacant and prone to disrepair and vandalism detracting from the overall cultural landscape of the historic district.

Conclusion - The no-action alternative will not impair the cultural landscape of the park or the Boston Mills Historic District.

4.4.4 Alternative 2 -Subsurface Drip Irrigation System

Direct Impacts -Under Alternative 2, there is a potential for short-term negligible adverse impacts to the cultural landscape during construction activities. Also, even though some components of the system, such as pump stations and manholes will be visible within the Historic District, they will not detract from the overall character of the historic landscape scene since they are small (less than five feet in diameter), close to the ground, and very common in modern society.

Indirect Impacts –Alternative 2 would result in long-term minor beneficial impacts since it would ensure the continued use and preservation of the historic structures associated with the cultural landscape. Furthermore, components for the existing septic systems servicing Boston Store Visitor Center and the George Stanford House will be permanently removed. These include a mounded sand filter, control panels and vent pipes.

Cumulative Impacts – Long-term minor beneficial impacts would result from this alternative since the cultural landscape of Boston Mills Historic District would be preserved through the continued use of the park owned structures.

Conclusion - Alternative 2 would not impair the cultural landscape of the park or the Boston Mills Historic District.

4.4.5 Alternative 3 -Wetland Treatment System

The collection and treatment systems for Alternatives 2 and 3 very similar in their design and function, therefore, the impacts to historic structures are identical.

4.5. Scenic Values

4.5.1 Affected Environment

CVNP is composed of a largely forested landscape bisected by the Cuyahoga River, interspersed with old fields, agriculture, and historic buildings. 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.

Over 250 historic structures, including the historic Ohio & Erie Canal, the adjacent Towpath Trail, and Boston Store Visitor Center are just some of the cultural resources that contribute to the scenic values of the park. Since the impacts to the historic properties were analyzed in the Cultural Landscape section, the impact to the scenic values will focus on the area where treatment systems for the two action alternatives would be located, outside of the historic district.

4.5.2 Methodology

Although the treatment systems proposed under the two build alternatives will service structures in the Boston Mills Historic District, the treatment systems themselves will be located outside of the historic district, in the undeveloped area to the southeast (Appendix B). Siting and design of new structures and their associated support infrastructure will be evaluated carefully so as to minimize impacts on the visual scene. 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 is at the lowest levels of detection- barely measurable with no
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	perceptible consequences to the visual resources.
Minor	Neither adverse nor beneficial impact(s) would alter a character defining pattern(s) or feature(s) of the visual resources because of scale and size of changes, or by placement of new features in less critical viewsheds. Most park visitors and staff would be unaware of any changes to the visual resources.
Moderate	Adverse impact(s) would alter a character-defining pattern(s) or feature(s) of the visual resources but not affect the integrity of the scenic values by providing simple mitigation measures such as vegetative screening, or by placement of features in locations where they would be less noticeable (e.g., adjacent to other similar features or adjacent to larger features on the landscape where mass and scale can be diminished). Beneficial impact(s) would alter a character-defining pattern(s) or feature(s) of the visual resources but would improve the integrity of the scenic values by removing smaller or less conspicuous intrusions that currently exist, or by adding some screening to existing landscape features. Some park visitors and staff would be aware of the changes to the landscape.
Major	Adverse impact(s) would alter a character-defining pattern(s) or feature(s) of the visual resource, diminishing the integrity of the visual resource by adding features of uncommon size or scale, or by removing important characteristics of the visual scene. Beneficial impact(s) would alter a character-defining pattern(s) or feature(s) enhancing the integrity of the visual resource by removing an important impediment to the visual scene or adding features that were previously lost. Most park visitors and staff would be immediately aware of the changes to the scenic values.

4.5.3 Alternative 1 -No Action

Direct Impacts -As Alternative 1 is the "no action" or status quo alternative no impacts would occur other than those discussed under the Cultural Landscape impacts.

Indirect Impacts - No indirect impacts are anticipated under the no-action Alternative.

Cumulative Impacts -The cumulative impact is likely to be negligible as the park would likely continue current management of the area. Although unlikely, long term impacts would occur if benign neglect of the landscape were allowed to occur.

4.5.4 Alternative 2 -Subsurface Drip Irrigation System

Direct Impacts – There is a potential for short-term moderate adverse impacts to the visual resource during construction. Upon completion of the system, long-term minor adverse impacts to scenic resources are expected due to the presence of above-ground structures. It

is anticipated that these above-ground structures would be concealed by appropriate design or landscaping. Additional long-term minor adverse impacts to scenic values are expected due to the maintenance needs of the system. The subsurface drip system may need to be replaced after approximately 15 years.

Indirect Impacts -No indirect impacts are anticipated under Alternative 2.

Cumulative Impacts –No cumulative impacts area anticipated under Alternative 2.

4.5.5 Alternative 3 -Wetland Treatment System

Direct Impacts -Under Alternative 3, there is a potential for short-term moderate adverse impacts to the visual resource during construction. Upon completion of the system, long term minor impacts to scenic resources are expected as the collection and treatment systems will be designed to have minimal above-ground structures. It is anticipated that any above-ground structures (e.g. valves or pump housing associated with a lift station) would be concealed by appropriate design or landscaping. The wetland treatment system is proposed to be located above the 100-year floodplain elevation in an old field between the I-271 and I-80 bridges. It will not be visible from the towpath trail but will be visible along approximately 1000 feet of Riverview Road when travelling north as well as along the Valley Bridle Trail. Once established, native wetland vegetation will dominate both the subsurface flow and surface flow portions of the treatment system thereby minimizing the long term adverse impacts.

Indirect Impacts -No indirect impacts are anticipated under Alternative 3.

Cumulative Impacts –No cumulative impacts area anticipated under Alternative 3

4.6. Health and Safety

4.6.1 Affected Environment

Where built facilities exist or are proposed to be constructed there is the need for occupants of those buildings, visitors, employees, or others who are in close proximity to be in healthy and safe conditions. Therefore, decisions regarding this proposal should consider their potential impact on human health and safety.

4.6.2 Methodology

The primary concern with a wastewater treatment system involves potential human health impacts due to exposure to the waste stream. Where impacts to health or visitor safety become moderate or major, it is assumed that current safety levels would begin to decline and the park would not be achieving some of its long-term goals.

Negligible	The impact to human health and safety would not be measurable or perceptible.	
Minor	Adverse	The impact would be measurable or perceptible, and it would be limited to a relatively small number of people in localized areas.
	Beneficial	Conditions would cause a measurable or perceptible improvement that would be limited to a relatively small number of people in localized areas.
Moderate	Adverse	The impact to human health and safety would be sufficient to cause a permanent increase in accident rates and/or increase in encounters with untreated wastewater.
	Beneficial	The impact to human health and safety would be sufficient to cause a permanent decrease in accident rates and/or a decrease in potential encounters with untreated wastewater.
Major	Adverse	The impact to human health and safety would be substantial through creation of new areas with a high potential for serious accidents or hazards.
	Beneficial	The impact to human health and safety would be substantial through the permanent elimination of potential hazards.

4.6.3 Alternative 1 -No Action

Direct Impacts -Under Alternative 1, direct impacts would be long-term minor adverse. Many of the existing systems are not designed to current regulatory standards increasing the potential that they will discharge untreated wastewater. Other older systems are likely to fail in the near future at which time there would be a brief time period from the failure until the system is abandoned and the building vacated. During that time period there is potential for park employees and the general public to come into direct contact with untreated wastewater resulting in short-term minor adverse impacts.

Indirect Impacts – Impacts would be short-term moderate adverse as failing septic system could have the potential to contaminate local drinking water wells of private residents. The contamination would likely not be detected until a resident reported an illness and the source of contamination was determined.

Cumulative Impacts -The cumulative impact is likely to be minor, as the park would continue to manage the area as it has in the past. However, potential long-term minor impacts may result when existing septic systems fail and buildings are vacated. Vacant structures are prone to break-ins, vandalism, and arson. All of which are potential threats to the health and safety of the local residents, park visitors and park employees.

4.6.4 Alternative 2 -Subsurface Drip Irrigation System

Direct Impacts -Under Alternative 2, potential for negligible adverse impacts to visitor health and safety will be minimized by proper maintenance. The park is required to employ a State of Ohio licensed wastewater operator to monitor all wastewater treatment systems owned by the park.

Long-term major beneficial impacts will result since the system will provide a permanent solution for wastewater treatment for the NPS owned buildings that it services.

Indirect Impacts - Potential short-term minor adverse impacts would occur if there is a failure of the one of the mechanical components. Such a failure could result in the discharge of untreated wastewater. This potential, although possible, is unlikely due to a number of back-up and alarm systems that would be required by the Ohio EPA.

Cumulative Impacts – Long-term moderate beneficial cumulative impacts will result from this alternative as numerous on-site wastewater treatment systems are combined into the SSDI which would be designed to modern standards and monitored on a regular basis by licensed wastewater operators. The potential for human contact with untreated wastewater will be eliminated at the individual structures. Additionally the contribution of harmful pollutants in the Cuyahoga Watershed will be eliminated.

4.6.5 Alternative 3 -Wetland Treatment System

Direct Impacts -Under Alternative 3, there is a potential for negligible adverse impacts to visitor health and safety. These potential impacts will be minimized by proper installation and maintenance of the system. The park is required to employ a State of Ohio licensed wastewater operator to monitor all wastewater treatment systems owned by the park. Although the wetland treatment system will not be located in an active use area of the park, the discharge from the subsurface flow portion of the system to the surface flow wetland is intended to meet criteria for secondary treatment standards. If necessary, appropriate signage or landscaping can be used to restrict access to the surface flow wetland area.

Long-term major beneficial impacts will result since the system will provide a permanent solution for wastewater treatment for the NPS owned buildings that it services.

Indirect Impacts – Potential negligible minor impacts could occur if there is a failure of the system which causes a back-up at the pump stations or septic tanks. The untreated wastewater could flow onto one private property adjacent to an NPS property. This could occur only due to pump failure since electrical outages result in shut down of all water and wastewater systems. The potential of this occurring is less than in Alternative 2 since the system operates with significantly fewer mechanical components.

Cumulative Impacts - Long-term moderate beneficial cumulative impacts will result from this alternative as numerous on-site wastewater treatment systems are combined into the wetland treatment system which would be designed to modern standards and monitored on a regular basis by licensed wastewater operators. The potential for human contact with untreated wastewater will be eliminated at the individual structures. Additionally the contribution of harmful pollutants in the Cuyahoga Watershed will be eliminated.

4.7. Visitor Experience

4.7.1 Affected Environment

Visitors come to CVNP to use and experience the park 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.

4.7.2 Methodology

The potential for change in visitor experience was evaluated by identifying projected increases or decreases in (the activity) and other visitor uses, and determining whether these projected changes would affect the desired visitor experience. The intensity levels for visitor experience are listed below.

Negligible	Visitors would not likely be aware of the effects associated with changes proposed for visitor use and enjoyment of park resources.	
Minor	Adverse	Visitors would likely be aware of the effects associated with changes proposed for visitor use and enjoyment of park resources; however the changes in visitor use and experience would be slight and likely short term.
	Beneficial	Visitors would likely be aware of the beneficial effects associated with changes resulting from the alternative; however the increase in visitor use and experience would be slight and likely short term.
Moderate	Adverse	Visitors would be aware of the effects associated with changes proposed for visitor use and enjoyment of park resources. Changes in visitor use and experience would be readily apparent and likely long term. Other areas in the park would remain available for similar visitor experience and use without derogation of park resources and values, but visitor satisfaction might be measurably affected (visitors could be either satisfied or dissatisfied). Some visitors who desire to continue their use and enjoyment of the activity/visitor experience would be required to

		pursue their choice in other available local or regional areas.
	Beneficial	Visitors would be aware of the beneficial effects associated with changes resulting from the alternative. Increase in visitor use and experience would be readily apparent and likely long term.
Major	Adverse	Visitors would be highly aware of the effects associated with changes proposed for visitor use and enjoyment of park resources. Changes in visitor use and experience would be readily apparent and long term. The change in visitor use and experience proposed in the alternative would preclude future generations of some visitors from enjoying park resources and values. Some visitors who desire to continue their use and enjoyment of the activity/visitor experience would be required to pursue their choice in other available local or regional areas.
	Beneficial	Visitors would be highly aware of the beneficial effects associated with changes resulting from the alternative. Increases in visitor use and experience would be readily apparent and long term.

4.7.3 Alternative 1 -No Action

Direct Impacts -Under Alternative 1, direct impacts would be negligible in the short term as the park would continue with the status quo to manage the lands and buildings of the Boston Mills Historic District.

Long-term moderate adverse impacts to visitor experience would likely occur under the no action alternative, which would allow the existing septic systems to fail. Failure of the systems would reduce public use, enjoyment, or access to numerous facilities including the Boston Store Visitor Center, overnight accommodations at the Stanford House and rental facilities at Hines Hill Conference Center.

Indirect Impacts – Long-term moderate adverse impacts to the Boston Mills Historic District and its surrounding buildings are expected with the no-action alternative. These are popular locations within CVNP as a destination, brief rest stop along the Towpath Trail and for special events. Public waterless restrooms could be constructed, although these are not preferred by park visitors and they will be less apt to stop and visit the Boston Store Visitor Center and CVNPA’s Trail Mix Store. Furthermore, overnight accommodations at the Stanford House would be impacted since there would be no indoor restrooms, showers, food preparation or laundry facilities. Hines Hill Conference Center would also be less desirable for rental with only waterless facilities.

Cumulative Impacts –The cumulative impacts of Alternative 1 would be moderate long-term and adverse. Recently, the Boston Mills Area has become a greater focal point for visitor use in CVNP with more traffic being directed to the Boston Store Visitor Center and the use of

rental facilities at the Hines Hill Complex and Stanford House. Alternative 1 would hasten the failure of the existing systems due to the increased use as well as result in negative experiences by visitors after the septic systems fail.

4.7.4 Alternative 2 -Subsurface Drip Irrigation System

Direct Impacts - Under Alternative 2, there is potential for short-term minor adverse impacts to visitors experience due to construction activities which may hinder use of the area.

Indirect Impacts - Negligible indirect impacts are possible if the system is not properly maintained and offensive odors may result. However, the park is required to have a licensed operator on staff and therefore the system will be properly maintained thereby mitigating any potential adverse impacts.

Cumulative Impacts – Alternative 2 would result in minor long-term beneficial effects to the visitor experience at CVNP. The existing systems limit the capacity of events at all facilities which they currently service. The new collection and treatment system will allow for greater public use.

4.7.5 Alternative 3 -Wetland Treatment System

Direct Impacts -Under Alternative 3, there is potential for minor short-term impacts to visitors experience due to construction activities which may hinder use of the area.

Indirect Impacts –Negligible indirect impacts are possible if the system is not properly maintained and offensive odors may result. However, the park is required to have a licensed operator on staff and therefore the system will be properly maintained thereby mitigating any potential adverse impacts.

Cumulative Impacts – Alternative 2 would result in minor long-term beneficial effects to the visitor experience at CVNP. The existing systems limit the capacity of events at all facilities which they currently service. The new collection and treatment system will allow for greater public use.

4.8. Water Resources

4.8.1 Affected Environment

The project area is located in the Cuyahoga River Valley and the treatment systems proposed for the two build alternatives are located approximately 800 feet east of the Cuyahoga River, and above the 100-year floodplain elevation. Two small streams are present in the project area. No wetlands have been identified within the area to be affected by the project therefore analysis of impacts to wetlands was not analyzed for this EA.

The Cuyahoga River and its tributaries have benefited from extensive recovery efforts over the last 40 years. Upgrades of municipal wastewater treatment plants, implementation of combined sewer overflow long term control plans, improved municipal industrial pretreatment programs and decreases in industrial point source loadings have greatly reduced the amounts and types of pollutants entering the river and its tributaries. Significant documented improvements in water quality and biological performance are now apparent. The number of fish species has increased dramatically over the past 40 years. Protection and restoration of riparian and wetland areas have likely aided in preventing further degradation in the watershed (Plona, 2009). The park annually monitors nineteen streams for physical and chemical water quality characteristics.

Even with improvements in water quality, the Cuyahoga River within CVNP is often unacceptable for recreational use due to the high concentrations of *Escherichia coli* (*E. coli*), a fecal-indicator bacterium which is present in untreated wastewater. The Total Maximum Daily Loads for the Lower Cuyahoga River (Ohio EPA, September 2003) identified failing septic systems, mainly on tributaries as a main non-point source of pollution for this section of the river.

4.8.2 Methodology

The analysis of impacts on water resources is based on a review of existing park natural resource data, park planning documents, professional opinion, and scientific literature. No original data collection was undertaken as part of this impact analysis.

It was assumed that the management of storm water and wastewater would follow Best Management Practices and only proceed as permitted by the Ohio EPA, and that these would reduce impacts to water quality to below a negligible level.

Negligible	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.	
Minor	Adverse	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.
	Beneficial	A beneficial change of similar magnitude to a Minor Adverse impact of water quality.
Moderate	Adverse	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.
	Beneficial	A beneficial change of similar magnitude to a Moderate Adverse impact of water quality.
Major	Adverse	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.
	Beneficial	A beneficial change of similar magnitude to a Major Adverse impact of water quality.
Impairment		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 the park's water quality and aquatic resources to the extent that the park's purpose could not be fulfilled as established in its enabling legislation; affect resources key to the park's natural or cultural integrity or opportunities for enjoyment; or affect the resource whose conservation is identified as a goal in the park's general management plan or other park planning documents.

4.8.3 Alternative 1 -No Action

Direct Impacts - While the existing septic systems are currently functional, some are expected to fail within five years. Furthermore, many of these systems are in low-lying areas and within the 100-year floodplain. These types of systems, particularly if not built to current design standards, may ultimately discharge to a ditch or other surface waters during wet periods or flood events. This discharge typically increases as the systems near the end of their functional life, and the water quality of discharge decreases. Given the proximity of these systems to the Cuyahoga River, there is a reasonable expectation of some discharge. However, given the magnitude of the potential discharge relative to the flow of the Cuyahoga River, the resulting adverse effect on water quality would likely be short-term and minor.

Indirect Impacts -Septic systems provide primary treatment of wastewater in a septic tank where solids can settle, and secondary treatment in a leach field. As presented above, the

effectiveness of this treatment decreases over time. Potential indirect impacts to water quality may occur as the systems age and affected shallow groundwater discharges to the Cuyahoga River. The Park would abandon the systems when they are no longer functional, and the adverse impact on water quality is expected to be short-term and minor. However, given the age of some of these systems, as well as their location within the 100-year floodplain, the potential adverse impact is relatively higher than that of the two build alternatives.

Cumulative Impacts – As stated in the Visitor Experience impacts, the Boston Mills Area is currently seeing an increase in wastewater flows due to increased visitor use. This will result in moderate short-term adverse impacts to water quality as the old, under-designed systems are taxed with greater flows. The impact will be most evident during rain events when overland flows will transport pollutants to the Cuyahoga River.

Conclusion - This alternative will not lead to the impairment of water resources in CVNP.

4.8.4 Alternative 2 -Wetland Treatment System

Direct Impacts -Negligible short term impacts to water quality would result from construction activities for Alternative 2. These will be minimized since the park will require implementation of appropriate sediment and erosion control practices.

Long-term moderate direct beneficial impacts would occur as all on-site systems would be replaced with a centralized system designed to current standards and operated and maintained by licensed wastewater operators.

Indirect Impacts -The subsurface drip irrigation system proposed for Alternative 2 relies on infiltration for ultimate disposal of treated wastewater. The potential for discharge of nutrients in shallow groundwater to the Cuyahoga River is low, but slightly higher than for Alternative 3. However, this system relies on more mechanical controls than the other build alternative and is more prone to potential failure. Such a failure would result in a short-term minor adverse impact to water quality until the failure is identified and resolved.

Cumulative Impacts – Alternative 2 will have minor long-term beneficial effects on water quality in the Cuyahoga River. As the visitor use to the Boston Mills area continues to increase the new collection and treatment system will be capable of treating the increase flows that are generated. Additionally, although not part of the scope of this project, if a public utility were to take over the system and tie-in all private properties in the Historic District there would be a moderate long-term beneficial effect.

Conclusion – This alternative will not lead to the impairment of water resources in CVNP.

4.8.5 Alternative 3 -Wetland Treatment System

Direct Impacts -Negligible short term impacts to water quality would result from construction activities for Alternative 3, as the Park will require implementation of appropriate sediment and erosion control practices.

Long-term minor direct beneficial impacts would occur as all on-site systems would be replaced with a centralized systems designed to current standard and operated and maintained by licensed wastewater operators.

Indirect Impacts - The wetland treatment system proposed for Alternative 3 relies on infiltration and evaporation of treated wastewater. The potential for discharge of nutrients in shallow groundwater to the Cuyahoga River is the lowest of the three alternatives, in part because the evaporation component of the surface treatment wetland removes a substantial volume of water. Therefore, this alternative would result in long-term minor beneficial impacts.

Cumulative Impacts – Alternative 3 will have minor long-term beneficial effects on water quality in the Cuyahoga River. As the visitor use to the Boston Mills area continues to increase the new collection and treatment system will be capable of treating the increase flows that are generated. Additionally, although not part of the scope of this project, if a public utility were to take over the system and tie-in all private properties in the Historic District there would be a moderate long-term beneficial effect.

Conclusion – This alternative will not lead to the impairment of water resources in CVNP.

4.9. Wildlife and Wildlife Habitat

4.9.1 Affected Environment

Wildlife and habitat that would be most affected by the actions in this Environmental Assessment are early-successional and forest edge species associated with the open area where the build alternatives would be constructed. Early successional habitats, including grasslands, and scrub-shrub habitats are among the most threatened in the world. Bird species dependent upon these habitats within the U.S. have exhibited precipitous population declines over the past 40 years and most of these species are of high national conservation concern (North American Bird Conservation Initiative 2009).

The open area identified for the treatment area was extensively disturbed in the 1980s when it was used for construction staging for work on the nearby Ohio Turnpike. Restoration of the area following construction involved re-grading and seeding with hardy grasses, most of which are non-native (see 4.9 Vegetation and Invasive Species below).

Surveys of breeding birds were conducted within the treatment area during June and July of 2003 (Petit, unpubl. data). Those surveys detected only several species of common birds associated with highly disturbed conditions (e.g., European starling [*Sturnus vulgaris*], rock dove [*Columba livia*]). No species of conservation concern were detected in the grassland area during surveys.

More recently, a pair of peregrine falcons established a nesting territory over the treatment area, successfully raising young in 2009 from a nest located on the high-rise Ohio Turnpike bridge over the river valley. These falcons were observed capturing bird prey within and around the treatment area.

4.9.2 Methodology

Field inspections, maps illustrating vegetation cover within the park, and previous knowledge of the sites were used to identify baseline conditions within the study area.

Impacts on wildlife and wildlife habitat were determined by examining the potential effects of the proposed construction and use of the sites on the abundance and distribution of wildlife and associated vegetation at and immediately adjacent to each alternative site.

Negligible	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	Adverse	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.
	Beneficial	A beneficial change of similar magnitude to a Minor Adverse impact to wildlife and their habitat.
Moderate	Adverse	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

		<p>for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the park unit.</p> <p>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.</p>
	Beneficial	A beneficial change of similar magnitude to a Moderate Adverse impact to wildlife and their habitat.
Major	Adverse	<p>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 the park. 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.</p>
	Beneficial	A beneficial change of similar magnitude to a Major Adverse impact to wildlife and their habitat.
Impairment	<p>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. In addition, these adverse, major impacts to park resources and values would contribute to deterioration of the park's wildlife resources and values to the extent that the park's purpose could not be fulfilled as established in its enabling legislation;</p>	

	affect resources key to the park's natural or cultural integrity or opportunities for enjoyment; or affect the resource whose conservation is identified as a goal in the park's general management plan or other park planning documents.
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4.9.3 Alternative 1 -No Action

Direct Impacts -Under Alternative 1, the park would continue with the status quo to manage lands within the project area. Specifically, the fields in the vicinity of the proposed treatment system would continue to remain open space therefore no direct impact would occur.

Indirect Impacts -No indirect impacts to wildlife or wildlife habitat are expected under this alternative.

Cumulative Impacts -No cumulative impacts to wildlife or wildlife habitat are expected under this alternative.

Conclusion -Under this alternative, no impacts are anticipated.

4.9.4 Alternative 2 -Subsurface Drip Irrigation Treatment System

Direct Impacts -Under this alternative, approximately four acres of early successional wildlife habitat would be replaced with a subsurface drip irrigation system and a small package plant for secondary treatment of wastewater. The area of habitat being removed under this alternative would constitute negligible long term impacts to the amount of early successional wildlife habitat in the park. Short-term negligible impacts to field nesting birds which utilize the proposed project site would occur during construction due to the noise of equipment as well as removal of all vegetation from the wetland area.

Indirect Impacts –Since this system is more prone to mechanical failure and possible discharge of untreated wastewater there is a potential minor short term impact if wildlife come into contact with the untreated wastewater resulting in illness. The threat would be resolved as soon as the malfunction was identified and resolved.

Cumulative Impacts -No cumulative impacts to wildlife or wildlife habitat are expected under this alternative.

Conclusion -Under this alternative, negligible short and long term impacts to wildlife habitat would occur. Additionally minor short term indirect impacts are possible. This alternative is not expected to lead to impairment of park wildlife.

4.9.5 Alternative 3 -Wetland Treatment System

Direct Impacts -Under this alternative, approximately 4 acres of early successional wildlife habitat would be replaced with a wetland treatment system, with habitat characteristics

similar to natural wetlands in the park. The area of habitat being removed under this alternative would constitute negligible long term impacts to the amount of early successional wildlife habitat in the park, but would add habitat diversity within the project area and provide some benefits to wetland-associated wildlife species. Short-term negligible impacts to field nesting birds which utilize the proposed project site would occur during construction due to the noise of equipment as well as removal of all vegetation from the wetland area.

Indirect Impacts -No indirect impacts to wildlife or wildlife habitat are expected under this alternative.

Cumulative Impacts -No cumulative impacts to wildlife or wildlife habitat are expected under this alternative.

Conclusion - Under this alternative, negligible short and long term impacts to wildlife habitat would occur. This alternative is not expected to lead to impairment of park wildlife.

4.10. Vegetation and Invasive Species

4.10.1 Affected Environment

CVNP supports a variety of habitats, including mixed-deciduous forest, mixed-evergreen forest, wet meadows, emergent marsh, farmland, grassland and open water. Located in the glaciated Allegheny Plateau of northeastern Ohio, mixed-mesophytic forests cover approximately 27,000 acres (80 percent) of CVNP with the oak-hickory association being the most common. Other forest associations at CVNP include maple-oak, oak-beech-maple, maple-sycamore, pine-spruce and hemlock-beech. A long history of intensive land use has created forests at CVNP with vastly different ages and community structures.

Interspersed with forests are other habitats, including grasslands (approximately 2,000 acres or six percent of CVNP), wetlands (approximately 1,700 acres or five percent), open water (approximately 150 acres or about one-half percent) and agricultural land (approximately 1,300 acres or four percent). Suburban lands and developments, including lawns, golf courses and cemeteries, cover approximately 1,000 acres – or three percent – of CVNP.

More than 1,300 plant species have been documented at CVNP with nearly 20 percent of those species being non-native to the area; sixteen of those non-native species are considered to be locally invasive. Invasive plants are those capable of over-running native habitats, displacing native species and forming large monocultures with limited habitat value.

The two action alternatives analyzed in this EA involve construction of a small wastewater treatment system in a disturbed field dominated by herbaceous vegetation. The treatment area was extensively disturbed in the 1980s when it was used for construction staging for work on the nearby Ohio Turnpike. Restoration of the area following construction involved

re-grading and seeding with hardy grasses. Dominant herbaceous species at the field site are mostly non-native, including white sweet clover (*Melilotus alba*) and tall fescue (*Festuca arundinacea*) with commonly scattered bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), teasel (*Dipsacus sylvestris*) and a small patch of common reed (*Phragmites australis*). A few native species also are common at the site, notably including broomsedge bluestem (*Andropogon virginicus*), switchgrass (*Panicum virgatum*) and scattered hemp dogbane (*Apocynum cannabinum*). Sparsely scattered, young trees also inhabit that field site with the most common species being autumn olive (*Eleagnus umbellata*). Young, native trees also are present at the field site, including a few sycamores (*Platanus occidentalis*), eastern cottonwoods (*Populus deltoides*) and red cedars (*Juniperus virginiana*).

Immediately south of the project area is a dense patch of approximately one-half acre of common reed and immediately north and east of the site are established stands of autumn olive also covering approximately one-half acre.

Approximately 400-feet west of the field site, a shallow drainage runs in an east-west direction across the field beginning south of a bordering trail at the outfall of a 12-inch drainage pipe. In the project area (within the footprint of the pressurized sewer line), the sides of the drainage support vegetation similar to nearby field species with the addition of coltsfoot (*Tussilago farfara*). The bottom of the drainage was dry in early September but supported a dense patch of black bulrush (*Scirpus atrovirens*) with a small stand of sandbar willow (*Salix exigua*) a short distance downstream to the west.

In addition to the field site, a one-acre patch of disturbed woodland is located southeast of the Boston Store parking lot. This patch of forest is bisected by a drainage that begins west of a nearby trail at the outfall of a four-foot drainage pipe that flows west into the Cuyahoga River. Dominant understory plants in this patch of woodland are common throughout CVNP and include Virginia knotweed (*Tovara virginiana*), white snakeroot (*Eupatorium rugosum*), wingstem (*Actinomeris alternifolia*), coltsfoot, multiflora rose (*Rosa multiflora*), bedstraw (*Gallium* sp.), grasses and poison ivy (*Toxicodendron radicans*). Dominant overstory species include silver maple (*Acer saccharinum*), black walnut (*Juglans nigra*) and box elder (*Acer negundo*) with scattered cottonwoods, sycamores, slipper elms (*Ulmus rubra*) and Ohio buckeyes (*Aesculus glabra*).

4.10.2 Methodology

A field inspection and previous knowledge of the sites were used to identify baseline conditions within the study area. Vegetation impacts were determined by examining the potential effects of the proposed construction and use of the sites on vegetation according to type and sensitivity. Effects on vegetation on and immediately adjacent to each alternative site were assessed.

Negligible	Impacts would have no measurable or perceptible changes in plant community size, integrity, or continuity. Impacts would be of short duration and well
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	within natural fluctuations.	
Minor	Adverse	Impacts would be measurable or perceptible but would be localized within a relatively small area. The overall viability of the plant community would not be affected and, if left alone, would recover.
	Beneficial	A beneficial change of similar magnitude to a Minor Adverse impact to the park's vegetation.
Moderate	Adverse	Impacts would cause a change in the plant community (e.g. abundance, distribution, quantity, or quality); however, the impact would remain localized.
	Beneficial	A beneficial change of similar magnitude to a Moderate Adverse impact to the park's vegetation.
Major	Adverse	Impacts to the plant community would be substantial, highly noticeable, and permanent.
	Beneficial	A beneficial change of similar magnitude to a Major Adverse impact to the park's vegetation.
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.	

4.10.3 Alternative 1 -No Action

Direct Impacts- Under the no-action alternative, no direct impacts to vegetation or plant communities would occur. Grassland habitat would continue to dominate the field site for many years and forest species would continue to occupy the small patch of woodland southeast of the Boston Store parking lot. Pressurized sewer lines would not cross drainages and wetland habitat would not be created or otherwise affected.

Indirect Impacts -No indirect impacts to vegetation or plant communities are expected under this alternative.

Cumulative Impacts – A variety of past, present and reasonably foreseeable actions have affected and will continue to affect grassland, forest and wetland vegetation at CVNP. Most forestland within what is now CVNP was cleared in the 1800s for farmland or timber with adverse effects to associated wetlands. More recently, forests were cleared to create homes, businesses, freeways and other developments. Following establishment of CVNP in 1974, many acres that previously supported buildings or farmland began to revert to forestland. The park continues to maintain some grassland through mowing and grazing but grasslands in other areas slowly are succeeding to forest. Many invasive plants were introduced to the area prior to establishment of CVNP. Although CVNP staff has implemented – and will continue to implement – projects to control invasive plants, such species remain widespread on parkland and will continue to inhabit CVNP sites for many years to come.

This alternative would not contribute to cumulative impacts to native vegetation or invasive plants.

Conclusion – The no-action alternative would not affect or impair vegetation in the project area or at CVNP.

4.10.4 Alternative 2 -Subsurface Drip Irrigation Treatment System

Direct Impacts -Under this alternative, approximately four acres of early successional grassland would be disturbed during construction of a subsurface drip irrigation system with an associated “small-package plant” for secondary treatment of wastewater. During construction, sparsely scattered autumn olives and a small patch of common reed would be removed from the field site. In addition, several young trees likely would be removed from the patch of forest southeast of the Boston Store parking lot while installing a pressurized sewage line. Following construction, the field site would be revegetated with native grassland species and would continue to support current functions and values, including wildlife habitat, sediment stabilization, recreational opportunities and educational values.

Indirect Impacts -No indirect impacts to vegetation or plant communities are expected under this alternative.

Cumulative Impacts – As described above in section 4.9.3, a variety of factors have affected and will continue to affect vegetation at CVNP.

Early successional trees already have established themselves in the project area and, over time if left undisturbed, the field site will revert to forestland. Following construction under Alternative 2, the project area would continue its current successional trajectory to forest. Therefore, Alternative 2 would not contribute to cumulative impacts to native vegetation or invasive plants.

Conclusion – This alternative would have a minor, short-term, adverse effect on grassland vegetation and a minor, long-term beneficial effect on control of invasive plants in the project area that would not impair vegetation in the project area or at CVNP.

4.10.5 Alternative 3 -Wetland Treatment System

Direct Impacts -Under this alternative, approximately four acres of early successional grassland would be replaced by wetland habitat constructed to treat wastewater in the project area. This habitat change would decrease grassland acreage and increase wetland acreage at CVNP by approximately one-fifth of one percent each. The wetland would support open water and emergent vegetation dominated by native species expected to inhabit natural wetlands at CVNP. CVNP staff would ensure invasive plants of concern, such as purple loosestrife (*Lythrum salicaria*), common reed and/or narrow-leaf cattail (*Typha angustifolia*) do not colonize the constructed wetland. Construction of the wetland will add

habitat diversity to existing plant communities in the project area and enhance existing functions and values, including with associated functions and values, including wildlife habitat, sediment stabilization, recreational opportunities and educational values. In addition, several young trees likely would be removed from the patch of forest southeast of the Boston Store parking lot while installing a pressurized sewage line.

Indirect Impacts -No indirect impacts to vegetation or plant communities are expected under this alternative.

Cumulative Impacts – As described above in section 4.9.3, a variety of factors have affected and will continue to affect vegetation at CVNP.

Early successional trees already have established themselves in the project area and, if left disturbed over time, the field site would revert to forest. Following construction under Alternative 3, the project area permanently would support four acres of wetland habitat free from invasive plants. Accordingly, this alternative would contribute a minor, beneficial component to cumulative effects on wetlands at CVNP, while contributing a minor, adverse component to grasslands and forests over the long-term by preventing natural succession to continue at the site.

Conclusion – This alternative would have a minor, long-term, adverse effect that would not impair grassland and forest vegetation, while also having a minor, long-term, beneficial effect on wetlands and the control of invasive plants in the project area and at CVNP.

5. CONSULTATION AND COORDINATION

5.1. *Public Involvement*

An interdisciplinary team was formed for the project and an Environmental Screening Form was prepared on February 2, 2004.

Interagency and public scoping was conducted in October 2004 as well as July 2009 and a public meeting was held on August 11, 2009.

Information about the project was published to the National Park Service's Planning, Environment and Public Comment (PEPC) system on July 17, 2009 through August 20, 2009. Press releases and mailings encouraged the public to comment on the project. A total of 10 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 as well as private property owners in close proximity to the project. Copies of comments received from federal, state, and local agencies/governments/ organizations are included in Appendix C.

5.2. *Individuals and Agencies Consulted*

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

5.3. *Preparers and Contributors*

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