

National Park Service  
Chesapeake and Ohio Canal National Historical Park

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# ENVIRONMENTAL ASSESSMENT

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## Rehabilitation of the Great Falls Entrance Road, Upper & Lower Parking Lots and Tavern Yard Area



In Cooperation with the Federal Highway Administration  
Eastern Federal Lands Highway Division

November 2004

*Prepared pursuant to the Council on Environmental Quality's regulations for  
implementing the National Environmental Policy Act (43 CFR 1500) and  
42 U.S.C. 4332(2)(C)*





## **Abstract**

This Environmental Assessment (EA) provides decision-makers and the public with information and analysis on the proposed improvements to the Great Falls area of the Chesapeake and Ohio Canal Historical Park (C&O Canal NHP) located in Montgomery County, MD.

The National Park Service (NPS) has several goals in selecting a preferred alternative. These goals include improving driving conditions and safety concerns on the entrance road, upgrading parking conditions, flood control, historical preservation, and the addition of an improved comfort station. The NPS would like to complete this work while minimizing impacts to the Park's natural and cultural resources.

This EA provides decision-makers and the public with information and analysis on the proposed project. The purpose of this document is to determine which aspects of the proposed actions have potential for social, economic, or environmental impact. The review of a no action alternative is also presented. This document also identifies mitigation choices that may reduce harmful or unwanted impacts. The aim of the NPS is to select an alternative that adds to the safe and enjoyable experience of visitors, while maintaining the beauty and natural and cultural significance of the Park. Public involvement and coordination/consultation with other Government agencies is summarized throughout the document. Technical, planning and engineering assistance is being provided by the Federal Highway Administration (FHWA), Eastern Federal Lands Highway Division (EFLHD).

This document is prepared pursuant to the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), Section 7 of the Endangered Species Act (ESA), the Clean Water Act (CWA), and Executive Orders protecting wetlands and floodplains.



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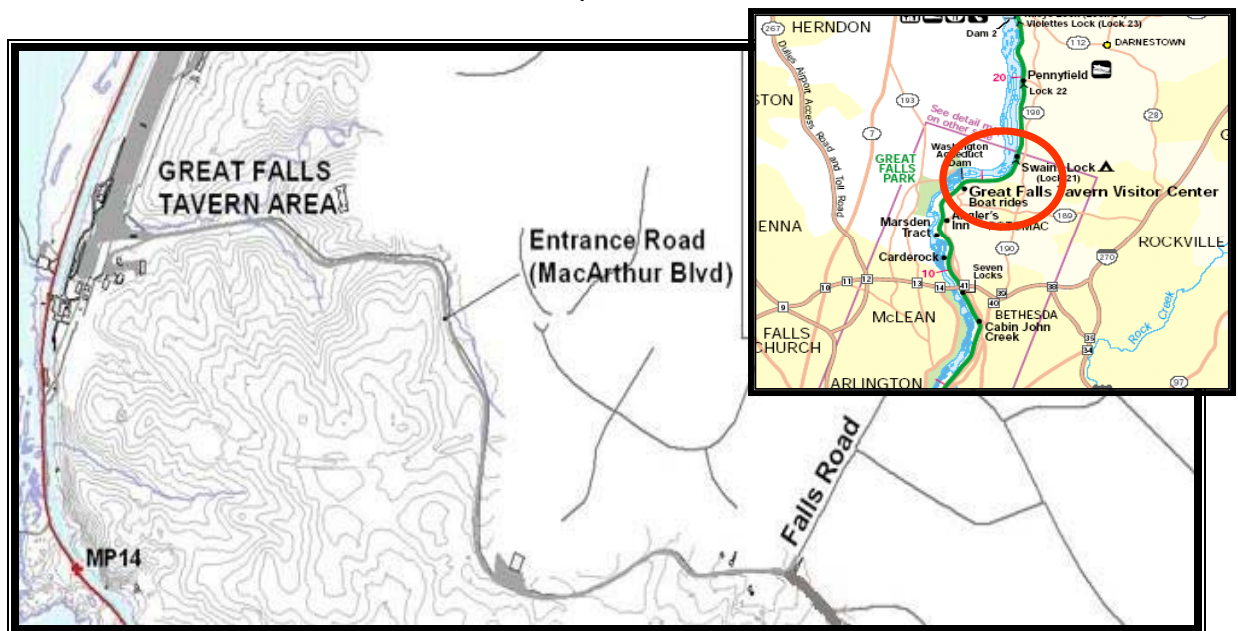
# I. Purpose and Need for Action

## A. Location and Limits of Study Area

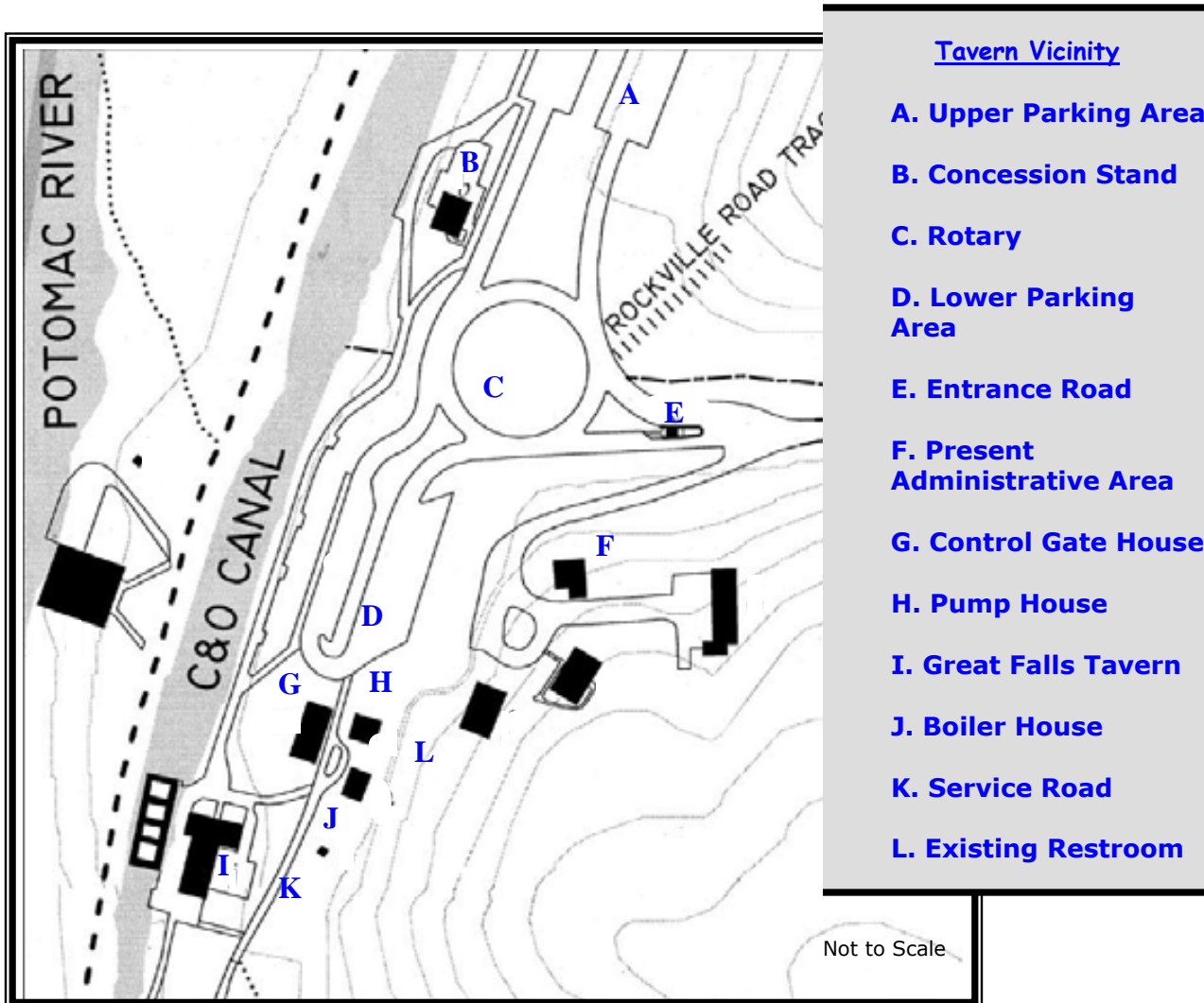
Stretching 184.5 miles alongside the Potomac River between the nation's capital and Cumberland, Maryland, the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP) preserves remnants of America's transportation history. For nearly a century, the C&O was the lifeline for communities and businesses along its route as it floated coal, lumber, grain, and other products to market.

The canal was used until floods damaged it in 1924; in 1938 it was sold to the U.S. government. Partially restored, the canal and its towpath were proclaimed a national monument in 1961 and in 1971 became a national historical park. The Park and the surrounding area are rich in cultural and natural history, with an abundance of scenic and recreational opportunities. The areas of proposed improvements and reconstruction are limited to the Great Falls Tavern Visitor Center area. This would include resurfacing and reconstruction work on The Entrance Road, reconfiguration of the parking lots, construction of a new comfort station, reconstruction of the Great Falls Tavern Yard Area, and improvements to the Great Falls Tavern area electrical, heating, ventilation and air conditioning systems.

### Location Map



### Tavern Vicinity Map



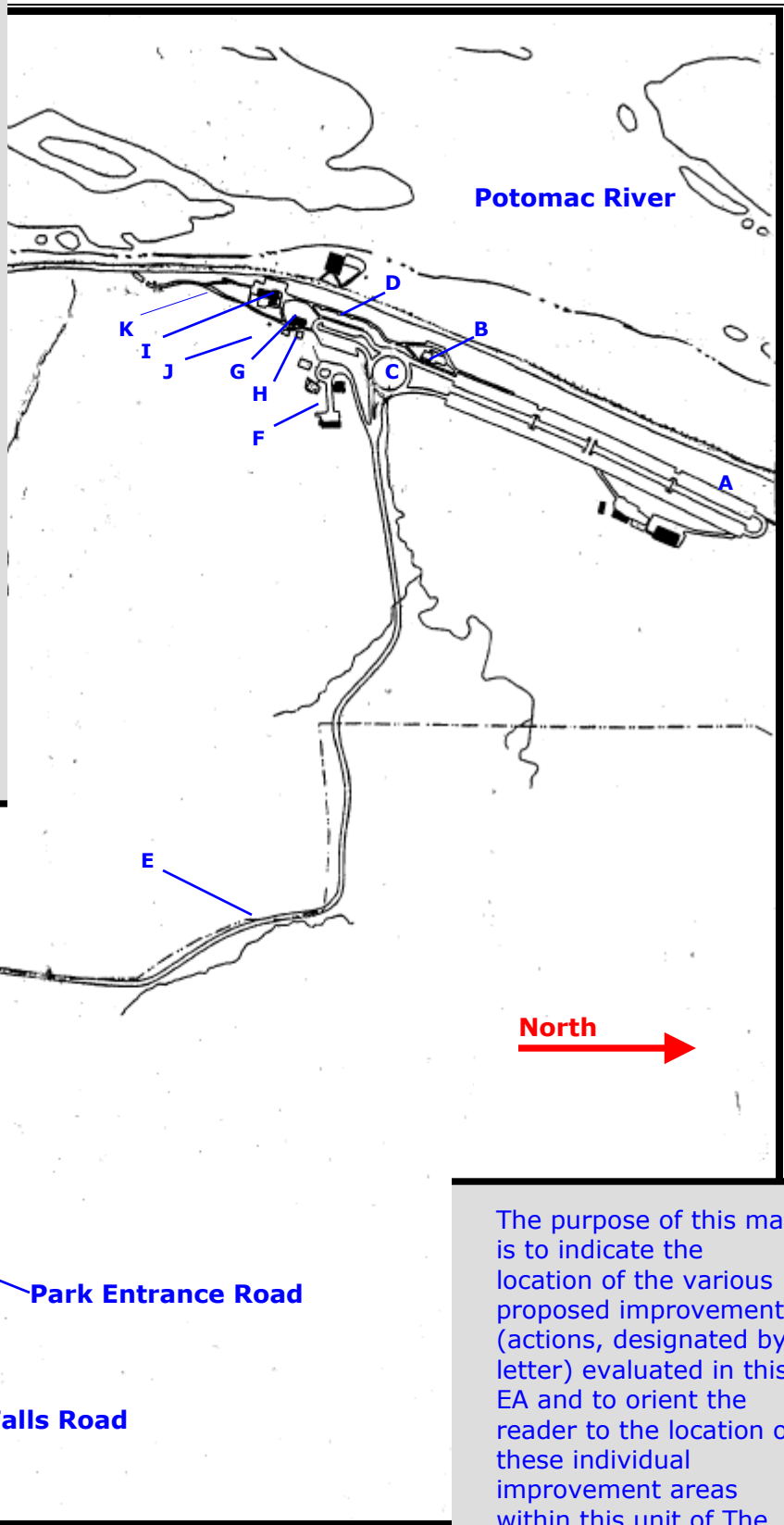
#### **B. Purpose for the Action**

The Great Falls Visitor area in the Palisades District receives approximately 400,000 visitors annually. The majority of visitors arrive by automobile and use the large parking areas. To improve the overall experience for visitors the NPS proposes to rehabilitate and reconstruct the Entrance Road, rehabilitate and reconfigure the existing parking areas, construct a new comfort station, improve the Great Falls Tavern Yard Area, and install necessary equipment to upgrade the electrical and heating, ventilation, air conditioning (HVAC) systems.

An interdisciplinary team from the NPS and the FHWA have identified three major needs. The first is to enhance accessibility, the second is to improve overall safety of the visitors, and the third is to preserve and enhance the cultural landscape.

Park Vicinity Map

- A. Upper Parking Area
- B. Concession Stand
- C. Rotary
- D. Lower Parking Area
- E. Entrance Road
- F. Present Administrative Area
- G. Control Gate House
- H. Pump House
- I. Great Falls Tavern
- J. Boiler House
- K. Service Road
- L. Existing Restroom



The purpose of this map is to indicate the location of the various proposed improvements (actions, designated by letter) evaluated in this EA and to orient the reader to the location of these individual improvement areas within this unit of The C&O Canal NHP.

The following items identifies the purpose of each of the proposed improvements to the site:

1. Entrance Road
  - Improve bus, auto, pedestrian, and bicycle accessibility.
  - Retain park-like character (tree canopy) and historic character.
2. Upper Parking Lot
  - Increase efficiency to accommodate buses, automobiles, boaters, bicycles and pedestrians.
  - Parking area and walkways would meet the ADA accessibility requirements.
3. Lower Parking Lot
  - Increase efficiency to accommodate buses, automobiles, boaters, bicycles and pedestrians.
  - Enhance the landscape around the tavern to evoke the historic character of the canal.
  - Parking area and walkways would meet the ADA accessibility requirements.
4. Comfort Station
  - Improve restroom facilities.
  - Improve accessibility.
5. Great Falls Tavern Yard Area
  - Improve the strength of foundations for paved areas in the Tavern Yard.
  - Improve the historical character of the Yard Area.
6. Great Falls Tavern Electrical System
  - Improve the electrical system of the Great Falls Tavern.
7. Great Falls Tavern Heating, Ventilation, and Air Conditioning System
  - Upgrade the HVAC system of the Great Falls Tavern.

**C. Need for the Proposed Action**

1. The Entrance Road

The Entrance Road runs 1.15 Miles from the intersection with Falls Road to the historic rotary near the Great Falls Tavern. As built, the Entrance Road is 22 feet wide and striped for two 11-foot vehicle travel lanes. There are no shoulders along the Entrance Road. Presently, there is no space for pedestrians and bicyclists to use the Entrance Road without using the vehicle lanes.

Many of the curves along the Entrance Road have poor sight distances – the short radii and large embankments restrict vision around the curve. The majority of the utility poles are located within the roadway’s clear zone and may pose a safety hazard.



The Entrance Road was inspected by FHWA's Roadway Inventory Program (RIP) in July of 2002. The Entrance Road was rated as poor and it is estimated that 1% of the existing roadway is in need of full depth repairs to the roadway base.



Entrance Road

● **Lack of Paved Shoulders**

Entrance Road  
**Embankments could potentially Obstruct Vision on Curves**



Entrance Road

● **Utility Poles in Roadway Clear Zone**

2. Upper Parking Area

The Upper Parking Lot was inspected by RIP in July, 2002 and visually given an overall condition rating of Fair. Further investigation by the NPS and FHWA has determined that approximately 5% of the Parking Area requires some form of patching repairs.

The present configuration of the Upper Parking Lot does not provide Americans with Disabilities Act (ADA) compliant access to the Tavern site. The Americans with Disabilities compliant parking spaces do not have adjacent wheelchair ramps, nor can wheelchairs cross the existing rolled curb to the walkways easily. Additionally, the current configurations does not provide for convenient at bus access.



Upper Parking Area  
● **Cracking of the Pavement**

Upper Parking Area  
● **Not in compliance with the Americans with Disabilities Act of 1990**



3. Lower Parking Area

The Lower Parking Area contains approximately 0.51 acres (22,000 square feet) of paved parking and pedestrian walkways. The Lower Parking Area is within the historic core of the Great Falls Tavern Area – approximately 25 feet from the Control Gatehouse and 175 feet from the Tavern itself.



A service road approximately 10 feet wide runs from the Lower Parking Area to Lock 19. The portion of this road near the Great Falls Tavern is paved. This road was examined by RIP in July of 2002 and rated in Poor condition, with a PCR value of 58 out of 100.

The present configuration of the service road and the pedestrian walkways does not provide ADA compliant access to the Tavern site. The parking spaces do not have adjacent wheelchair ramps, nor can wheelchairs cross the existing rolled curb to the walkways easily.

Current accommodations for buses and drop-off are not adequate. The current configuration does not enhance accessibility by buses.

The present walkway configuration also directs visitors toward the Aqueduct and Tavern service buildings and the historically private portions of the Tavern Yard and away from the historically public entrances to the Great Falls Tavern and the C&O Canal. The existing landscape also does not reflect the historic character of the site.



4. Comfort Station

The present Comfort Station was built among the existing Aqueduct and Tavern service buildings by the Civilian Conservation Corps (CCC) in the late 1930's or early 1940's as a portion of the C&O Canal restoration work conducted on behalf of the NPS. The present facility has not markedly changed since.

The present facility is located relatively distant from the C&O Canal, Concession Stands, and Parking Areas. Tavern Area visitors have a difficult time locating the facilities. The present Comfort Station also has inadequate ADA accessibility. The ventilation systems do not adequately meet visitor needs. There is no provision for closing portions of the facility in order to perform maintenance, nor any available space to provide family restrooms.

The location and arrangement of the Comfort Station preclude expansion of the present structure. The Comfort Station is a contributing feature to the National Register of Historic Places.

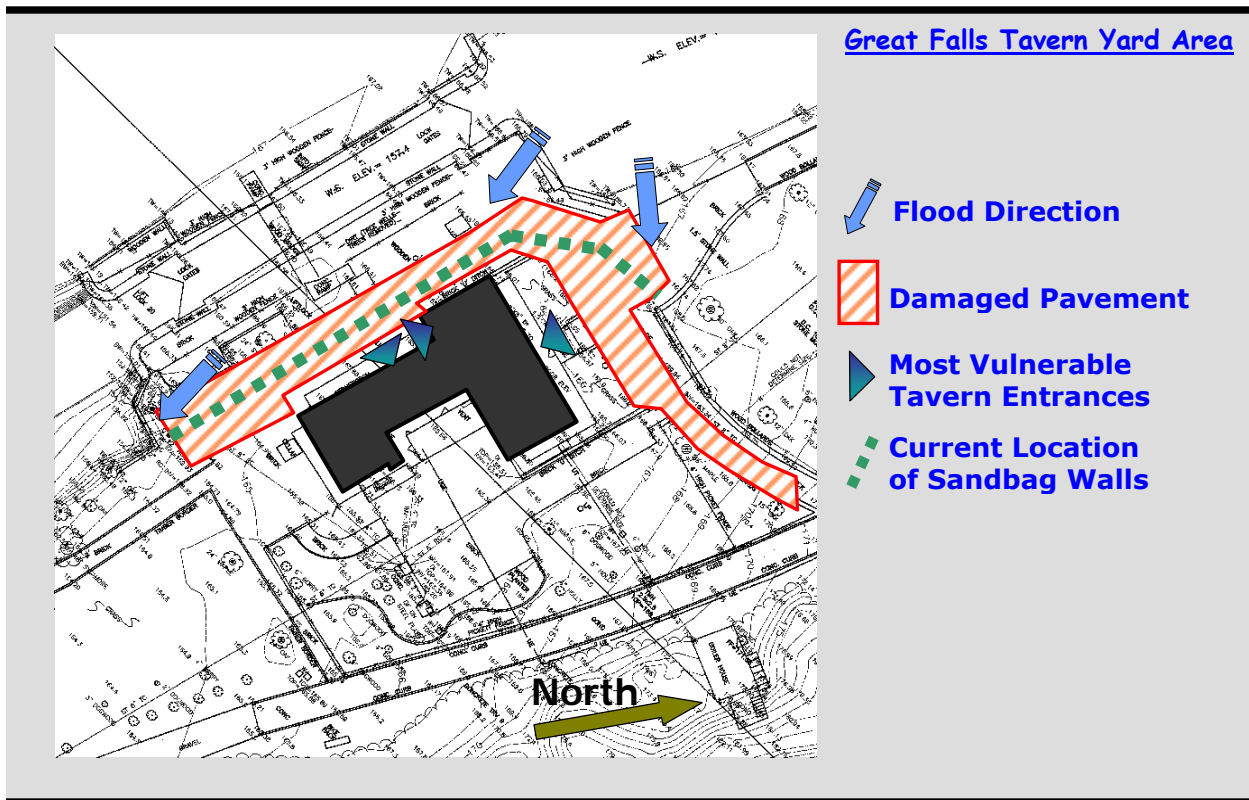
5. Great Falls Tavern Yard Area

The Great Falls Tavern and surrounding structures have been designated the Historic Core of the Great Falls portion of the C&O Canal NHP. The team selected to develop the Cultural Landscape Treatment Plan has selected the late nineteenth and early twentieth centuries as the period of historic significance for the Great Falls Tavern. The majority of the existing landscape, especially the current layout of the brick pavement around the Tavern, are the result of landscape plans developed in the 1950s and 1970s by the NPS and do not reflect the landscape during the period of historical significance.

The Great Falls Tavern, like the majority of the C&O Canal NHP located in the Potomac Gorge, is exceedingly vulnerable to the extreme flood events that frequently occur in the Potomac Gorge. Present flooding patterns usually show flood waters overtopping the C&O Canal and then radiating south and east from the Potomac River. These patterns result in flooding risks on the North, West, and South faces of the Tavern. Of the seven ground floor entrances, the three on the North and West faces of the tavern are the most vulnerable.

The paved areas to the north, west, and south of the Great Falls Tavern are presently used to support walls of sandbags around the historic Tavern structure to protect it from floodwaters. The present compacted subgrade of these paved areas are not strong enough to withstand the weight of these walls or the heavy vehicles needed to deploy them. As a result, the pavement is either damaged by vehicle traffic or the brick must be removed before deploying heavy vehicles or flood control measures.





6. Tavern Electrical Improvements

The existing electrical transformer located beside the Control Gatehouse is not able to meet the increased electrical needs of the Tavern or adjacent structures after these improvements are completed.

7. Great Falls Tavern HVAC System Improvements

The current HVAC system provides insufficient chiller capacity. These improvements would require the installation of a chiller with sufficient capacity to service the Great Falls Tavern.

**D. Description of Proposed Action**

FHWA, in cooperation with the NPS is proposing to rehabilitate the Great Falls Entrance Road (1.15 miles in length) from the intersection with Falls Road through the park to the parking areas at C&O Canal NHP in the Great Falls area. The proposed action also includes rehabilitation and reconfiguring of the parking areas, construction of a comfort station, rehabilitation of the Great Falls Tavern Yard Area, and necessary external electrical and HVAC equipment improvements.

A detailed description of the proposed action is identified below:

1. Entrance Road

The project would conduct full depth patch repairs where required to the asphalt concrete pavement. Current estimates anticipate that 1% of the total paved area needs repair. In addition to the patching, the road would be widened to provide paved formal shoulders. As the Entrance Road exists at present, there is not enough space on either side of the travel lanes to stripe off a dedicated bike lane.

2. Upper Parking Area

The project would patch the asphalt concrete surface of the parking lot where required. Some of the patching areas would require full depth repair of the pavement, mostly around the existing catch basins. Approximately 5% of the pavement in the parking areas would need to be patched. Additional bus or automotive parking spaces would be added. Portions of the concrete walk, gutter and curb would be repaired. The current poor drainage in the parking lot would be corrected. Storm water structures would be rehabilitated where necessary. New pavement markings would be applied to indicate parking stalls, Americans with Disabilities Act compliant parking, and to direct traffic flow.

3. Lower Parking Lot

The project would remove portions of the Lower Parking lot. The present service road would be extended to the rotary. Removed portions of the lower parking lot would be regraded and revegetated.

4. Comfort Station

A new comfort station would be constructed to replace the existing one near the Great Falls Tavern. This would provide for increased restroom space and make it ADA accessible.

5. Tavern Yard Area Reconstruction

The existing yard area around the Great Falls Tavern would be reconstructed. Portions of the foundation would be upgraded to withstand the weight of heavy truck traffic and deployed portable flood control devices.

6. Tavern Electrical Improvements

An electrical transformer of sufficient capacity to service the proposed electrical improvements to the Great Falls Tavern site not covered by this document and the proposed Comfort Station would be installed. A concrete pad of sufficient depth to support the proposed electrical transformer would also be constructed. It would be located in approximately the same area as the existing transformer.

7. Great Falls Tavern Heating, Ventilation, and Air Conditioning Improvements

An air chiller of sufficient capacity to service the proposed heating, ventilation, and air conditioning improvements to the Great Falls Tavern Site not covered by this document and the proposed Comfort Station would be installed. A concrete pad of sufficient depth to support the proposed electrical transformer would also be constructed.

**E. Decisions To Be Made**

The National Environmental Policy Act of 1969 (NEPA) requires consideration of the environmental effects of proposed federal actions. This Environmental Assessment (EA) provides the required environmental, socioeconomic analysis for the proposed work. As part of the planning and analysis, this EA has been prepared to evaluate alternatives and options for accomplishing this work with the least impact to Park resources and Park visitors. FHWA has prepared this EA for the NPS and serves as a cooperating agency.

The NPS intends to explore alternatives for performing the needed improvements in the Great Falls Tavern area of the C&O Canal NHP. After all alternatives have been fully evaluated and the public has had an opportunity to review and provide comments on the proposed action, the NPS would issue a decision on how they intend to proceed.

Coordination with the US Fish & Wildlife Service (USFWS) and the Maryland Department of the Environment (MDE) must be completed before a decision is made.

**F. Issues and Impact Topics**

Specific impact topics were developed to address potential natural, cultural, and social impacts that might result from the proposed work. These topics are derived from the issues identified above and address federal laws, regulations and orders, C&O Canal NHP management documents, and NPS knowledge of limited or easily impacted resources. They are used to focus the information presented and discussed in the affected environment and environmental consequences sections. A brief rationale for the selection of each impact topic is given below.

1. Cultural Resources

The National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969 (NEPA), the 1916 NPS Organic Act, NPS Management Policies, and NPS-28 require federal agencies to consider the effects of their proposed actions on cultural resources. Protection and preservation of cultural resources at the Park are of critical importance and would be discussed as part of this analysis.

2. Biotic Communities

The 1969 National Environmental Policy Act (NEPA) calls for an examination of impacts on the components of affected ecosystems. NPS Management Policies (2001) require the protection of the natural abundance and diversity of all the Park's naturally occurring communities. Impacts to resources such as vegetation and wildlife are included in this topic and would be addressed for each alternative.

3. Special Status Species

Section 7 of the Endangered Species Act (ESA) directs all federal agencies to use their authority in furtherance of the purposes of the Act by carrying out programs for the conservation of rare, threatened, and endangered species. Federal agencies are required to consult with USFWS to ensure that any action authorized, funded, and/or carried out by the agency does not jeopardize the continued existence of any listed species or critical habitat. NPS policy also requires examination of the impacts on state listed threatened, endangered, candidate, rare, declining, sensitive, and federal candidate species.

4. Water Quality and Wetlands

NPS Management Policies (1988) require protection of water quality consistent with the Clean Water Act (CWA). Since the proposed action has the potential to impact water quality through erosion and storm water runoff, this topic would be discussed further.

Executive Order 11990: Protection of Wetlands requires an examination of impacts to wetlands. Using vegetation, soils, and hydrology as evidence of wetland characteristics, no wetlands are anticipated to be impacted.

5. Visitor Use, Park Operations, and Public Safety

Proposed roadwork is anticipated to have an affect on visitors at the C&O, with disruptions to traffic patterns during construction activities. Therefore, this topic would be included for analysis in this environmental assessment.

6. Socioeconomic Environment

The proposed reconstruction and resurfacing work may impact Park visitors, staff, and neighboring businesses and therefore would be covered as an impact topic in this document.

7. Cumulative Impacts

As required in the Council on Environmental Quality's regulation 40 CFR Part 1508.25(c), all past, present, and reasonably foreseeable future actions must be considered in the environmental documentation.

Cumulative impacts are those incremental impacts on the environment that result from 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 actions (40CFR 1508.7). Cumulative impacts may occur shortly after project construction, or may occur over many years.

## 6. Definitions

### 1. NEPA Terminology

*Temporary impacts*

Impacts anticipated occurring during construction only. Upon completion of the construction activities, conditions are likely to return to those that existed prior to construction.

*Short-term impacts*

Impacts that may extend past the construction period, but are not anticipated lasting more than a couple years.

*Long-term impacts*

Impacts that may extend past the construction period, and are anticipated lasting more than a couple years.

*Negligible*

Little or no impact (not measurable).

*Minor*

Changes or disruptions may occur, but does not result in a substantial resource impact.

*Moderate*

The action would result in some change. The change would be measurable and of consequence.

*Major*

Easily defined and measurable. Results in a substantial resource impact.

*Impairment*

An impact that would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

### 2. Site Terminology

*Great Falls Tavern Area*

The mainly cleared area around the C&O Canal stretching from North of the Upper Parking Lot to just south of the Tavern and Lock 20.

*The Entrance Road*

The historic road running from Falls Roads into the Tavern Site was built as the Washington Aqueduct Road. This Road has also been identified as Conduit Road, Entry Road, MacArthur Blvd. or Route 102. It is identified as Route 10 in the RIP Database.

*The Service Road*

The partially paved administrative road running from the Lower Parking Lot to Lock 19. This Road is identified as a Class 6 road for authorized vehicular use. This road is also known as Lock 19 Access Road and is

	identified in the RIP Database as Routes 414 A and B.
<i>The Rotary</i>	The 1930's designed traffic circle at the end of the Entrance Road. The rotary is identified as part of Route 907 in the RIP Database.
<i>The Upper Parking Lot</i>	The large parking area to the north of the rotary. The Upper Parking Lot is also identified as the Northern Parking Lot. It is identified in the RIP Database as a portion of Route 907.
<i>The Lower Parking Lot</i>	The small parking area to the south of the rotary. The Lower Parking Lot is also identified as the Southern Parking Lot. It is identified in the RIP Database as part of Route 907.
<i>Great Falls Tavern Yard Area</i>	The historic lockkeeper's yard, surrounded by a fence on three sides and fronted by Lock 20 of the C&O Canal. This encompasses all of the grassy areas and paths within the vicinity of the Tavern.

#### **H. Permits**

The U.S. Army Corps of Engineers has regulated activities in the nation's waters since 1890. Until the 1960's, the primary purpose of the regulatory program was to protect navigation. Since then, as a result of laws and court decisions, the program has broadened to encompass the full public interest for both the protection and utilization of water resources. Regulatory authority and responsibilities of the Corps of Engineers includes Section 404 of the CWA (33 USC 1344). This includes regulation of the discharge of dredged material into waters of the United States, including both navigable waters and adjacent wetlands. In addition, Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) is regulated by the Corps of Engineers for activities in or affecting navigable waters. The actions proposed are anticipated to impact waters that are considered waters of the United States.

The proposed action is anticipated to be subject to joint state and federal review process for Section 404 of the CWA. The US Army Corps of Engineers (CoE) and the Maryland Department of Environment (MDE) will review the permits application in cooperation. Permits would be obtained prior to construction.

The USFWS has been contacted with regard to the presence of federally listed threatened or endangered species within the study area. (See Appendix) If any such species were known to inhabit the area, appropriate measures would be developed to protect the species from harm. In addition, coordination is ongoing with the MDE to ensure that state listed species within the Park are protected.

## **II. DESCRIPTION OF ALTERNATIVES**

The Great Falls Tavern Area Project is divided into seven distinct sections - Entrance Road, Upper Parking Lot, Lower Parking Lot, Comfort Station, Great Falls Tavern Yard Area, Tavern Electrical System, and Tavern HVAC Systems. Each of these sections has their own alternatives listed in numerical order.

As a result, the Alternatives for this project are modular and may be configured in any order desired. These modules are summarized on the following page. As a result, the rows labeled "Alternative One" to "Alternative Eight" do not represent alternatives for the project as a whole. Instead, they show the module for each section with that name. The Preferred Alternative is the only project-wide alternative and is a composite of the preferred module for each section.

The following is a description of the proposed alternatives, including the no action alternative, to address the need for roadway improvements within the Park. The descriptions, pictures, and drawings included below provide details on the proposed alternatives for each of the study areas.

### **A. Entrance Road**

#### 1. The No Action Alternative

Under the No Action Alternative, NPS personnel would continue to maintain the Entrance Road in its existing condition. None of the existing roadway would be reconstructed or resurfaced. Existing concerns related to bike and vehicle access would not be addressed.

#### 2. The Alternatives

Alternatives Five, Six, and Seven have been eliminated from further discussion for the Entrance Road. The specific reasoning for their elimination is covered in Section H.

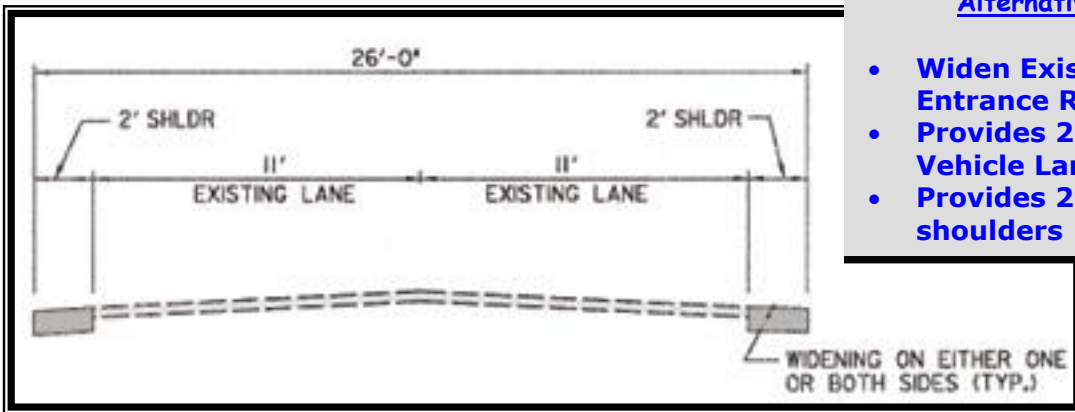
All five of the alternatives would do the following:

The Entrance Road would be milled and overlaid with hot asphalt concrete pavement. Full depth repairs to the underlying asphalt courses and road base would be conducted as needed. The shoulders would be reconstructed with fill embankment as needed – topsoil would be placed and the shoulders seeded with grass. Sediment would be removed from existing drainage facilities and these facilities would be cleaned. Drainage inlet and outlet ditches would be regraded, and riprap representative of local stone would be placed to prevent erosion of the outlets.

They differ as follows:

a. *Alternative One*

The Entrance Road would be widened four feet and restriped to provide one 11-foot wide vehicular lane and one 2-foot wide formal paved shoulder on both sides of the road. Alternative One results in a 0.55-acre (24,160 square foot) increase in impervious area.

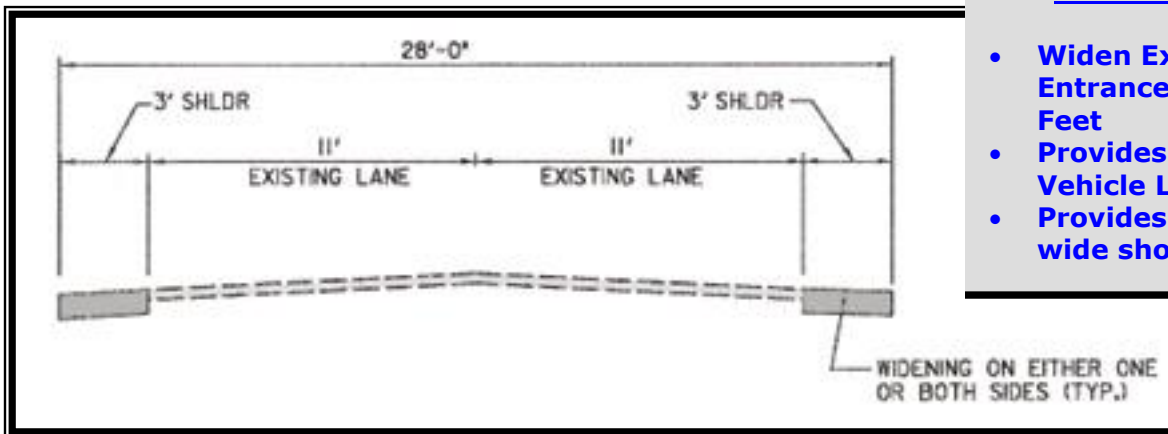


Alternative One

- **Widen Existing Entrance Road 4 Feet**
- **Provides 2 11-foot Vehicle Lanes**
- **Provides 2 2-foot wide shoulders**

b. *Alternative Two*

The Entrance Road would be widened six feet and restriped to provide one 11-foot wide vehicular lane and one 3-foot wide formal paved shoulder on both sides of the road. Alternative Two results in a 0.83-acre (36,240 square foot) increase in impervious area.



Alternative Two

- **Widen Existing Entrance Road 6 Feet**
- **Provides 2 11-foot Vehicle Lanes**
- **Provides 2 3-foot wide shoulders**

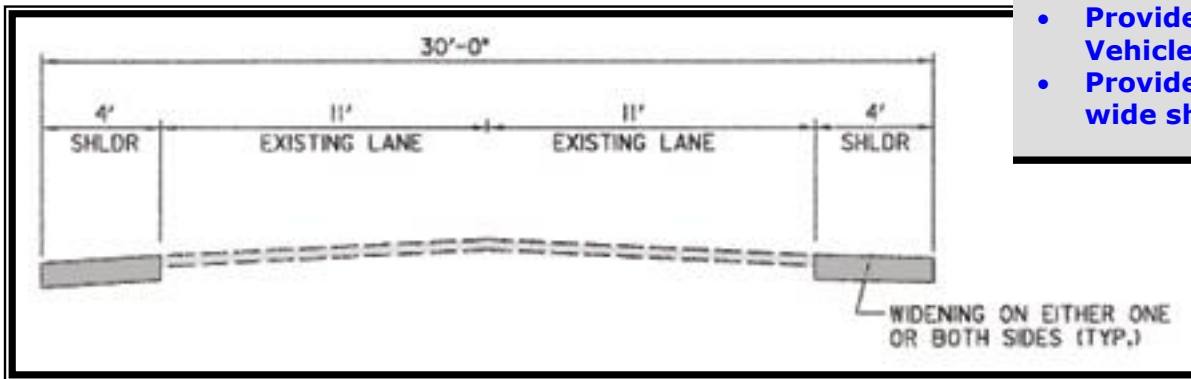


c. *Alternative Three*

The Entrance Road would be widened eight feet and restriped to provide one 11-foot wide vehicular lane and one 4-foot wide formal paved shoulder on both sides of the road. Alternative Three results in a 1.11-acre (48,320 square foot) increase in impervious area.

**Alternative Three**

- **Widen Existing Entrance Road 8 Feet**
- **Provides 2 11-foot Vehicle Lanes**
- **Provides 2 4-foot wide shoulders**

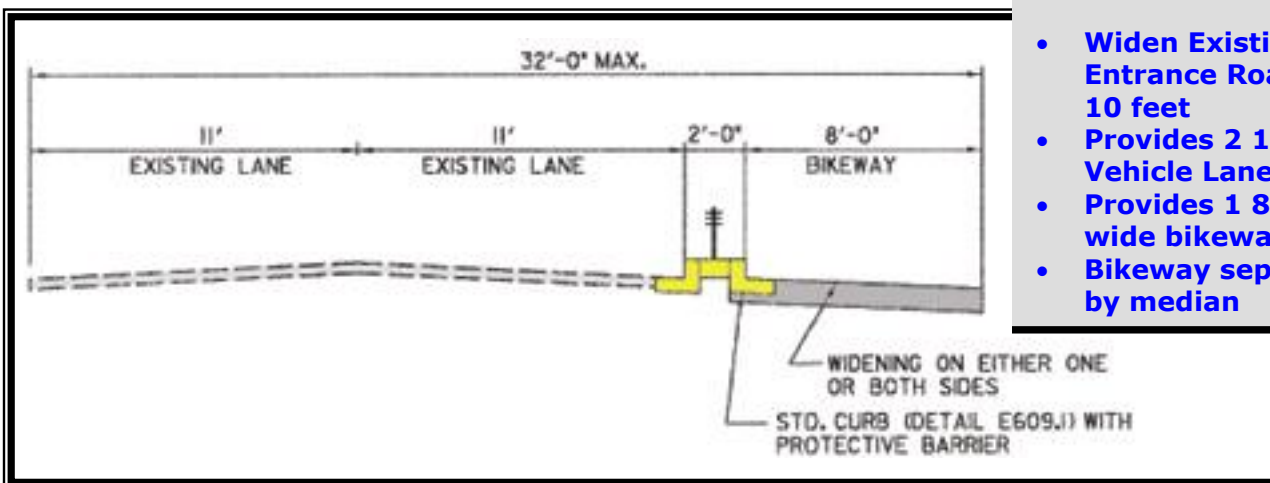


d. *Alternative Four*

The Entrance Road would be widened ten feet to provide two 11-foot wide vehicular lanes on both sides of the road and one 8-foot path/bikeway on one side of the roadway. The path and bicycle lane would be separated from the vehicle lanes by a 2-foot wide monolithic curb with a 42-inch high fence. Alternative Four results in a 1.39-acre (60,400 square foot) increase in impervious area.

**Alternative Four**

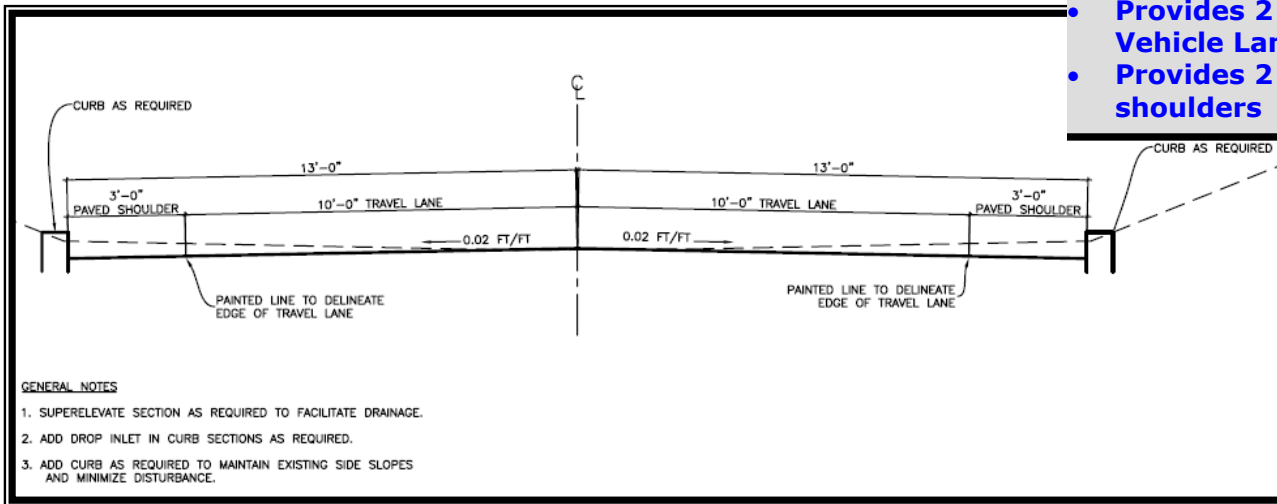
- **Widen Existing Entrance Road by 10 feet**
- **Provides 2 11-foot Vehicle Lanes**
- **Provides 1 8-foot wide bikeway**
- **Bikeway separated by median**



e. Alternative Eight

The Entrance Road would be widened four feet and restriped to provide one 10-foot wide vehicular lane and one 3-foot wide formal paved shoulder on both sides of the road. To reduce disturbance to the cut slopes, a 6-inch to 12-inch high curb would be employed. Where the curb exceeds 8-inches, the curb would be of a variable height matching the existing grade. Alternative Eight results in a 0.55-acre (24,160 square foot) increase in impervious area.

Typical 1



Alternative Eight

- **Widen Existing Entrance Road 4 Feet**
- **Provides 2 10-foot Vehicle Lanes**
- **Provides 2 3-foot wide shoulders**

## B. Upper Parking Lot

### 1. No Action Alternative

Under the No Action Alternative, NPS personnel would continue to maintain the Upper Parking Lot in its existing configuration. None of the existing parking area would be reconstructed or resurfaced. Concerns regarding safety, visitor services, and Park operations would not be addressed, except on a case-by-case basis and as funds become available.

### 2. The Alternatives

Both of the alternatives would do the following:

Full depth repairs to the underlying asphalt courses and base of the Upper Parking Lot would be conducted as needed, mostly around the storm water inlets. Several areas of the concrete curb and gutter would also need to be patched. The parking lot would be milled or graded as necessary to correct existing drainage problems. Cracks in the parking lot would be cleaned out and sealed. The entire Upper Parking Lot would be overlaid with hot asphalt concrete pavement. Pavement markings would be reapplied to indicate parking stalls, Americans with Disabilities Act compliant parking, and to direct traffic flow.

Storm water inlets and drainage structures would be cleaned and rehabilitated as necessary. Existing grates would be replaced with bicycle safe grates. Portions of the concrete walkway and steps connecting the Upper Parking Lot with the Great Falls Tavern complex would be removed and replaced as necessary.

They differ as follows:

#### a. *Alternative One*

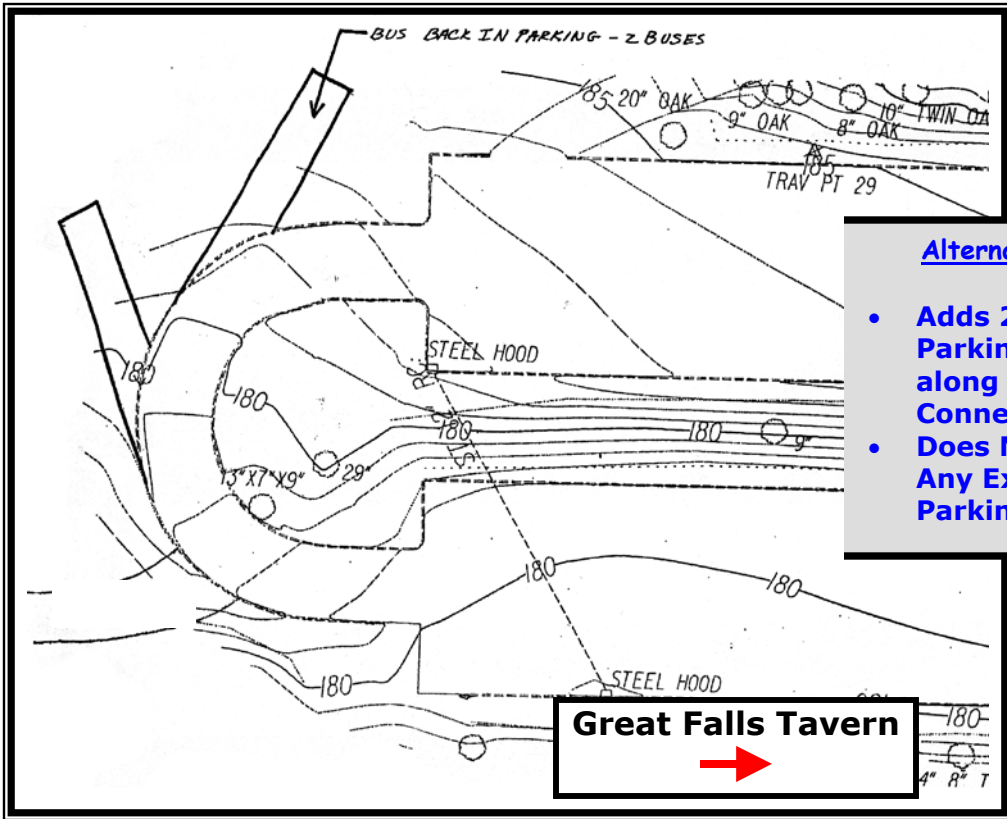
Two back-in parking spaces for busses would be constructed at the northern end of the Upper Parking Lot along the short connector between the two parts of the parking lot.

Alternative One results in a 0.03-acre (1,200 square foot) increase in impervious area.

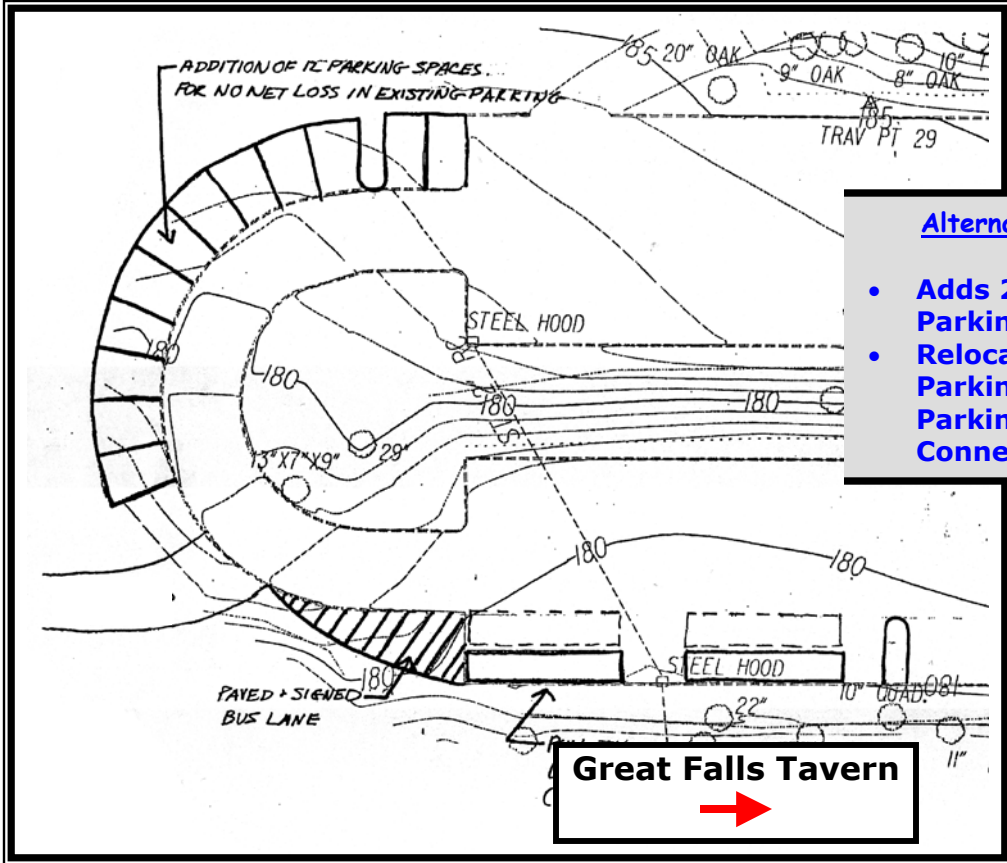
#### b. *Alternative Two*

Twelve existing parking spaces at the northwest end of the Upper Parking Lot would be removed. These spaces would be restriped as pull-in bus parking for two busses. The short connector would be widened to provide pull in access. The connector would be widened along the curve to create twelve new automobile parking spaces.

Alternative Two results in a 0.07-acre (3,200 square foot) increase in impervious area.



- Alternative One
- Adds 2 Back-in Bus Parking Spaces along Parking Lot Connector
  - Does Not Move Any Existing Parking Spaces



- Alternative Two
- Adds 2 Pull-in Bus Parking Spaces
  - Relocates 12 Car Parking Spaces to Parking Lot Connector

**C. Lower Parking Lot**

1. No Action Alternative

Under the No Action Alternative, NPS personnel would continue to maintain the Lower Parking Lot in its existing configuration. None of the existing parking area would be reconstructed or resurfaced. Concerns regarding safety, visitor services, and Park operations would not be addressed. Existing issues related to improving the cultural landscape would not be addressed, except on a case-by-case basis and as funds become available.

2. The Alternatives

All three of the alternatives would do the following:

The Lower Parking Lot would be obliterated. The three existing bus drop off points would be relocated to the exit road from the Upper Parking Lot near the existing concession stand. The rotary would be reduced to a uniform 22-foot width, and a dedicated short-term drop off area would be provided. The existing service road would be extended to the rotary. Portions of the existing road would be patched where necessary and the entire road paved with a treatment determined in the Cultural Landscape Treatment Plan. The existing aggregate sidewalks would be replaced with a 12-foot wide exposed aggregate concrete walk where necessary. The material selection has not been determined as of yet, but would be compliant with the American with Disabilities Act.

The differences in the three alternatives are shown below:

a. *Alternative One*

Under this alternative, 0.34 acres (14,900 square feet) of the Lower Parking Lot would be removed. A small portion of the existing parking lot alongside the constructed service road would be retained and rehabilitated to provide four new Americans with Disabilities Act compliant parking spaces and four new parking spaces for NPS staff. The Lower Parking Lot would be regraded and vegetated as specified in the Cultural Landscape Treatment Plan, extending the green space from historic structures by 140 linear feet.

b. *Alternative Two*

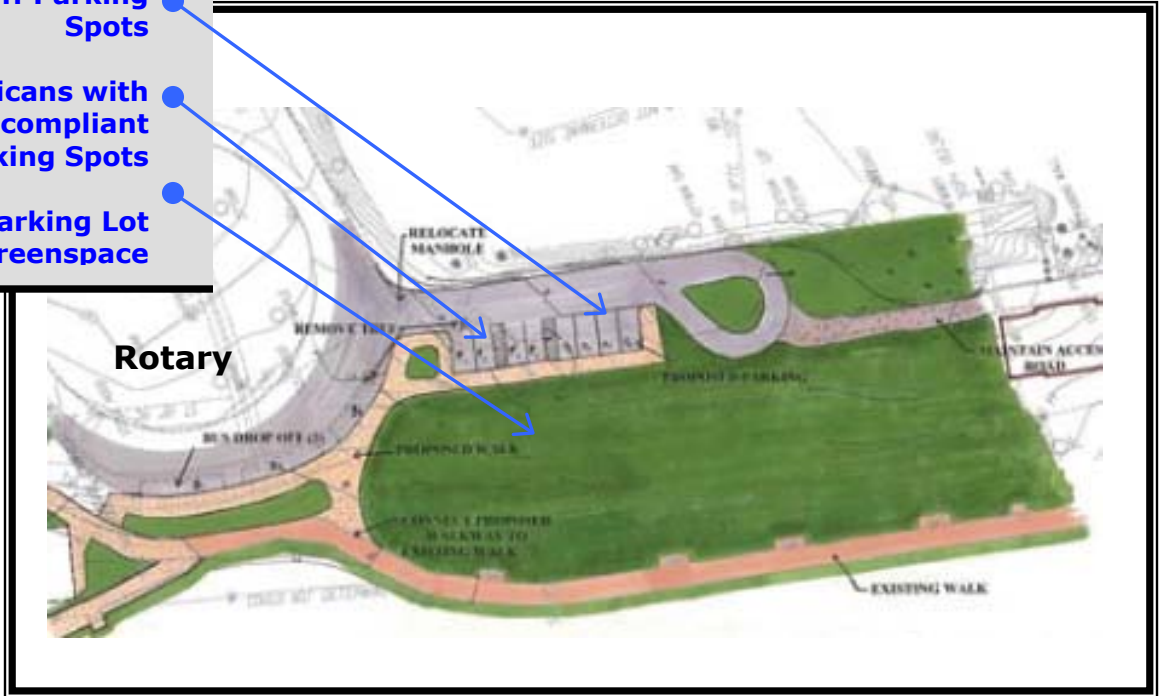
Under this alternative, 0.34 acres (14,900 square feet) of the Lower Parking Lot would be removed. A small portion of the existing parking lot alongside the constructed service road would be retained and rehabilitated to provide two new parking spaces for NPS staff. Americans with Disabilities Act compliant parking would be provided in the Upper Parking Lot. The Lower Parking Lot would be regraded and vegetated as specified in the Cultural Landscape Treatment Plan, extending the green space from historic structures by 140 linear feet.

Alternative One

Adds 4 Staff Parking Spots

Adds 4 Americans with Disability Act compliant Parking Spots

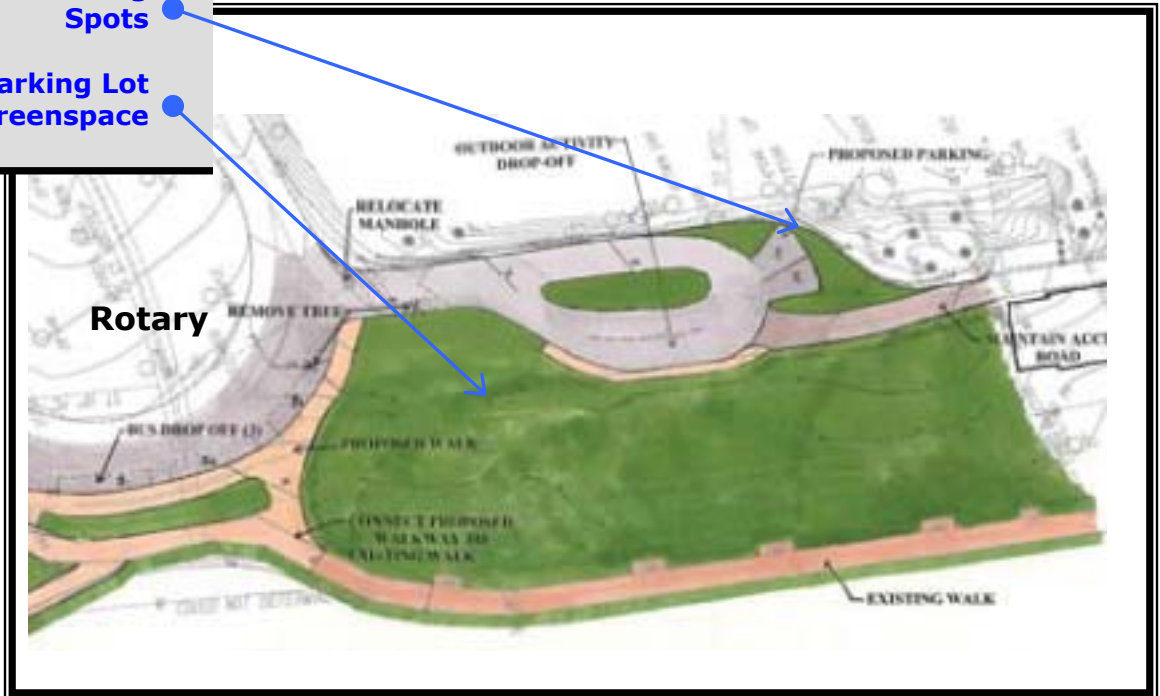
Replaces Parking Lot with Greenspace



Alternative Two

Adds 2 Staff Parking Spots

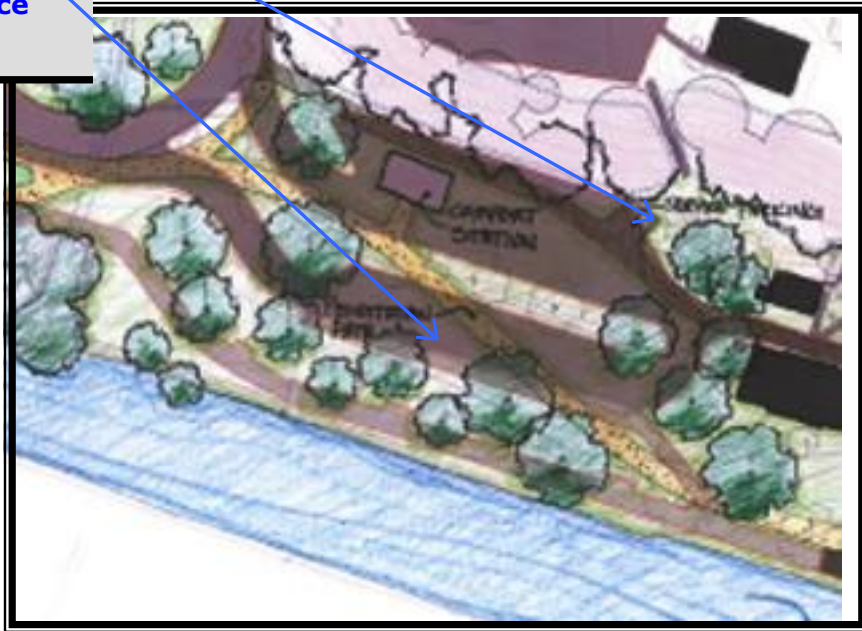
Replaces Parking Lot with Greenspace



c. *Alternative Three*

Under this alternative, all 0.37 acres of the Lower Parking Lot would be removed. Two new parking spaces for authorized vehicles would be built along the extended service road. The Lower Parking Lot would be regraded and vegetated as specified in the Cultural Landscape Treatment Plan, extending the green space from historic structures by 140 linear feet.

Alternative Three  
**Adds 2 Staff Parking Spots**  
**Replaces Parking Lot with Greenspace**



(Refer to maps on page 2 and 33 for orientation)



**D. Comfort Station**

1. The No Action Alternative

Under the No Action Alternative, NPS personnel would continue to maintain the existing comfort station. Existing concerns related to visitor safety and convenience would not be addressed.

2. The Alternatives

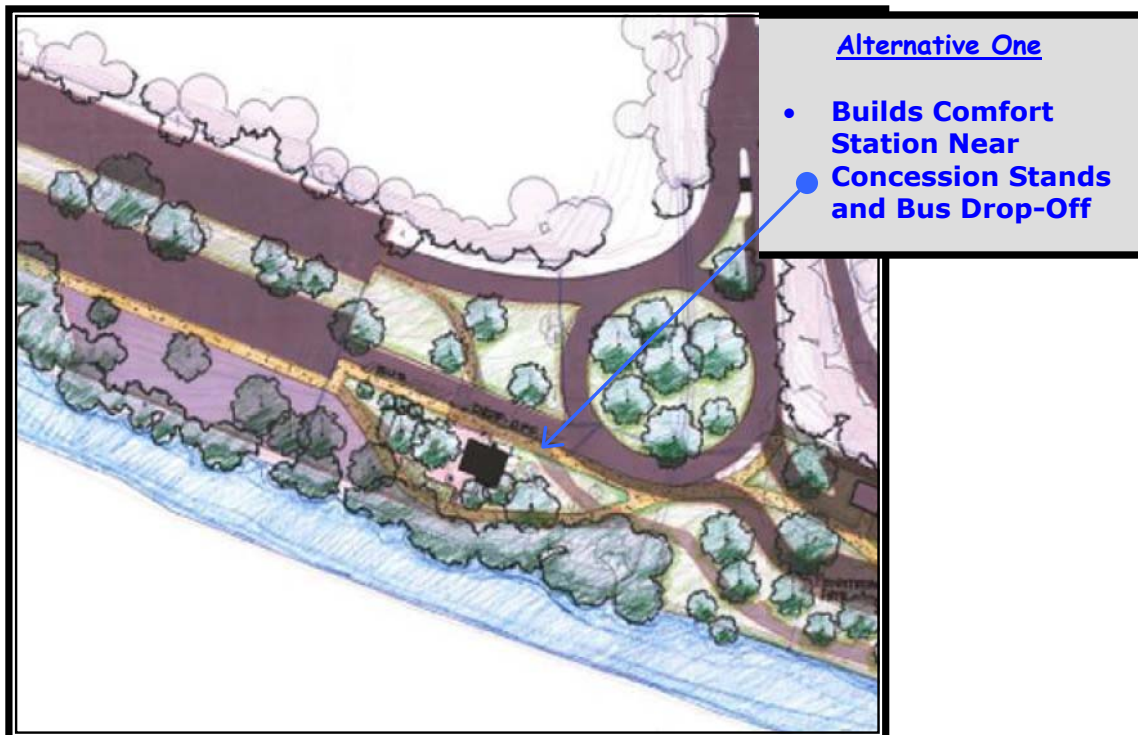
Both of the alternatives would do the following:

A new comfort station would be constructed to provide family restrooms , improved facilities, and provide ADA accessibility. Provisions would be made in the Comfort Station design to allow portions of the comfort station to be closed for maintenance. The Comfort Station would be mechanically ventilated and heated with electric heaters in the winter. The existing comfort station would be closed to the public.

Alternatives One and Two propose differing locations for the Comfort Station.

a. *Alternative One*

The proposed Comfort Station would be constructed on the southern side of the existing Concession Stand facing the proposed Bus Drop Off Site. Paved Walkways would be constructed to connect the Comfort Station to the existing walks and bus drop offs. Alternative One provides the historic landscape solution of minimizing modern visual impacts/intrusions in the Tavern area.

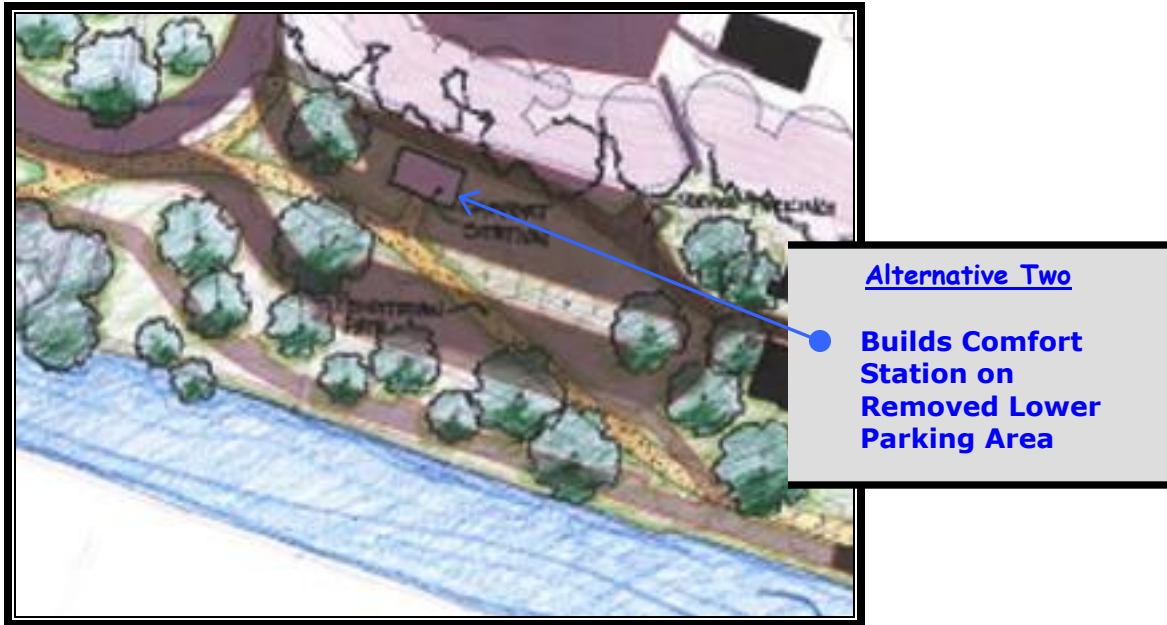


(Refer to maps on page 2 and 33 for orientation)



b. *Alternative Two*

The proposed Comfort Station would be constructed on the removed and regraded eastern portion of the Lower Parking Lot near the extended service road. The Comfort Station would face west, towards the C&O Canal and the proposed new walkways to the Tavern, hiding a portion of the staff access road. A paved walkway would be built to connect the Comfort Stations with the other proposed pedestrian walkways.



(Refer to maps on page 2 and 33 for orientation)

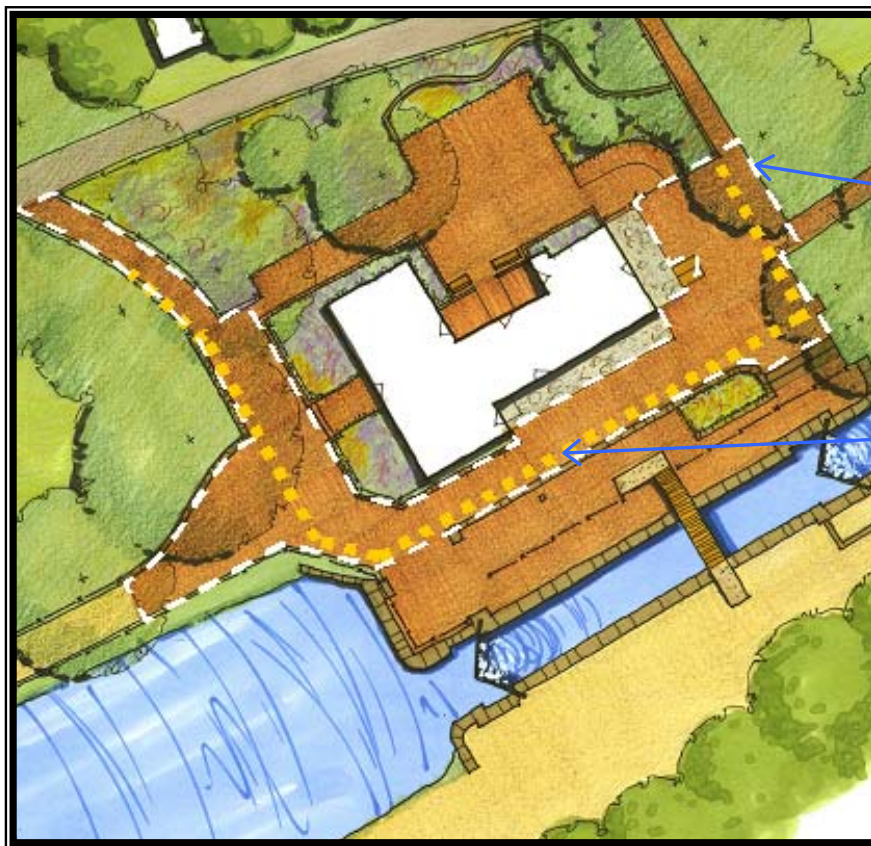
## E. Tavern Yard Area Reconstruction

### 1. The No Action Alternative

Under the No Action Alternative, NPS personnel would maintain the yard area of the Great Falls Tavern in its existing condition. NPS personnel would use either portable gabion-style sand filled baskets or continue to use sandbags to control flood events around the Great Falls Tavern. Existing concerns about flood control and protection for the Great Falls Tavern, historical integrity of the Great Falls Tavern site, and damage caused to the walkway areas by the heavy vehicular traffic necessitated by flood control needs would not be addressed, except on a specific case-by-case basis and as funds are made available.

### 2. Alternative One

Under Alternative One, the existing brick pavement treatments of the yard area on the northern, western, and southern faces of the Great Falls Tavern would be removed. The existing foundation of the paved portion of the yard, if any, would be removed and replaced by a concrete foundation. Paving treatments appropriate to the historic character of the Great Falls Tavern would then be installed upon the reconstructed foundation.



#### Alternative One

Replace existing brick paving and add concrete base to sustain vehicular access for transporting gabions.

The Tavern is protected from the flood by the new removable gabion-style flood control system



Concrete Foundation

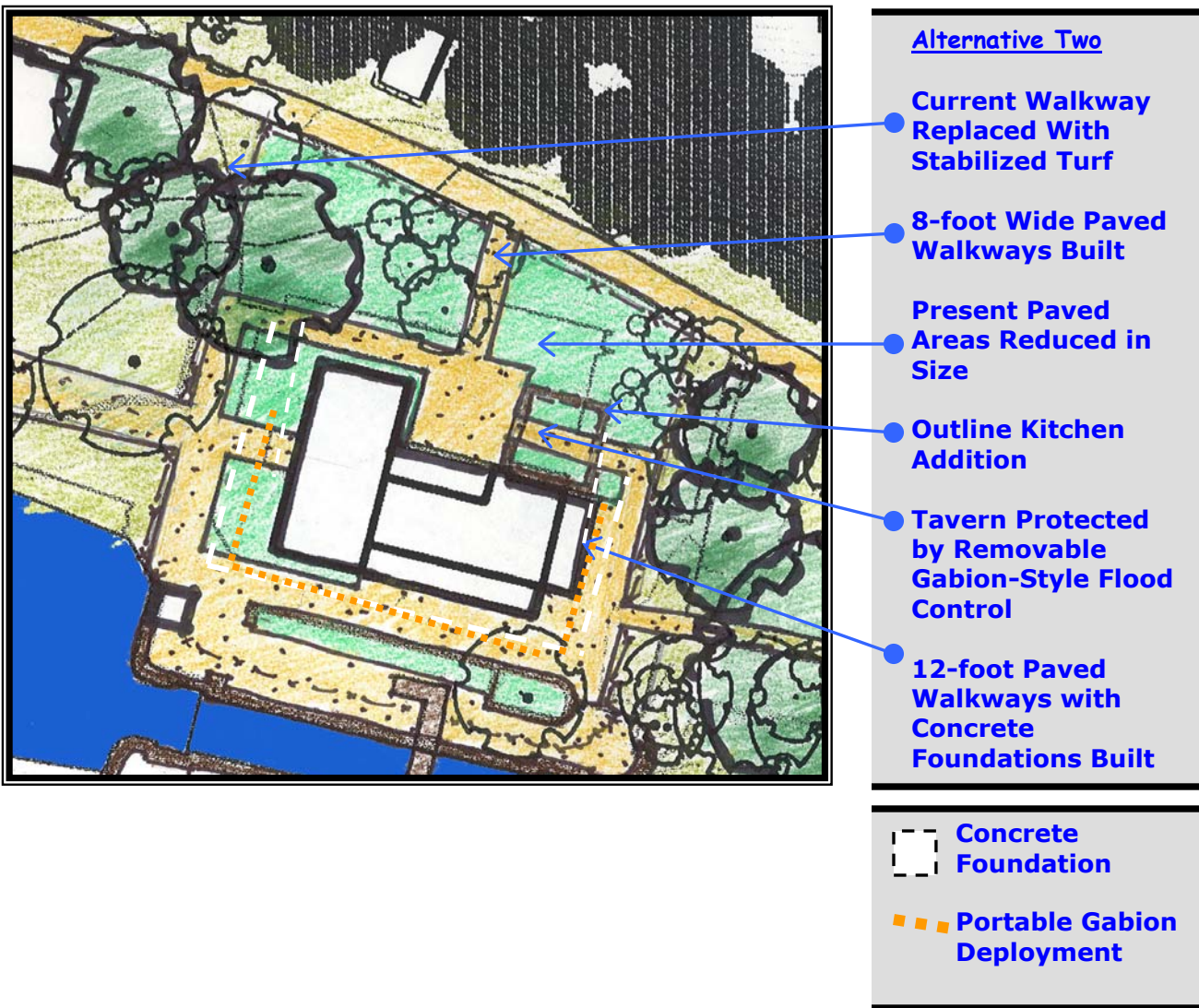


Portable Gabion Deployment

3. Alternative Two

The Great Falls Tavern Yard Area would be reconstructed to reflect the late nineteenth century character of the Great Falls Tavern as documented in photographs from 1880 to 1900. All the brick paved areas around the Tavern would be removed. Historically appropriate paving treatments would be used to construct paved 12-foot wide walkways on the north, west, and south faces of the Tavern. These walkways would be built with a concrete foundation of sufficient strength to withstand the weight of heavy vehicles or the weight of the portable gabion flood control system.

The foundation of the circa 1890 attached kitchen would be outlined for further interpretation. The size of the paved area to the rear of the Tavern would be reduced in size. Pathways 8-foot wide would be built to connect with the rear of the tavern and the service road. The existing brick walkway connecting to the service road would be removed and replaced with stabilized turf strong enough to withstand the passage of heavy trucks. Existing utilities and storm drains would be upgraded.





**F. Tavern Electrical Improvements**

1. The No Action Alternative

Under the No Action Alternative, NPS personnel would continue to maintain the transformer for the electrical system of the Great Falls Tavern in its existing configuration and location at the corner of the Control Gatehouse for the Washington Aqueduct. Present concerns about the capacity of the current electrical transformer and the cultural landscape of the Gatehouse would not be addressed, except on a case-by-case basis as funds are made available.

2. The Alternatives

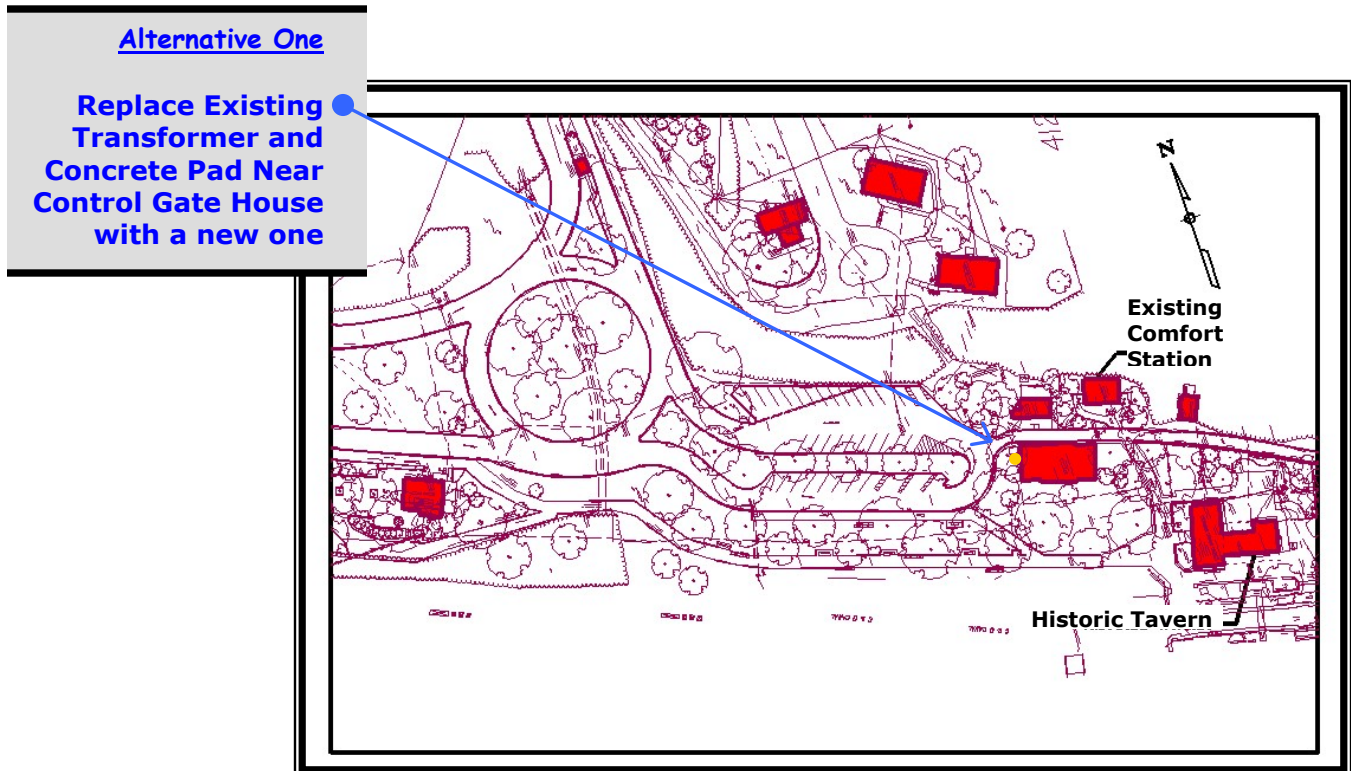
Both of the Alternatives would include the following:

The existing electrical transformer and concrete support pad at the corner of the Control Gatehouse for the Washington Aqueduct would be removed.

They differ as shown below:

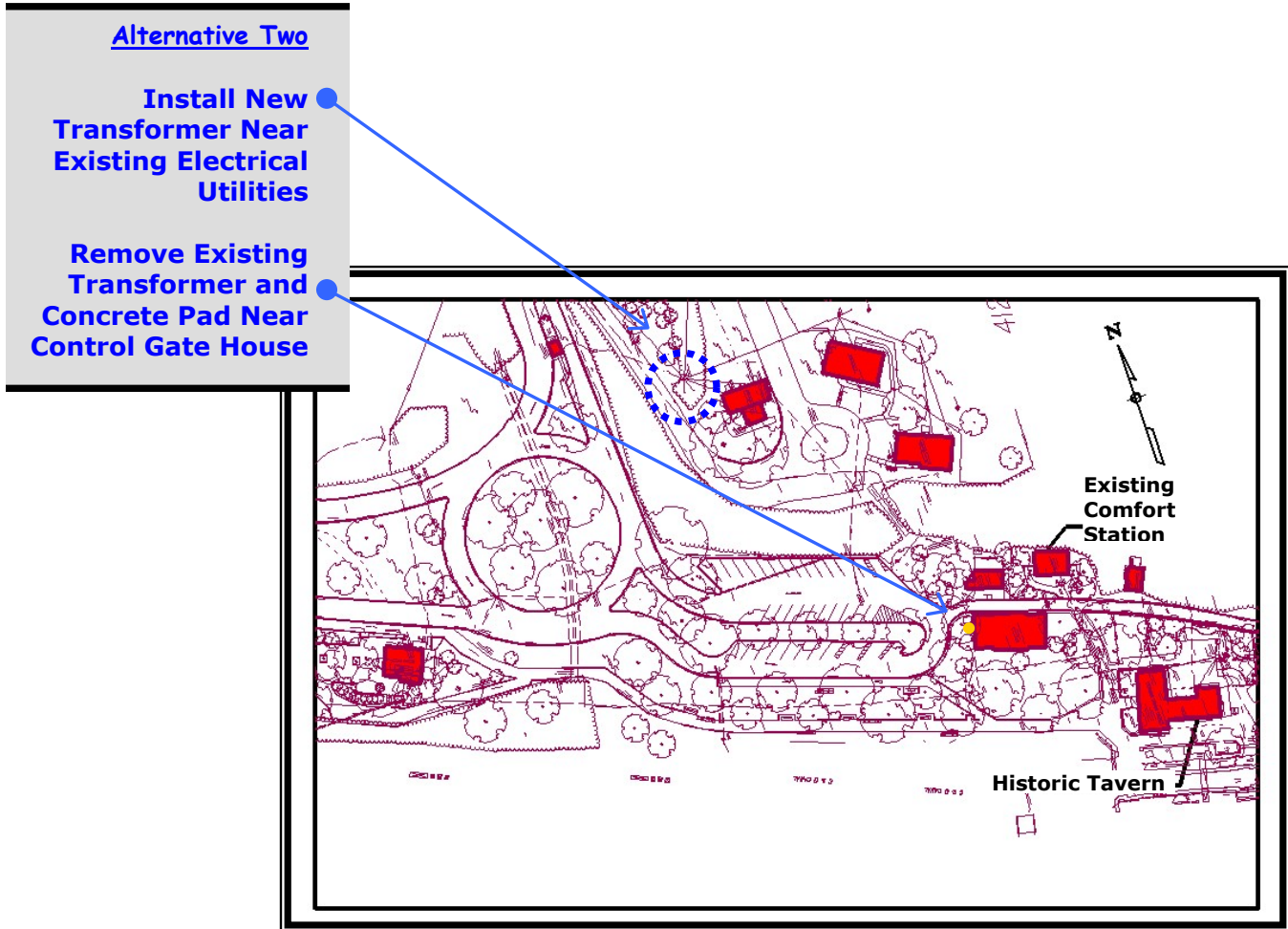
a. *Alternative One*

A concrete pad thick would be installed at the corner of the Control Gatehouse for the Washington Aqueduct, and a new electrical transformer of sufficient capacity to service the proposed Comfort Station and the proposed electrical improvements to the Great Falls Tavern Site would be installed upon the constructed concrete pad.



b. *Alternative Two*

A concrete pad would be installed in a new location at the toe of the hill near the Entrance Station to be determined by the NPS Cultural Landscape Treatment Plan. A new electrical transformer of sufficient capacity to service the proposed Comfort Station and the proposed electrical improvements to the Great Falls Tavern Site would be installed at the new location. Appropriate screening treatments would be installed per the NPS Cultural Landscape Treatment Plan



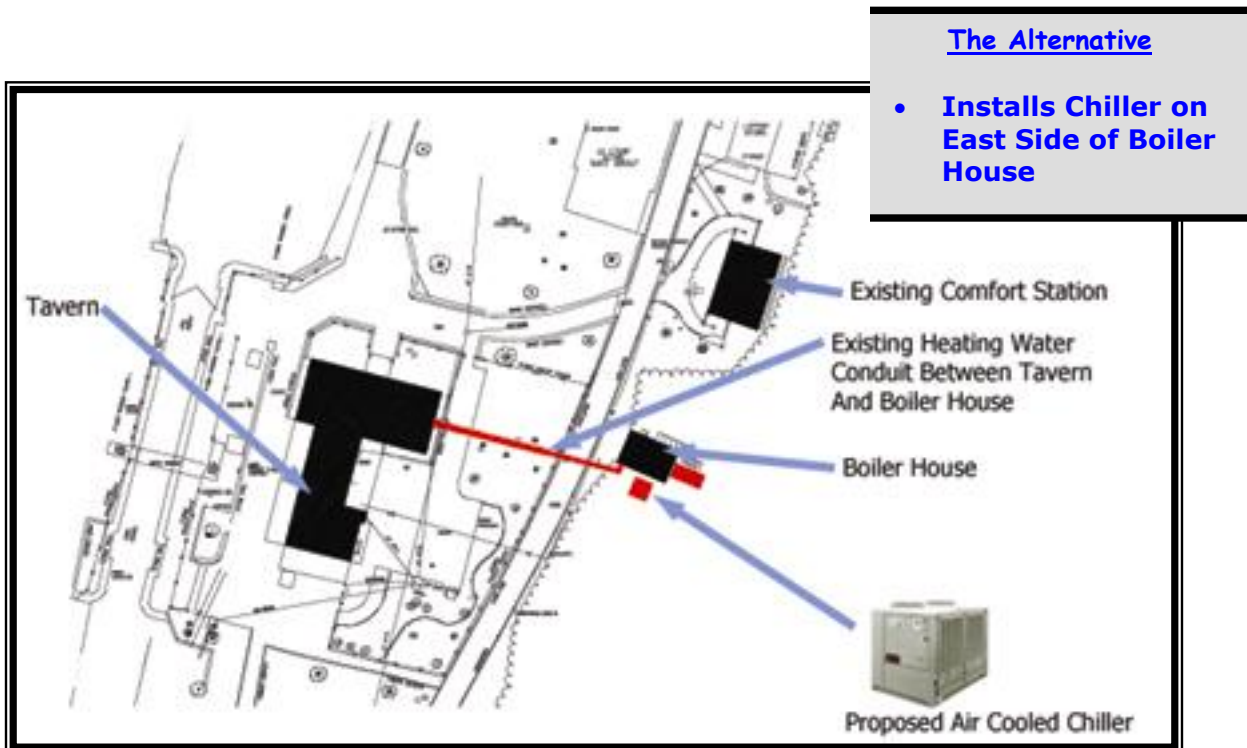
## 6. Tavern HVAC System Improvements

### 1. The No Action Alternative

Under the No Action Alternative, NPS personnel would maintain the heating, ventilation, and air conditioning systems of the Great Falls Tavern in their existing configuration. Concerns about the effectiveness of the present heating, ventilation, and air conditioning systems for providing an effective environment for visitor enjoyment and staff effectiveness and productivity would not be addressed except on a case-by-case basis as funds are made available.

### 2. The Alternative One

Under the Alternative, a concrete pad would be constructed to the east of the existing Boiler House for the Great Falls Tavern. An air chiller of sufficient capacity to meet the needs of the proposed improvements to the heating, ventilation and air conditioning system of the Great Falls Tavern would be installed upon the constructed concrete pad. Appropriate treatments would be implemented, to minimize visual and audible impacts from the chiller.



## H. Alternatives Considered but Rejected

### 1. Entrance Road

Alternatives Five, Six and Seven were eliminated from further discussion due to the adverse impacts to the existing environment. Both Alternatives Five and Six incorporated a dedicated 10-foot off line path/bikeway. Alternative Seven proposed widening the Entrance Road by ten feet to provide five-foot shoulders on both sides of the road. Utility relocation, property constraints, and greater impact to the environment made these alternatives prohibitive. As a result, all three alternatives were rejected for future consideration.

### 2. Lower Parking Lot

The original Alternatives P1, P2, and P3 proposed smaller reductions of the Lower Parking Lot. None of the three alternatives served to increase visitor safety, convenience, or enhance the cultural landscape. As a result, all three alternatives were rejected for future consideration.

### 3. Comfort Station

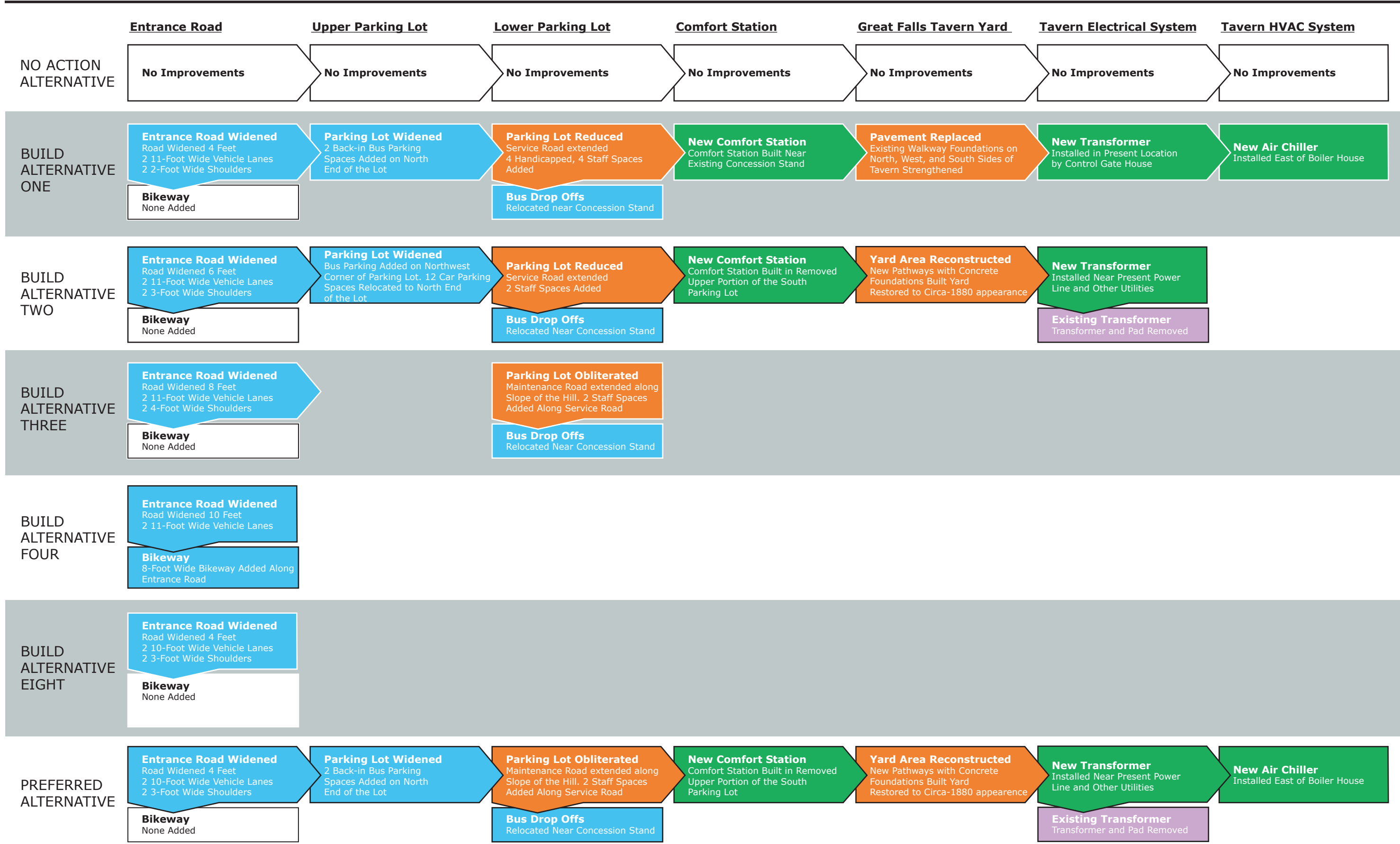
Consideration was given to constructing the Comfort Station between the historic pump house and the eastern portion of the Lower Parking Lot. This location was removed from further discussion due to the close proximity to the Historic Core of the Great Falls Tavern Area and relative distance from the most prevalent pedestrian route.

### 4. Great Falls Tavern Yard Area

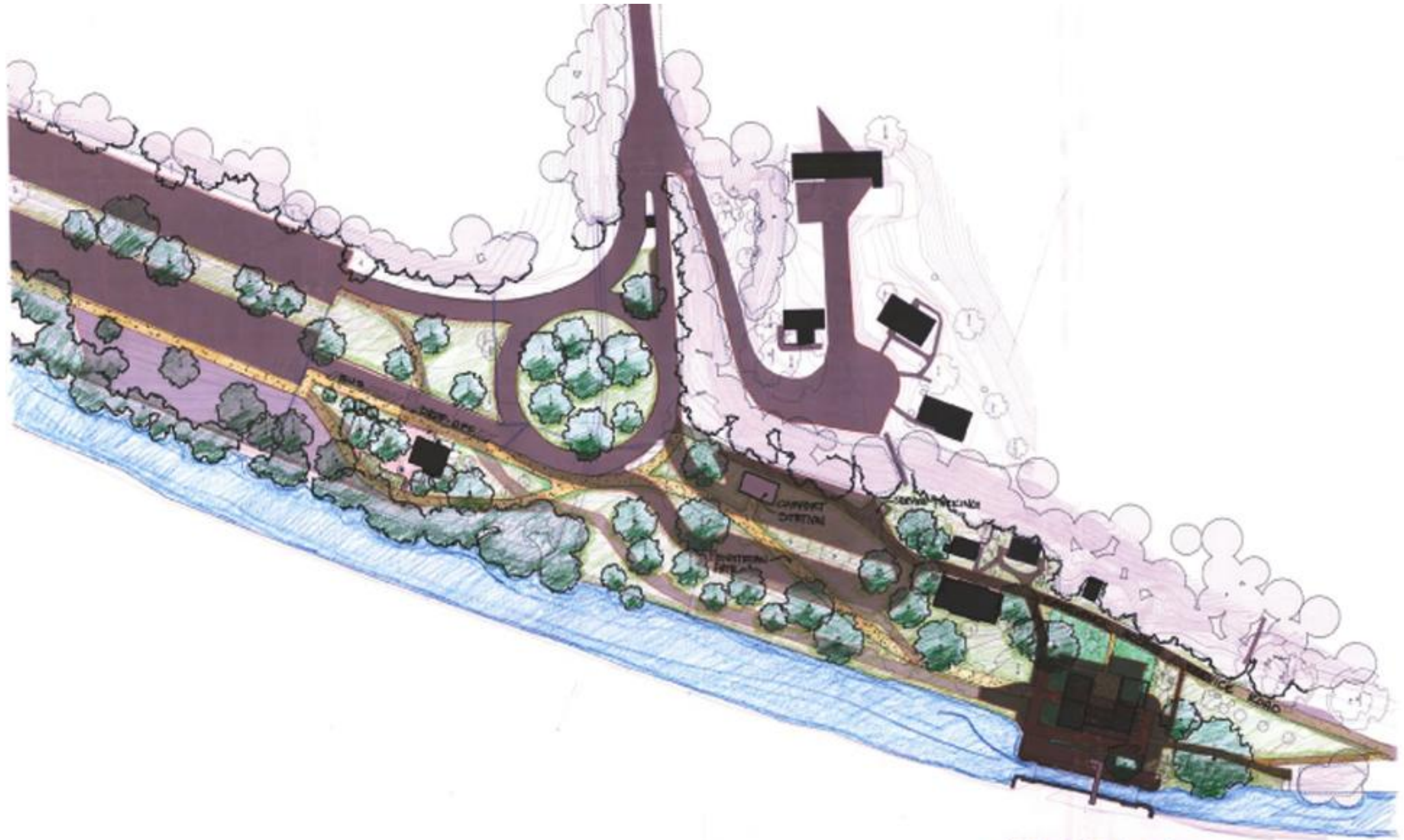
Installation a concrete foundation around the Great Falls Tavern and the use of a removable aluminum floodwall for flood control around the Great Falls Tavern was considered. It was determined that the portable gabions provided similar flood control with much less adverse impact on the historical integrity of the Great Falls Tavern Area. As a result, this alternative was rejected for future consideration.

Comparison of Alternatives Chart

No Improvements
  Pavement to be Widened
  Pavement to be Removed
  Structure to be Constructed
  Structure to be Demolished



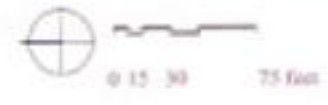




# GREAT FALLS TAVERN

Apr. 2004

CULTURAL LANDSCAPE  
TREATMENT PLAN



### **III. THE ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The environmentally preferred alternative is determined by applying the criteria from Section 2.7(D) of NPS DO-12. These are the same criteria outlined in the National Environmental Policy Act of 1969 (NEPA), which is guided by Council on Environmental Quality (CEQ) regulations. CEQ regulations provide direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s Section 101(b). Generally, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural and natural resources.” [Question 6a, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” (40 CFR 1500-1508), Federal Register Vol. 46, No. 55, 18026-18038, March 23, 1981].

#### **A. Entrance Road**

Alternative Eight has been selected as the most environmentally preferred alternative since it addresses the Park’s needs related to traffic flow, safety, accessibility, and soil erosion, while maximizing the protection of the Park’s cultural and natural resources. Should these concerns not be addressed, the visitor experience and local business operations may deteriorate, and visitor safety may be jeopardized. Although the Alternative would impact some vegetative resources, it is believed that through the use of best management practices, impacts to the natural environment would be minimized.

#### **B. Upper Parking Lot**

Alternative One has been selected as the most environmentally preferred alternative since it addresses the park’s need related to traffic flow, safety, and accessibility while maximizing the protection of the Park’s cultural and natural resources. Should these concerns not be addressed, the visitor experience may deteriorate. Although the Alternative would impact some vegetative resources, it is believed that through the use of best management practices, impacts to the natural environment would be minimized.

#### **C. Lower Parking Lot**

Alternative Three has been selected as the most environmentally preferred alternative since it addresses the Park’s needs related to traffic flow, safety, and accessibility while maximizing the protection of the Park’s cultural and natural resources. Should these concerns not be addressed, the visitor experience may deteriorate. Elimination of the Lower Parking Lot removes a significant amount of pavement and shifts what is a congested area away from the Great Falls Tavern while improving the cultural landscape and historical integrity of the site. Although the Alternative would impact some vegetative resources, it is believed that through the use of best management practices, impacts to the natural environment would be minimized.

**D. Comfort Station**

Alternative Two has been selected as the most environmentally preferred alternative since it addresses the Park's needs related to accessibility while maximizing the protection of the Park's cultural and natural resources. Although Alternative Two would impact some vegetative resources, it is believed that through the use of best management practices, impacts to the natural environment would be minimized.

**E. Tavern Yard Area Reconstruction**

Alternative Two has been selected as the environmentally preferred alternative since it addresses the Park's need to control flood events in the vicinity of the Great Falls Tavern, protect the Great Falls Tavern from flood-related damage and improve the cultural landscape and the historical integrity of the Great Falls Tavern site while maximizing the protection of the Park's natural resources. Should these concerns not be resolved, the visitor experience may deteriorate and the Great Falls Tavern would remain at risk for damage or destruction due to flood events in the Potomac River Valley. While there would be some impact to vegetative resources around the Tavern, the visitor experience and the cultural landscape during construction, it is believed that these impacts to the environment can be minimized through the use of best management practices.

**F. Tavern Electrical Improvements**

The Alternative Two has been selected as the environmentally best alternative since it addresses the Park's need to upgrade the electrical network servicing the Great Falls Tavern and surrounding buildings and restore the cultural landscape and historical integrity of the Washington Aqueduct Control Gatehouse while maximizing the protection of the Park's natural resources. Should these concerns not be resolved, the visitor experience may deteriorate and the historical integrity of the Washington Aqueduct Control Gatehouse would remain impaired. While there would be some impact to vegetative resources near the Control Gatehouse and the Entrance Station, the visitor experience and the cultural landscape during construction, it is believed that these impacts to the environment can be minimized through the use of best management practices.

**G. Tavern HVAC System Improvements**

The HVAC System Improvement Alternative has been selected as the environmentally best alternative since it addresses the Park's need to upgrade the heating, ventilation and air conditioning systems servicing the Great Falls Tavern and surrounding buildings while maximizing the protection of the Park's natural resources and preserving the cultural landscape and historical integrity of the Boiler House and the Great Falls Tavern site. Should these concerns not be resolved, the visitor experience may deteriorate. While there would be some impact to vegetative resources, the visitor experience and the cultural landscape during construction, it is believed that these impacts to the environment can be minimized through the use of best management practices.

## IV. AFFECTED ENVIRONMENT

The general study area lies within the middle region of the Maryland side of the Potomac River Gorge. The Gorge consists of approximately 13 miles of river valley along the Potomac River preserved by both the George Washington Memorial Parkway (GWMP) and the C&O Canal NHP, and extends from above Great Falls to near Theodore Roosevelt Island. The Potomac River Gorge straddles the Fall Line between the Atlantic Coastal Plain and the Piedmont Geologic Provinces and is a meeting place for northern and southern flora and fauna species, as well as Coastal Plain and Appalachian species. The diversity of habitats contained in the region includes a major river system with numerous tributaries, mature upland woods, floodplain forests, bedrock floodplains, bedrock terraces, riverside prairie outcrops, several springs and seeps harboring rare fauna, and abundant small wetlands of varied types. This diversity is mainly attributable to the significant natural resources along the Fall Line such as Great Falls, Mather Gorge, and the numerous islands and smaller falls within this section of the Potomac River.

### A. **Natural Resources**

#### 1. Vegetation

Historically the native plant communities at Great Falls Tavern were very similar to those that exist today. There are four general categories of vegetation at the site. These are flood plain vegetation, upland vegetation, mid-river island vegetation, and introduced plantings.

The flood plain vegetation located within the project area is comprised of native species and exotic species. The predominant native species are sycamore (*Platanus occidentalis*) and green ash (*Fraxinus pennsylvanica*). Also included are elm (*Ulmus sp.*), boxelder (*Acer negundo*), silver maple (*Acer. saccharinum*), cottonwood (*Populus deltoides*), and American hornbeam (*Carpinus caroliniana*) Field survey has also revealed the presence of river birch (*Betula nigra*) and the understory tree, service berry (*Amelanchier arborea*). These same species would have been present during the period of significance. When the canal was built, the towpath was planted in grass and Arrow arum was planted along the sides of some areas of the canal bank in an attempt to reduce erosion. As with the native species, grass and Arrow arum are still found along the canal.

The upland areas located east and northeast of the tavern are primarily Oak/Hickory second-growth forest in which native species predominate. White and black oak (*Quercus alba*, *Q. velutina*), red, scarlet and chestnut oak (*Q. rubra*, *Q. coccinea*, *Q. prinus*), Eastern red cedar (*Juniperus virginiana*) and yellow poplar (*Liriodendron tulipifera*) are found as well as American beech (*Fagus grandifolia*), black walnut (*Juglans nigra*), maple (*Acer sp.*), choke cherry (*Prunus virginiana*), sumac (*Rhus spp.*), mountain laurel (*Kalmia latifolia*), locust (*Robinia psuedoacacia*) and sassafras (*Sassafras albidum*). These same species would have been present in the historic period. Field survey also revealed wild grape (*Vitis sp.*) and blueberry (*Vaccinium sp.*), barberry (*Berberis sp.*), boxwood (*Buxus sp.*), forsythia (*Forsythia sp.*), and holly (*Ilex sp.*) within the upland area. Some of these species have escaped into the woods from the tavern area or these trees, shrubs and vines may mark abandoned dwelling sites. Further research is needed in order to determine whether they were planted during the period of significance.

A unique indigenous plant community is found on the mid-river islands. As the Potomac River cut a gorge into the formerly broad river plain, a micro-environment of high rock terrace developed. Periodic floods that remove soil and stunt tree growth scour mid-river islands, such as Olmsted Island. The typical trees of the flood plain top out at 30-40 feet and this allows small open glades to develop. These glades support plant life similar to that found on mid-western prairies and Canadian forests. Species found on the islands include Indian grass (*Sorghastran nutans*) and wild oats (*Chasmanthium latifolium*). The island's dominant oak species, post oak (*Quercus stellata*) grows well in dry areas with poor soil. In addition to the prairie-like micro-environment, a wetland environment also exists on Olmsted Island. Depressions on the island trap rain and flood waters and the standing water create a wetland habitat. Swamp-loving species such as pin oak (*Quercus palustris*), swamp white oak (*Quercus bicolor*), river birch (*Betula nigra*), Halberd-leaved rosemallow (*Hibiscus militaris*), buttonbush (*Cephalanthus occidentalis*) and water-hyssop (*Mecardonia acuminata*) thrive. As with the upland and flood plain vegetation, the island vegetation would have been the same during the period of significance.

During the period of significance, there was little if any cropland within the project area. It is likely that some decorative species such as lilac (*Syringa sp.*) and a kitchen garden were planted, but no evidence of these remain.

The existing introduced plantings of both native and non-native vegetation date from the period of NPS management and therefore fall outside the period of significance. Trees have been planted to screen the maintenance yard and the building cluster located on the hill above the tavern. In addition, the NPS has planted trees in the medians between the parking areas and along the berm side of the canal. Species planted as screen and in the medians include: white pine (*Pinus strobus*), scotch pine (*Pinus sylvestris*), American linden (*Tilia americana*), holly (*Ilex sp.*), service berry (*Amalanchier arborea*), willow oak (*Quercus phellos*), flowering dogwoods (*Cornus sp.*), eastern redbud (*Cercis canadensis*), American basswood (*Tilia americana*), boxelder (*Acer Negundo*), yellow-wood (*Cladrastis lutea*), blackhaw viburnum (*Viburnum prunifolium*), American elm (*Ulmus americana*), silver maple (*Acer saccharinum*), black walnut (*Juglans nigra*), and paper mulberry (*Broussonetia papyrifera*). Herbaceous plantings near the tavern include perennials - geranium, hosta, spiderwort, and sage. The shrub Japanese pieris (*Pieris japonica*), has been planted in containers located on either side of the north entrance to the tavern. The enclosed yard east of the tavern contains lilac, rose of sharon, peonies, iris, and boxwood. An herb garden developed in the 1990s includes wormwood, lavender, mint, chives, lemon verbena as well as roses and ferns.

It is not known whether any individual plants or trees that date to the period of significance survive within the project area. However, the preservation of native and introduced species that serve to define the visitor experience is important. These include the native flood plain and upland vegetation, as well as the grassed sections along the towpath and the Arrow arum (*Peltandra*) growing along the canal wall north of the tavern.

## 2. Threatened and Endangered Species

Threatened or endangered bird species data compiled by NPS Resource Management staff indicate there are six Maryland state-listed and one federally-listed bird species (Bald Eagle) found within the Great Falls Park area of the C&O Canal NHP. In all seasons of the year, Bald Eagles have been spotted in the Potomac River Gorge. The C&O Canal NHP offers nesting habitat for the Bald Eagle, providing both mature forest canopy and access for fishing in the Potomac River. The USFWS has indicated that a bald eagle nest is located near the project location.

In Maryland, the Mourning Warbler and the Swainson's Warbler have a state status of endangered and are ranked as critically imperiled for breeding. While no known threatened or endangered species are known to habitat in the vicinity of the project site, it is possible that transient individuals of some species would occasionally be found within their vicinity.

## 3. Birds and Wildlife

The C&O Canal NHP has been designated an Important Bird Area by the National Audubon Society and the American Bird Conservancy. Important Bird Areas are sites that are critical to rare species or sites that support large concentrations of species. Available breeding bird count and wildlife observation data from the C&O Canal NHP documents 81 bird species in the Great Falls area in Maryland, of which 45 of these are migratory. Waterfowl, herons, Osprey, and American Bald Eagles can be seen along the Potomac River's edge. There are numerous species of birds that migrate and/or nest within the forest such as warblers, thrushes, and other neotropical migratory species. Common year-round avian species include Carolina Chickadee, Mourning Dove, House Wren, Northern Cardinal, American Crow, and European Starling

Mammals within the study area are representative of the eastern hardwood forests, including white-tailed deer, raccoons, bats, flying squirrels, eastern gray squirrels, chipmunks, opossums, rabbits, and red fox. In addition, many species of reptiles and amphibians such as five-lined skinks, black rat snakes, copperhead snakes, garter snakes, box turtles, American toads, and red-backed salamanders are common. A wide variety of invertebrate species such as butterflies and moths also inhabit the area.

## **B. Physical Environment**

### 1. Air Quality

For purposes of the Clean Air Act, the Environmental Protection Agency (EPA) has determined that Montgomery County is a non-attainment area for ozone i.e., pollution levels are above the National Ambient Air Quality Standards (NAAQS). The area is in compliance with other pollutants considered in the NAAQS.



## 2. Hydrology, Water Quality and Wetlands

Great Falls Tavern lies entirely within the watershed of the Chesapeake Bay. In addition to the Potomac River and the adjacent C&O Canal, which run predominantly north to south through the Great Falls Tavern portion of the project site, there are several streams that flow into the river or the canal. With the exception of the Carroll Branch, these streams are seasonal and intermittent.

The Carroll Branch is a first order tributary of the Potomac River and provides immediate drainage to the Entrance Road portion of the project. It lies 2,383 feet north of the project beginning, the intersection of Falls Road and the Entrance Road, and flows south and west through the project area and into a culvert under the existing traffic circle at the end of Entrance Road before emptying into the C&O Canal.

## 3. Geology and Soils

The Great Falls Project falls within the Potomac terrain subdivision of the Piedmont physiographic province. The underlying geology is a heterogeneous mix of different rock formations classified as the Mather Gorge Formation. The Entrance Road is underlain by migmatite, a mix of partially melted dark gray quartzose schist and light gray and white quartz plagioclase granitoid. The Parking Lot and Great Falls Tavern is underlain by ultramafic gray metagraywacke interbedded with schist.

The site is approximately 130 feet above mean sea level. The soils on the site fall within the Glenelg-Gaila-Occoquan soil unit. This soil composes central Montgomery County's broad ridgetops and sideslopes. These are primarily loamy, well drained and deep to very deep upland soils.

The Entrance Road is underlain by Blocktown Channery, Gaila and Glenelg Silt Loams. The Great Falls Tavern and the Upper Parking Lot are built upon Blocktown Channery Silt Loam, while the Lower Parking Lot rests on Baile and Blocktown Channery Silt Loams. The Baile Silt Loam is a very deep and poorly drained soil composed of weathered mica schist and gneiss that forms in both the local alluvial deposits and the underlying material. The Blocktown Channery Silt Loam is a shallow but well drained soil from phyllite and schist. The Gaila and Glenelg Silt Loam are deep, well drained soils formed from weathered quartz muscovite schist and schist and gneiss, respectively.

## 4. Noise

The area is mostly serene and tranquil with the majority of noise being generated by vehicular traffic, railroad traffic, and human activity from recreational users. Additional ambient noise is generated from occasional aircraft associated with local airports and the constant noise generated from the Great Falls.

## 5. Floodplains

Generically, the term "floodplain" refers to the area near streams that may be submerged by floodwaters. For streams that have undergone detailed analysis by the Federal Emergency Management Agency (FEMA) as a part of the National Flood Insurance Program, the term "flood plain" is more specifically defined as the area that would be expected to submerge during a 100-year flood (often referred to as the "regulatory flood"). The 100-year flood serves as the "base" flood for purpose of flood plain management measures. The "flood profile elevation" is an associated term that refers to the water level elevation at any point along a stream during a 100-year flood event.

The flood cycle of the Potomac River had and continues to have, a significant impact on Great Falls Tavern. More than one hundred- twenty-five Potomac River floods are on record between 1829 and 1996, and at least a dozen floods that have caused major damage within the project area. The Great Falls Tavern is primarily vulnerable to floodwaters from the north and northwest as they rise above the present banks of the C&O Canal and flow toward the Tavern.

### **C. Cultural Resources**

The C&O Canal NHP is the site of the most intact nineteenth century canals in the United States. The C&O Canal NHP was listed in the National Register of Historic Places in 1979, encompassing the entire canal from Georgetown to Cumberland. The C&O Canal project was a national effort to establish a Potomac River water route to the Ohio Valley. It was a modification and expansion of the Patowmack Canal originally envisioned and constructed in the late 1700's by George Washington and his contemporaries.

Constructed between 1828 and 1850, the C&O Canal follows the route of the Potomac River for 184.5 miles from Washington, DC to Cumberland, Maryland where construction was halted. It operated from 1828-1924 as one of the major commercial transportation arteries of the Potomac Valley, primarily hauling coal from western Maryland to the port of Georgetown in Washington, DC. A major flood in 1924 caused the C&O Canal to cease operation, and in 1938 it was acquired by the NPS. Thousands of original structures including locks, lock houses, and aqueducts, serve as reminders of the role of the canal as a transportation system during the Canal Era and are contributing elements to the National Register of Historic Places district. In addition, the canal's towpath provides a nearly level, continuous recreational trail through the spectacular scenery of the Potomac River Valley.

The Great Falls Tavern was an expansion of the lockhouse and was completed as a hotel and residence for the lockkeeper for the six locks in the Great Falls portion of the C&O Canal in 1831. In the early years of the canal's operation, the Great Falls Tavern provided restaurant, ballroom and overnight accommodations for sightseers and fisherman. It served as a hotel for canal travelers from 1831 to 1849. In 1850, the Canal Company decided it would no longer allow its use as a tavern, but only as a lockhouse. However, in 1851, the company leased a portion of the building as a grocery store. Then in 1858, the Canal Company once again allowed the lockkeeper to open the building as an "ordinary" or hotel. It remained a public hotel until the early twentieth century. Beginning in 1913, the Canal Company leased the building to a private club, and the tavern no longer served as



a lockkeeper's residence. The tavern resumed business as a public hotel and restaurant after the 1924 flood and continued as such until the NPS took over the property in 1938.

A pump house, boiler house and comfort station were constructed by the Civilian Conservation Corps (CCC) sometime between. They are located just east of the Tavern, against the hillside and along the access lane. All three of these buildings remain extant. The National Park System made further changes to the landscape in the Great Falls Tavern area. Water and sewer systems, an expanded parking lot, picnic areas and refreshment and canoe rental concessions were constructed. The tavern was in poor condition and the structure was almost razed after a fire in 1948. Instead, the NPS decided to rehabilitate it. In 1951 the structure reopened to the public and served as a museum and visitors center. In order to accommodate visitors, the NPS constructed a large parking area north of the entry road, as well as a traffic circle between the Lower and Upper Parking Lots. This work was completed by the late 1950s. Also in the 1950s, brick paving was added to the yard area east and south of the tavern.

The present Entrance Road was built in 1873 as an extension of the Conduit Road by the US Army Corps of Engineers to provide access to the Washington Aqueduct structures. This road became the primary access to the Tavern Area. The Entrance Road was widened in 1893 to provide parking and increase safety. The Entrance Road was partially macadamized in 1904 and fully paved with a width of 16 feet in 1915. The NPS Cultural Landscape Inventory lists the Entrance Road as contributing to the Cultural Landscape of the Tavern Area.

The current rotary at the terminus of the Entrance Road was designed in the 1930s as a portion of the proposed parkway from Washington, DC to Cumberland MD to be built along the C&O Canal. The rotary was then built in the 1950's as a portion of the parking improvements at the Great Falls Tavern. The NPS has determined that the rotary is historic and contributes to the Cultural Landscape of the Tavern Area.

The changes made by the NPS in the 1950s completed the transformation of Great Falls Tavern from a commercial and industrial landscape to one devoted primarily to recreation.

The Washington Aqueduct US Army Corps of Engineers, a separate entity from the canal and park, is located beneath MacArthur Boulevard and stretches almost 12 miles from the intake at Great Falls to the Georgetown Reservoir. The Aqueduct is listed as a National Historic Landmark in both Maryland and the District of Columbia, with a period of significance from 1853 to 1880.

The Aqueduct is nationally significant because it represents the type of civil engineering works constructed nationally for public water systems. It is also significant because it represents the District of Columbia's first water system and illustrates the Army Corps of Engineers entry into the field of public engineering works. The Aqueduct was designed by Montgomery C. Meigs, and constructed from 1853 to 1863, and entered service in 1864. The system includes the masonry dam and aqueduct inlet at the Great Falls, six bridges including the 220-foot masonry arch at Cabin John, one mile of tunnels, twelve miles of conduit, brick air vents, and control facilities.

The most prominent of the many Washington Aqueduct structures in the project area is the Control Gatehouse. This masonry structure was built in 1855.

Native Americans previously occupied areas within the Park before the existence of the C&O or Patowmack Canals. They engaged in fishing in the Potomac River and obtained other sustenance from the surrounding forest. While archeological investigations have indicated the existence of seasonally occupied campsites and a trade network, the activity zones of these aboriginal peoples are not clearly defined.

The markers along MacArthur Boulevard are called "Washington Aqueduct Survey Markers." (In the Cultural Landscape Inventory they are called "concrete boundary markers"). There are approximately 22 along MacArthur Blvd from the intersection of Falls Road down to the tavern. They are described as being 6" x 6" concrete squares labeled with a "WA" and assigned numbers such as A100 & A102. They are listed as a contributing feature and determined eligible by the State Historic Preservation Officer.

As part of this study a Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park was completed in November 2003. Six archaeological excavations were conducted along the Tavern's northern, western, and southern faces. A total of thirty-five artifacts were found. These artifacts may date to the nineteenth century, but they were also widely available into the mid- to late-twentieth century. Given the highly disturbed nature of the soils found in these six dig sites, it is highly likely that these artifacts are not from the Great Falls Tavern, but were deposited around the Tavern by the flooding of the Potomac. No artifacts that can be definitely attributed to the Great Falls Tavern were found.

The archaeological investigation found a historical site, Great Falls Historic Site #1, on a hilltop overlooking the entrance road. A shallow depression and the remnants of concrete blocks were located near the center of the hilltop. Based upon the small footprint of the dwelling, shallow depression depth and the lack of any foundation walls, it is believed the former structure was set upon posts or piers. Based upon the 446 historic period artifacts recovered, this historical site dates to the late nineteenth or early to mid twentieth century, and may have been associated with the trolley that ran from Georgetown to Great Falls. A pedestrian bridge out to an island, now known as Olmsted Island, was built as early as 1880.

No items of any archaeological significance were found in the two archaeological test areas encompassing the Upper and Lower Parking Lots.

A total of thirty-five artifacts were recovered from the six test pits dug on the northern, eastern, and southern portions of the Great Falls Tavern Yard Area. All six test holes indicated severely disturbed soil; these disturbances are most likely the result of the high energy floods that frequent the Potomac River Basin. While several of the recovered artifacts may indeed date to the nineteenth century, most were readily available into the mid to late twentieth century. Given the disturbances in the soils found, there is a high degree of probability that these artifacts were redeposited from elsewhere. No artifacts or surfaces that can be definitely attributed to the Great Falls Tavern were found in the test area.

No further archaeological work within the project limits is considered necessary.

#### **D. Visitor Use and Experience/Park Operations**

The C&O Canal NHP is part of the National Park System, encompassing 185 miles from the tidewater at Georgetown in Washington, DC, to Cumberland, Maryland.

The project area is located at and around the Great Falls Tavern. The park features hiking, biking, camping, canoeing, and boating.

There are four contributing views at the Great Falls Tavern Area. The view of the falls themselves has drawn people to the project area since at least the early nineteenth century. This view can only be obtained from one of the river islands. The Canal Company recognized the importance of the falls view when it expanded Lockhouse 12 to include space for a hotel and tavern. A pedestrian bridge out to Olmsted Island was built as early as 1880. This view remains accessible to the public via the twentieth-century pedestrian bridges to Olmsted Island. A second contributing view is that of Mather Gorge, the towpath, canal and the river from the hillside above Lock 17. It is visible from the park hiking trails. This view has been an important draw for visitors to Great Falls since at least the early twentieth century. The third is the view seen when traveling north or south along the towpath, which has changed little since the nineteenth century. Lastly, the most common view is that of the north side of the tavern as seen from the towpath looking south. The building has been photographed often from this spot throughout the historic and modern periods, and since the setting retains only partial integrity, so does the view.

The park is open daily from sunup to sundown. The park hosts numerous special events during the course of the year, such as Canal Kids Day.

#### **E. Socio-Economic Environment**

The project area is located in Great Falls, Montgomery County, Maryland, in close proximity to the town of Potomac, within the Chesapeake and Ohio Canal National Historical Park. This project area consists predominately of deciduous forest bordering the canal waterway. Most of the surrounding area encompasses residential areas.

## V. ENVIRONMENTAL EFFECTS FOR ENTRANCE ROAD

### A. Natural Resources

#### 1. Vegetation

##### a. *No Action Alternative*

No change from existing conditions.

##### b. *Alternative One*

The proposed widening of the road would make it necessary to remove some vegetation and trees. It is estimated that 0.55 acres of vegetation within the Park would be disturbed by the proposed work. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to vegetation would be minor.

##### c. *Alternative Two*

The proposed widening of the road would make it necessary to remove some vegetation and trees. It is estimated that 0.83 acres of vegetation within the Park would be disturbed by the proposed work. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to vegetation would be minor.

##### d. *Alternative Three*

The proposed widening of the road would make it necessary to remove some vegetation and trees. It is estimated that 1.11 acres of vegetation within the Park would be disturbed by the proposed work. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to vegetation would be minor.

##### e. *Alternative Four*

The proposed widening of the road would make it necessary to remove some vegetation and trees. It is estimated that 1.39 acres of vegetation within the Park would be disturbed by the proposed work. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to vegetation would be minor.

##### f. *Alternative Eight*

The proposed widening of the road would make it necessary to remove some vegetation and trees. It is estimated that 0.55 acres of vegetation within the Park would be disturbed by the proposed work. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to vegetation would be minor.

*g. Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative. Under the Alternatives, minor removal of vegetation would be required for the widening of the roadway. This removal would be proportionate to the width of the road. The existing species abundance at the C&O Canal NHP would remain approximately the same. No impairment to the vegetation within the Park would occur.

2. Threatened and Endangered Species

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative One is not likely to adversely affect federally listed threatened and endangered species.

*c. Alternative Two*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Two is not likely to adversely affect federally listed threatened and endangered species.

*d. Alternative Three*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Three is not likely to adversely affect federally listed threatened and endangered species.

*e. Alternative Four*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Four is not likely to adversely affect federally listed threatened and endangered species.

*f. Alternative Eight*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Eight is not likely to adversely affect federally listed threatened and endangered species.

*g. Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under any of the alternatives. No impairment to threatened and endangered species within the Park would occur.

3. Birds and Wildlife

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

The proposed widening of the road would make it necessary to remove some vegetation and trees that support wildlife. It is estimated that 0.55 acres of the grassy and wooded habitat within the Park would be disturbed by the proposed work. Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs along the alignment of the existing roadway, it is likely that these areas are already avoided to some extent and only minor short-term impacts may result.

c. *Alternative Two*

The proposed widening of the road would make it necessary to remove some vegetation and trees that support wildlife. It is estimated that 0.83 acres of the grassy and wooded habitat within the Park would be disturbed by the proposed work. Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs along the alignment of the existing roadway, it is likely that these areas are already avoided to some extent and only minor short-term impacts may result.

d. *Alternative Three*

The proposed widening of the road would make it necessary to remove some vegetation and trees that support wildlife. It is estimated that 1.11 acres of the wooded habitat within the Park would be disturbed by the proposed work. Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs along the alignment of the existing roadway, it is likely that these areas are already avoided to some extent and only minor short-term impacts may result..

e. *Alternative Four*

The proposed widening of the road would make it necessary to remove some vegetation and trees that support wildlife. It is estimated that 1.39 acres of the wooded habitat within the Park would be disturbed by the proposed work. Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs along the alignment of the existing roadway, it is likely that these areas are already avoided to some extent and only minor short-term impacts may result.

f. *Alternative Eight*

The proposed widening of the road would make it necessary to remove some vegetation and trees that support wildlife. It is estimated that 0.55 acres of the grassy and wooded habitat within the Park would be disturbed by the proposed work. Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs along the alignment of the existing roadway, it is likely that these areas are already avoided to some extent and only minor short-term impacts may result.

g. *Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under any of the alternatives. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to birds and wildlife would be minor. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Only negligible short-term impacts from emissions would occur during construction of Alternative One and no long-term impacts would result.

c. *Alternative Two*

Only negligible short-term impacts from emissions would occur during construction of Alternative Two and no long-term impacts would result.

d. *Alternative Three*

Only negligible short-term impacts from emissions would occur during construction of Alternative Three and no long-term impacts would result.

e. *Alternative Four*

Only negligible short-term impacts from emissions would occur during construction of Alternative Four and no long-term impacts would result.



f. *Alternative Eight*

Only negligible short-term impacts from emissions would occur during construction of Alternative Eight and no long-term impacts would result.

g. *Conclusions*

Under the No Action Alternative there would be no change from the existing conditions. During construction, temporary, minor impacts to air quality levels may occur under the Alternatives. However, no adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative One permanently increases the paved area of the Entrance Road by 0.55 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

c. *Alternative Two*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Two permanently increases the paved area of the Entrance Road by 0.83 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

d. *Alternative Three*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Three permanently increases the paved area of the Entrance Road by 1.11 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

e. *Alternative Four*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Four permanently increases the paved area of the Entrance Road by 1.39 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

f. *Alternative Eight*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Eight permanently increases the paved area of the Entrance Road by 0.55 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

g. *Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternatives, there are

potential temporary and permanent adverse effects to the water quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

c. *Alternative Two*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

d. *Alternative Three*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

e. *Alternative Four*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

f. *Alternative Eight*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

g. *Conclusions*

Neither the No Action nor the Alternatives would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur.

4. Noise

a. *No Action Alternative*

No change from existing conditions.

*b. Alternative One*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*c. Alternative Two*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*d. Alternative Three*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*e. Alternative Four*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*f. Alternative Eight*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*g. Conclusions*

The No Action Alternative would maintain current noise levels. Under the Alternatives, a minor increase in noise levels would occur during construction. After construction, noise levels would be expected to return to normal. No impairment to noise levels within the Park would occur.

5. Floodplains

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

Construction activities would not occur within the floodplains.

*c. Alternative Two*

Construction activities would not occur within the floodplains.

*d. Alternative Three*

Construction activities would not occur within the floodplains.

e. *Alternative Four*

Construction activities would not occur within the floodplains.

f. *Alternative Eight*

Construction activities would not occur within the floodplains.

g. *Conclusions*

Neither the No Action Alternative nor the Alternatives would be expected to impact the floodplains. No impairment to the floodplains within the Park would occur.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No change from existing conditions.

2. Alternative One

The Cultural Landscape Inventory conducted by the NPS lists the Entrance Road as contributing to the historical integrity and the cultural landscape of the Great Falls Tavern Area. For the majority of the Entrance Road, the proposed 4-foot widening would be symmetrical and would retain the historical alignment. To minimize extensive cutting into existing embankments and/or filling existing swales, portions of the Entrance Road may be widened asymmetrically. This widening would shift the centerline of

the Entrance Road approximately two feet, changing the historic alignment of the Entrance Road. The Washington Aqueduct Survey Markers will be avoided during construction activities. Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix). The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts or historical sites within the area affected by Alternative One.

3. Alternative Two

The Cultural Landscape Inventory conducted by the NPS lists the Entrance Road as contributing to the historical integrity and the cultural landscape of the Great Falls Tavern Area. For the majority of the Entrance Road, the proposed 6-foot widening would be symmetrical and would retain the historical alignment. To minimize extensive cutting into existing embankments and/or filling existing swales, portions of the Entrance Road may be widened asymmetrically. This widening would shift the centerline of the Entrance Road approximately three feet, changing the historic alignment of the Entrance Road. Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix). The Washington Aqueduct Survey Markers will be avoided during construction activities. The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts or historical sites within the area affected by Alternative Two.

4. Alternative Three

The Cultural Landscape Inventory conducted by the NPS lists the Entrance Road as contributing to the historical integrity and the cultural landscape of the Great Falls Tavern Area. For the majority of the Entrance Road, the proposed 8-foot widening would be symmetrical and would retain the historical alignment. To minimize extensive cutting into existing embankments and/or filling existing swales, portions of the Entrance Road may be widened asymmetrically. This widening would shift the centerline of the Entrance Road approximately four feet, changing the historic alignment of the Entrance Road. Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix). The Washington Aqueduct Survey Markers will be avoided during construction activities. The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts or historical sites within the area affected by Alternative Three.



#### Alternative Four

The Cultural Landscape Inventory conducted by the NPS lists the Entrance Road as contributing to the historical integrity and the cultural landscape of the Great Falls Tavern Area. While Alternative Four would not shift the centerline of the Entrance Road, it would widen the Entrance Road asymmetrically by 10 feet and would require cutting into several existing embankments and/or filling existing swales. This would change the historic character of the Entrance Road. Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix). The Washington Aqueduct Survey Markers will be avoided during construction activities. The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts or historical sites within the area affected by Alternative Four.

#### 5. Alternative Eight

The Cultural Landscape Inventory conducted by the NPS lists the Entrance Road as contributing to the historical integrity and the cultural landscape of the Great Falls Tavern Area. The proposed 4-foot widening would be symmetrical and would retain the historical alignment. To minimize extensive cutting into existing embankments and/or filling existing swales, portions of the Entrance Road may be widened asymmetrically. The addition of the curb in some critical areas would lessen the amount of disturbance to the existing slopes whereas limiting any adverse affects to the visual character of the historic road corridor. To make the curb as compatible as possible to the historic setting, the selection of the curb material, color and profile would attempt to blend into the surrounding landscape. Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix). The Washington Aqueduct Survey Markers will be avoided during construction activities. The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts or historical sites within the area affected by Alternative Eight along the Entrance Road.

#### 6. Conclusions

Under the No Action Alternative, cultural resources would remain undisturbed. It has been determined by the Cultural Resources Staff at the Park that the Alternatives would potentially have some adverse effect on cultural resources because they alter the current road alignment. No impairment to cultural resources would occur under the Alternatives.

### ***D. Visitor Use and Experience/Park Operations***

#### 1. No Action Alternative

No change from existing conditions.

2. Alternative One

Alternative One has a temporary adverse impact on visitor use and experience due to construction. However, because visitor access would be maintained at all times, this impact would be mitigated.

Alternative One has permanent adverse and beneficial impacts on visitor use and experience. The proposed widening may change the historical alignment and some of the viewshed items, such as existing embankments or swales. The proposed widening would also better accommodate the traffic using the road. Vehicles would be more easily managed along the roadway, increasing safety, visitor experience, and park operations.

3. Alternative Two

Alternative Two has a temporary adverse impact on visitor use and experience due to construction. However, because visitor access would be maintained at all times, this impact would be mitigated.

Alternative Two has permanent adverse and beneficial impacts on visitor use and experience. The proposed widening may change the historical alignment and some of the viewshed items, such as existing embankments or swales. The proposed widening would also better accommodate the traffic using the road. Vehicles would be more easily managed along the roadway, increasing safety, visitor experience, and park operations.

4. Alternative Three

Alternative Three has a temporary adverse impact on visitor use and experience due to construction. However, because visitor access would be maintained at all times, this impact would be mitigated.

Alternative Three has permanent adverse and beneficial impacts on visitor use and experience. The proposed widening may change the historical alignment and some of the viewshed items, such as existing embankments or swales. The proposed widening would also better accommodate the traffic using the road. Vehicles would be more easily managed along the roadway, increasing safety, visitor experience, and park operations.

5. Alternative Four

Alternative Four has a temporary adverse impact on visitor use and experience due to construction. However, because visitor access would be maintained at all times, this impact would be mitigated.

Alternative Four has permanent adverse and beneficial impacts on visitor use and experience. The proposed widening may change the historical alignment and some of the viewshed items, such as existing embankments or swales. The proposed widening would also better accommodate the traffic using the road. Vehicles would be more easily managed along the roadway, increasing safety, visitor experience, and park operations.

6. Alternative Eight

Alternative Eight has a temporary adverse impact on visitor use and experience due to construction. However, because visitor access would be maintained at all times, this impact would be mitigated.

Alternative Eight has permanent adverse and beneficial impacts on visitor use and experience. The proposed widening may change the historical alignment and some of the viewshed items, such as existing embankments or swales. The proposed widening would also better accommodate the traffic using the road. Vehicles would be more easily managed along the roadway, increasing safety, visitor experience, and park operations.

7. Conclusion

Under the No Action Alternative, visitor use and experience and Park operations would remain unchanged. The Alternatives offers better traffic conditions along the road that would increase safety, visitor experience, and park operations but might change the historical view of the Entrance Road. No impairment to the visitor experience or the use of the park would occur under the Alternatives.

**E. Socioeconomic Impacts**

1. No Action Alternative

No change from existing conditions.

2. Alternative One

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

3. Alternative Two

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

4. Alternative Three

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

5. Alternative Four

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

6. Alternative Eight

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

7. Conclusions

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternatives would have no effect on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

**F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects

1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. However, the continued degradation of the roadway would do little to improve rider comfort and visitor enjoyment. Park maintenance expenses can be expected to increase in order to keep the road functioning in a safe manner.

2. Alternative One

The total vegetation impact for the Entrance Road widening is 0.55 acres, and is minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. There would be some change to the historical alignment and configuration of the Entrance Road. Public and commercial use would be enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction.

3. Alternative Two

The total vegetation impact for the Entrance Road widening is 0.83 acres, and is considered minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. There would be some change to the historical alignment and configuration of the Entrance Road. Public and commercial use would be

enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction.

4. Alternative Three

The total vegetation impact for the Entrance Road widening is 1.11 acres, and is considered minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. There would be some change to the historical alignment and configuration of the Entrance Road. Public and commercial use would be enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction.

5. Alternative Four

The total vegetation impact for the Entrance Road widening is 1.39 acres, and is considered minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. There would be some change to the historical alignment and configuration of the Entrance Road. Public and commercial use would be enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction.

6. Alternative Eight

The total vegetation impact for the Entrance Road widening is 0.55 acres, and is minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. There would be some change to the historical alignment and configuration of the Entrance Road. Public and commercial use would be enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction.

7. Conclusions

The No Action Alternative maintains the present condition of the Park, with the exception of increased future maintenance expenditures. Under the Alternatives the detrimental cumulative affects are minimal, and the

majority of adverse impacts would only occur during the rehabilitation and resurfacing effort and are not likely to continue once construction is complete.

## Comparison of Alternatives for the Entrance Road

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Alternatives.

		Vegetation	Threatened and Endangered Species	Birds and Wildlife
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>			
	Adverse	None	None	None
	Beneficial	None	None	None
	<i>Permanent Impacts</i>			
	Adverse	None	None	None
	Beneficial	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>			
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None
	<i>Permanent Impacts</i>			
	Adverse	<u>Minor</u> 0.55-acre loss	Negligible	<u>Minor</u> 0.55-acre loss of habitat
	Beneficial	None	Negligible	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>			
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None
	<i>Permanent Impacts</i>			
	Adverse	<u>Minor</u> 0.83-acre loss	Negligible	<u>Minor</u> 0.83-acre loss of habitat
	Beneficial	None	Negligible	None
<b>Alternative Three</b>	<i>Temporary Impacts</i>			
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None
	<i>Permanent Impacts</i>			
	Adverse	<u>Minor</u> 1.11-acre loss	Negligible	<u>Minor</u> 1.11-acre loss of habitat
	Beneficial	None	Negligible	None
<b>Alternative Four</b>	<i>Temporary Impacts</i>			
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None
	<i>Permanent Impacts</i>			
	Adverse	<u>Minor</u> 1.39-acre loss	Negligible	<u>Minor</u> 1.39-acre loss of habitat
	Beneficial	None	Negligible	None
<b>Alternative Eight</b>	<i>Temporary Impacts</i>			
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None
	<i>Permanent Impacts</i>			
	Adverse	<u>Minor</u> 0.55-acre loss	Negligible	<u>Minor</u> 0.55-acre loss of habitat
	Beneficial	None	Negligible	None



		Hydrology, Water Quality, and			
		Air Quality	Wetlands	Geology and Soils	Noise
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
<b>Alternative One</b>	Adverse	Negligible	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	<u>Minor</u> 0.55-Acre Increase in Paved Area Increase in Stormwater Runoff	Negligible	Negligible
<b>Alternative Two</b>	Adverse	Negligible	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction
	Beneficial	Negligible	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	<u>Minor</u> 0.83-Acre Increase in Paved Area Increase in Stormwater Runoff	Negligible	Negligible
<b>Alternative Three</b>	Adverse	Negligible	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction
	Beneficial	Negligible	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	<u>Minor</u> 1.11-Acre Increase in Paved Area Increase in Stormwater Runoff	Negligible	Negligible
<b>Alternative Four</b>	Adverse	Negligible	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction
	Beneficial	Negligible	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	<u>Minor</u> 1.39-Acre Increase in Paved Area Increase in Stormwater Runoff	Negligible	Negligible
<b>Alternative Eight</b>	Adverse	Negligible	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction
	Beneficial	Negligible	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	<u>Minor</u> .55-Acre Increase in Paved Area Increase in Stormwater Runoff	Negligible	Negligible
	Beneficial	Negligible	None	None	None

		Floodplains	Cultural Resources	Visitor Use and Experience Park Operations	Socioeconomic Impacts
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
<b>Alternative One</b>	Adverse	None	None	Minor Due to Construction	None
	Beneficial	None	None	None	Temporary Employment Opportunities
	<i>Permanent Impacts</i>				
	Adverse	None	Change in Historic Entrance Road Alignment	Change in Historic Alignment Change to Present Viewshed	None
<b>Alternative Two</b>	Beneficial	None	None	Better Traffic Patterns Increased Visitor Safety	None
	<i>Temporary Impacts</i>				
	Adverse	None	None	Minor Due to Construction	None
	Beneficial	None	None	None	Temporary Employment Opportunities
<b>Alternative Three</b>	<i>Permanent Impacts</i>				
	Adverse	None	Change in Historic Entrance Road Alignment	Change in Historic Alignment Change to Present Viewshed	None
	Beneficial	None	None	Better Traffic Patterns Increased Visitor Safety	None
	<i>Temporary Impacts</i>				
<b>Alternative Four</b>	Adverse	None	None	Minor Due to Construction	None
	Beneficial	None	None	None	Temporary Employment Opportunities
	<i>Permanent Impacts</i>				
	Adverse	None	Change in Historic Entrance Road Alignment	Change in Historic Alignment Change to Present Viewshed	None
<b>Alternative Eight</b>	Beneficial	None	None	Better Traffic Patterns Increased Visitor Safety	None
	<i>Temporary Impacts</i>				
	Adverse	None	None	Minor Due to Construction	None
	Beneficial	None	None	None	Temporary Employment Opportunities
<b>Alternative Eight</b>	<i>Permanent Impacts</i>				
	Adverse	None	Minor Placement of curb	None	None
	Beneficial	None	Retains Alignment	None	None

## VI. ENVIRONMENTAL EFFECTS FOR UPPER PARKING LOT

### A. Natural Resources

#### 1. Vegetation

##### a. *No Action Alternative*

There is no change to the present vegetation conditions under the No Action Alternative

##### b. *Alternative One*

There would be a temporary minor adverse impact on vegetation during construction. The proposed widening of the parking area and the proposed rehabilitation of the curbs, gutters, walkways and storm water inlets would require the removal of some vegetation and trees during construction.

It is estimated that this alternative would have a permanent minor adverse impact on vegetation. Alternative One increases the impervious area of the parking lot by 0.03 acres (1,200 square feet) and permanently reduces the surrounding vegetation by a similar amount.

##### c. *Alternative Two*

There would be a temporary minor adverse impact on vegetation during construction. The proposed widening of the parking area and the proposed rehabilitation of the curbs, gutters, walkways and storm water inlets would require the removal of some vegetation and trees during construction.

It is estimated that this alternative would have a permanent minor adverse impact on vegetation. Alternative Two increases the impervious area of the parking lot by 0.07 acres (3,200 square feet) and permanently reduces the surrounding vegetation by a similar amount.

##### d. *Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative. Under the Alternatives vegetation would be removed temporarily for construction and permanently for the widening of the Upper Parking Lot. The existing species abundance at C&O would remain approximately the same. No impairment to the vegetation within the Park would occur.

#### 2. Threatened and Endangered Species

##### a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative One is not likely to adversely affect federally listed threatened and endangered species.

c. *Alternative Two*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Two is not likely to adversely affect federally listed threatened and endangered species.

d. *Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under either alternative.

3. Birds and Wildlife

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs on the existing parking area, it is likely that these areas are already avoided to some extent and no additional impact may result. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to birds and wildlife would be minor.

c. *Alternative Two*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs on the existing parking area, it is likely that these areas are already avoided to some extent and no additional impact may result. Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to birds and wildlife would be minor.

d. *Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under either alternative. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Only negligible short-term impacts from emissions would occur during construction of this alternative and no long-term impacts would result.

c. *Alternative Two*

Only negligible short-term impacts from emissions would occur during construction of Alternative Two and no long-term impacts would result.

d. *Conclusions*

Under the No Action Alternative there would be no change from the existing conditions. Under the Alternative, temporary and minor impacts to air quality levels may occur during construction; however, no adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative One permanently increases the paved area of the Upper Parking Lot by 0.03 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

c. *Alternative Two*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Two permanently increases the paved area of the Upper Parking Lot by 0.07 acres, with a resulting increase in the storm water runoff that must be handled by the adjacent drainage. Only minor permanent impacts from this increased runoff are anticipated and would be mitigated by the improved local drainage.

*d. Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternatives, there are potential temporary and permanent adverse impacts on water quantity and quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

*a. No Action Alternative*

The geology and soils of the area would remain unchanged under the No Action alternative.

*b. Alternative One*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

*c. Alternative Two*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

*d. Conclusions*

Neither the No Action nor the Alternatives would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur

4. Noise

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*c. Alternative Two*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

*d. Conclusions*

The No Action Alternative would maintain current noise levels. Under the Alternatives, a minor increase in noise levels would occur during construction. After construction, noise levels would be expected to return to normal. No impairment to noise levels within the Park would occur.

5. Floodplains

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

Construction activities would occur in the floodplain. The floodway would be temporarily impacted during the reconstruction and reconfiguration of the parking area. Alternative One would also cause a permanent minor adverse impact to the floodplain. 0.03 acres of the existing floodplain would now be impervious surface.

*c. Alternative Two*

Construction activities would occur in the floodplain. The floodway would be temporarily impacted during the reconstruction and reconfiguration of the parking area. Alternative Two would also cause a permanent minor adverse impact to the floodplain. 0.07 acres of the existing floodplain would now be impervious surface.

*d. Conclusions*

The No Alternative does not impact the flood plain. The Alternatives result in construction activities in the floodplain and a permanent decrease in the area of the floodplain that is vegetated. However, no impairment of the floodplain is projected, not any increased risk to nearby structures from flood events expected.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural



resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No change from existing conditions. Busses would continue to park in the Lower Parking Lot, with the resultant noise and a historical paved areas concentrated nearer the historical Great Falls Tavern area than under the Alternatives.

2. Alternative One

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by Alternative One.

The movement of bus parking away from the Great Falls Tavern area result in a decrease of noise and paved areas near the historical sites, resulting in a small but noticeable improvement in the historical character of the Tavern Area.

3. Alternative Two

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by Alternative Two.

The movement of bus parking away from the Great Falls Tavern area result in a decrease of noise and paved areas near the historical sites, resulting in

a small but noticeable improvement in the historical character of the Tavern Area.

4. Conclusions

Under the No Action Alternative, cultural resources would remain undisturbed. It has been determined by the Cultural Resources Staff at the Park that the Alternative would have no adverse effect on cultural resources, due to the adherence to the current parking area location. No impairment to cultural resources, and a small improvement to the historical character of the Great Falls Tavern Area would occur under the Alternatives.

**D. Visitor Use and Experience/Park Operations**

1. No Action Alternative

No change from existing conditions. No Provision for additional Americans with Disabilities Act compliant parking spaces or additional parking due to restriping. Existing safety hazards would not be addressed.

2. Alternative One

There would be a temporary adverse impact to visitor use during construction. The necessary milling and repaving as well as excavation for the proposed bus parking would impair traffic flow and parking in the Upper Parking Lot during construction. Portions the Upper Parking Lot may need to be closed during Construction.

There would be a permanent improvement of visitor use and accessibility. Visitor safety would be improved by the rehabilitation of walkways. Vehicles would be more easily managed along the reconfigured parking area, increasing safety, visitor experience, and park operations. There would be no net decrease in parking spaces, and visitor use may benefit if there is a net increase in parking spaces in the Upper Parking Lot due to restriping. The increase in Americans with Disabilities Act compliant spaces would increase the accessibility of the site. Relocating the Bus Parking would not have an adverse impact on visitor accessibility because busses would load at the existing traffic circle.

3. Alternative Two

There would be a temporary adverse impact to visitor use during construction. The necessary milling and repaving as well as excavation for the proposed bus parking would impair traffic flow and parking in the Upper Parking Lot during construction. Portions the Upper Parking Lot may need to be closed during Construction.

There would be a permanent improvement of visitor use and accessibility. Visitor safety would be improved by the rehabilitation of walkways. Vehicles would be more easily managed along the reconfigured parking area, increasing safety, visitor experience, and park operations. There would be no net decrease in parking spaces, and visitor use may benefit if there is a net increase in parking spaces in the Upper Parking Lot due to restriping. The increase in Americans with Disabilities Act compliant spaces would increase the accessibility of the site. Relocating the Bus Parking would not

have an adverse impact on visitor accessibility because busses would load at the existing traffic circle.

4. Conclusion

Under the No Action Alternative, visitor use and experience and Park operations would not increase and existing concerns about accessibility would not be addressed. The Alternatives would increase the Visitor Use and Experience by increasing the Americans with Disabilities Act compliant accessible parking and potentially increasing the number of parking spaces in the Upper Parking Lot. Visitor safety would also be improved by rehabilitating existing walkways.

**E. Socioeconomic Impacts**

1. No Action Alternative

No change from existing conditions.

2. Alternative One

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

3. Alternative Two

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

4. Conclusion

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternatives there would be no effect on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

**F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects.

1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. However, the continued degradation of the parking area would do little to improve visitor enjoyment. Park maintenance expenses can be expected to increase in order to keep the parking area functioning in a safe manner. The unaddressed safety concerns may lead to future liabilities in the Park.

2. Alternative One

The total vegetation impacts are considered minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities. Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species.

Public and commercial use would be enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction. The relocation of Bus Parking away from the Great Falls Tavern would improve the historical character of the Tavern.

3. Alternative Two

The total vegetation impacts are considered minor due to the abundance of similar type vegetation found within the Park. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities. Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species.

Public and commercial use would be enhanced given a choice of safer transportation routes; however, minor inconveniences to the public would occur under each of the proposed projects during construction. The relocation of Bus Parking away from the Great Falls Tavern would improve the historical character of the Tavern.

4. Conclusions

The No Action Alternative maintains the present condition of the Park, with the exception of increased future maintenance expenditures and potential future liability. Existing accessibility concerns are not addressed.

Under the Alternatives the adverse impacts to natural resources are minimal. Distinct improvements in cultural resources, visitor use, and accessibility would occur.

## Comparison of Alternatives for the Upper Parking Lot

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Alternatives.

		<b>Vegetation</b>	<b>Threatened and Endangered Species</b>	<b>Birds and Wildlife</b>	<b>Air Quality</b>
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> 0.03-acre loss	Negligible	<u>Negligible</u> 0.03-acre loss of habitat	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	Negligible	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	Negligible
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> 0.07-acre loss	Negligible	<u>Negligible</u> 0.07-acre loss of habitat	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	Negligible	None	Negligible

		<b>Hydrology, Water Quality, and Wetlands</b>	<b>Geology and Soils</b>	<b>Noise</b>	<b>Floodplains</b>
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> 0.03-Acre Increase in Paved Area Increase in Stormwater Runoff No Impairment of Park Water Quality, Hydrology or Wetlands	Negligible	Negligible	<u>Minor</u> 0.03 acre increase in paved area No increased flood damage risk
	Beneficial	None	None	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> 0.07-Acre Increase in Paved Area Increase in Stormwater Runoff No Impairment of Park Water Quality, Hydrology or Wetlands	Negligible	Negligible	<u>Minor</u> 0.03 acre increase in paved area No increased flood damage risk
	Beneficial	None	None	None	None

		Cultural Resources	Visitor Use and Experience Park Operations	Socio-economic Impacts	Cumulative Impacts
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>None</u> Bus Traffic Still Near Tavern	<u>None</u> No additional Americans with Disabilities Act Compliant parking	None	Degraded Parking Facilities Increased Maintenance Expenses Potential Future Safety Liabilities
Beneficial	None	None	None	None	
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	None	<u>Minor</u> Due to Construction	None	Minor Vegetation Impacts During Construction Minor Impact on Visitor Accessibility During Construction
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Minor Impacts to Natural Resources
Beneficial	<u>Improved Historical Character</u> Bus Traffic Moved Away From Tavern	Better Traffic Patterns Increased Americans with Disabilities Act Parking	None	Improved Visitor Accessibility and Safety Improved Drainage of Parking Areas Improved Historical Character of Tavern Area	
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	None	<u>Minor</u> Due to Construction	None	Minor Vegetation Impacts During Construction Minor Impact on Visitor Accessibility During Construction
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Minor Impacts to Natural Resources
Beneficial	<u>Improved Historical Character</u> Bus Traffic Moved Away From Tavern	Better Traffic Patterns Increased Americans with Disabilities Act Parking	None	Improved Visitor Accessibility and Safety Improved Drainage of Parking Areas Improved Historical Character of Tavern Area	



## VII. ENVIRONMENTAL EFFECTS FOR LOWER PARKING LOT

### A. Natural Resources

#### 1. Vegetation

##### a. *No Action Alternative*

There is no change to the present vegetation conditions

##### b. *Alternative One*

The proposed rehabilitation of the maintenance area, and construction of an access road and parking would result in temporary adverse impacts to vegetation during construction and demolition.

The removal of the majority Lower Parking Lot would result in a 0.65 acre disturbed area and some temporary adverse impacts to vegetation during demolition. Alternative One, however, results in the removal of 0.34 acres of impervious surface and a permanent increase in vegetated area by a similar amount.

##### c. *Alternative Two*

The proposed rehabilitation of the maintenance area, and construction of an access road and parking would result in temporary adverse impacts to vegetation during construction and demolition.

The removal of the majority Lower Parking Lot would result in a 0.60 acre disturbed area and some temporary adverse impacts to vegetation during demolition. Alternative Two, however, results in the removal of 0.34 acres of impervious surface and a permanent increase in vegetated area by a similar amount.

##### d. *Alternative Three*

The proposed rehabilitation of the maintenance area, and construction of an access would result in temporary adverse impacts to vegetation during construction and demolition.

The removal of the Lower Parking Lot would result in some temporary adverse impacts to vegetation. Alternative Three, however, results in the removal of 0.37 acres of impervious surface and a permanent increase in vegetated area by a similar amount.

##### e. *Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative. Under the Alternatives, the impervious area of the parking area would be decreased. The existing species abundance at C&O Canal NHP would remain approximately the same. No impairment to the vegetation within the Park would occur.

2. Threatened and Endangered Species

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative One is not likely to adversely affect federally listed threatened and endangered species.

c. *Alternative Two*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Two is not likely to adversely affect federally listed threatened and endangered species.

d. *Alternative Three*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Three is not likely to adversely affect federally listed threatened and endangered species.

e. *Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under either alternative.

3. Birds and Wildlife

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors during construction; however, since the proposed project occurs on the existing parking area, it is likely that these areas are already avoided to some extent and no additional impact may result.

The removal of the Lower Parking Lot would increase the available vegetated area, and thus potential wildlife habitat, by 0.034 acres.

Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to birds and wildlife would be minor during construction and negligible afterward.

c. *Alternative Two*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors during construction;

however, since the proposed project occurs on the existing parking area, it is likely that these areas are already avoided to some extent and no additional impact may result.

The removal of the Lower Parking Lot would increase the available vegetated area, and thus potential wildlife habitat, by 0.034 acres.

Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to birds and wildlife would be minor during construction and negligible afterward.

*d. Alternative Three*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors during construction; however, since the proposed project occurs on the existing parking area, it is likely that these areas are already avoided to some extent and no additional impact may result.

The removal of the Lower Parking Lot would increase the available vegetated area, and thus potential wildlife habitat, by 0.037 acres.

Similar habitat is present throughout the Park and would remain protected under current management plans; therefore, the overall impact to birds and wildlife would be minor during construction and negligible afterward.

*e. Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under either alternative. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

Only negligible short-term impacts from emissions would occur during construction of this alternative and no long-term impacts would result.

*c. Alternative Two*

Only negligible short-term impacts from emissions would occur during construction of this alternative and no long-term impacts would result.

*d. Alternative Three*

Only negligible short-term impacts from emissions would occur during construction of this alternative and no long-term impacts would result.

e. *Conclusions*

Under the No Action Alternative there would be no change from the existing conditions. Under the Alternative, temporary minor impacts to air quality levels may occur during construction; however, no adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative One permanently decreases the paved area of the Lower Parking Lot by 0.34 acres, with a net decrease in stormwater runoff as a result. This is projected to result in an improved local drainage situation.

c. *Alternative Two*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Two permanently decreases the paved area of the Lower Parking Lot by 0.34 acres, with a net decrease in stormwater runoff as a result. This is projected to result in an improved local drainage situation.

d. *Alternative Three*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan,

including the use of best management practices, would be prepared by the FHWA and included in the final construction plans. All roadway reconstruction and repaving work would be designed to facilitate and improve localized drainage.

Alternative Two permanently removes the Lower Parking Lot, decreasing paved area by 0.34 acres, with a net decrease in stormwater runoff as a result. This is projected to result in an improved local drainage situation.

e. *Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternatives, there are potential temporary adverse effects to the water quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. There are permanent reductions in paved area and resulting runoff. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

a. *No Action Alternative*

The geology and soils of the area would remain unchanged under the No Action alternative.

b. *Alternative One*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

c. *Alternative Two*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

d. *Alternative Three*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

e. *Conclusions*

Neither the No Action nor the Alternatives would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur

4. Noise

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

The relocation of the existing bus drop-off points to near the existing concession stand and the obliteration of the majority of the Lower Parking Lot would result in a reduction of ambient vehicular noise around the Great Falls Tavern Area.

c. *Alternative Two*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

The relocation of the existing bus drop-off points to near the existing concession stand and the obliteration of the majority of the Lower Parking Lot would result in a reduction of ambient vehicular noise around the Great Falls Tavern Area.

d. *Alternative Three*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

The relocation of the existing bus drop-off points to near the existing concession stand and the obliteration of the Lower Parking Lot would result in a reduction of ambient vehicular noise around the Great Falls Tavern Area.

e. *Conclusions*

The No Action Alternative would maintain current noise levels. Under the Alternatives, a minor increase in noise levels would occur during construction. No impairment to noise levels within the Park would occur.

5. Floodplains

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Construction activities would occur in the floodplain. The floodway would be temporarily impacted during the reconstruction and reconfiguration of the parking area. 0.34 acres of the existing parking lot would be obliterated and returned to a natural surface.

c. *Alternative Two*

Construction activities would occur in the floodplain. The floodway would be temporarily impacted during the reconstruction and reconfiguration of the parking area. 0.34 acres of the existing parking lot would be obliterated and returned to a natural surface.

d. *Alternative Three*

Construction activities would occur in the floodplain. The floodway would be temporarily impacted during the construction of the maintenance access road and removal of the Lower Parking Lot. 0.37 acres of the existing parking lot would be obliterated and returned to a natural surface.

e. *Conclusions*

The No Action Alternative would have no impact on the floodplain. Under the Alternatives, the floodplain would be temporarily impacted during the reconstruction and reconfiguration of the parking area. After construction and the resulting obliteration of portions of the parking area, there would be an increase in pervious area. No impairment to floodplains within the Park would occur.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included



in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No improvement of existing conditions. Bus drop offs would remain located near the Great Falls Tavern and visitors would continue to park in the Lower Parking Lot, with the resultant noise and historical paved areas concentrated nearer the historical Great Falls Tavern area than under the Alternatives.

2. Alternative One

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by Alternative One.

The obliteration of 0.34 acres of the Lower Parking Lot and subsequent vegetation would result in a net improvement in the historical character of the Great Falls Tavern Area.

3. Alternative Two

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by Alternative Two.

The obliteration of 0.34 acres of the Lower Parking Lot and subsequent vegetation would result in a net improvement in the historical character of the Great Falls Tavern Area.

4. Alternative Three

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by Alternative Three.

The obliteration of 0.37 acres of the Lower Parking Lot and subsequent vegetation would result in a net improvement in the historical character of the Great Falls Tavern Area.

5. Conclusions

Under the No Action Alternative, cultural resources would remain undisturbed. It has been determined by the Cultural Resources Staff at the Park that the Alternatives would improve the cultural resources, due to the reduction or removal of the current parking lot. No impairment to cultural resources would occur under the Alternatives.

**D. Visitor Use and Experience/Park Operations**

1. No Action Alternative

No change from existing conditions.

2. Alternative One

There would be a temporary minor impact to visitor accessibility because the Lower Parking Lot would need to be closed for reconfiguration and obliteration.

Alternative One would increase visitor accessibility by providing four Americans with Disabilities Act compliant parking spaces close to the Great Falls Tavern Area. Park Operations would be improved by providing four administrative parking spaces. Visitor safety would be improved by the rehabilitation of surrounding walkways. The Visitor Experience would be enhanced by the additional greenspace around the Tavern.

3. Alternative Two

There would be a temporary minor impact to visitor accessibility because the Lower Parking Lot would need to be closed for reconfiguration and obliteration.

Alternative Two would improve Park Operations by providing two administrative parking spaces. Visitor safety would be improved by the rehabilitation of surrounding walkways. The Visitor Experience would be enhanced by the additional greenspace around the Tavern.

4. Alternative Three

There would be a temporary minor impact to visitor accessibility because the Lower Parking Lot would need to be closed for reconfiguration and obliteration.

Alternative Three would improve Park Operations by rehabilitating the maintenance lot. Visitor safety would be improved by the rehabilitation of surrounding walkways. The Visitor Experience would be enhanced by the additional greenspace around the Tavern.

## 5. Conclusion

Under the No Action Alternative, visitor use and experience and Park operations would remain unchanged. The Alternatives improve visitor accessibility by the provision of Americans with Disabilities Act compliant parking spaces. Park operations are improved by the addition of parking. The Visitor experience is enhanced under the Alternatives by the provision of additional greenspace and improved historical character of the tavern. No impairment to the visitor experience or the use of the park would occur under the Alternative.

### **E. Socioeconomic Impacts**

#### 1. No Action Alternative

No change from existing conditions.

#### 2. Alternative One

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

#### 3. Alternative Two

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

#### 4. Alternative Three

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

#### 5. Conclusion

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternatives would have no effect on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

### **F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects.

#### 1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. Park maintenance expenses can be expected to increase in order to keep the parking area functioning in a safe manner.

The unaddressed safety concerns may lead to future liabilities in the Park. The historical character of the Tavern is not improved, nor is there any additional greenspace around the Tavern.

2. Alternative One

The total adverse vegetation impacts are considered minor due to the abundance of similar type vegetation found within the Park and the addition of 0.34 acres of greenspace near the Great Falls Tavern. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Public and commercial use would be enhanced given improved Americans with Disabilities Act compliant accessibility and improved walkways; however, minor inconveniences to the public would occur during and after construction. Park Operation would be improved by the additional administrative parking spaces.

3. Alternative Two

The total adverse vegetation impacts are considered minor due to the abundance of similar type vegetation found within the Park and the addition of 0.34 acres of greenspace near the Great Falls Tavern. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Public and commercial use would be enhanced given improved walkways; however, minor inconveniences to the public would occur during and after construction. Park Operation would be improved by the additional administrative parking spaces.

4. Alternative Three

The total adverse vegetation impacts are considered minor due to the abundance of similar type vegetation found within the Park and the addition of 0.37 acres of greenspace near the Great Falls Tavern. Reconstruction and resurfacing efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Public and commercial use would be enhanced given improved walkways; however, minor inconveniences to the public would occur during and after construction. Park Operation would be improved by the additional administrative parking spaces.

5. Conclusions

The No Action Alternative maintains the present condition of the Park, with the exception of increased future maintenance expenditures. Under the Alternatives the cumulative adverse effects are minimal, and adverse impacts consist solely of increased walking distance to the Great Falls

Tavern from the Parking Area. The Alternatives increase visitor accessibility, provide additional greenspace around the Tavern, improve local drainage by removing pavement, and improve Park Operations.

## Comparison of Alternatives for the Lower Parking Lot

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Alternatives.

		Vegetation	Threatened and Endangered Species	Birds and Wildlife	Air Quality
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> 0.37 acre impervious area retained	None	None	None
Beneficial	None	None	None	None	
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	Negligible	Negligible	<u>Negligible</u> No Impairment of Park Air Quality
Beneficial	0.34 Acre Increase in Vegetated Area	Negligible	Potential 0.34 Acre Increase in Habitat Area	None	
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	Negligible
	<i>Permanent Impacts</i>				
	Adverse	None	Negligible	Negligible	<u>Negligible</u> No Impairment of Park Air Quality
Beneficial	0.34 Acre Increase in Vegetated Area	Negligible	Potential 0.34 Acre Increase in Habitat Area	Negligible	
<b>Alternative Three</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Minor</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	Negligible	Negligible	<u>Negligible</u> No Impairment of Park Air Quality
Beneficial	0.37 Acre Increase in Vegetated Area	Negligible	Potential 0.37 Acre Increase in Habitat Area	None	

		Hydrology, Water Quality, and Wetlands	Geology and Soils	Noise	Floodplains
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None Current Noise Levels to Remain	None
Beneficial	None	None	None	None	
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	None	None
Beneficial	0.34 Acre Reduction in Paved Area	None	Reduction in Noise around Great Falls Tavern Area	0.34 Acre Reduction in Paved Area in Floodplain	
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	None	None
Beneficial	0.34 Acre Reduction in Paved Area	None	Reduction in Noise around Great Falls Tavern Area	0.34 Acre Reduction in Paved Area in Floodplain	
<b>Alternative Three</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	None	None
Beneficial	0.37 Acre Reduction in Paved Area	None	Reduction in Noise around Great Falls Tavern Area	0.37 Acre Reduction in Paved Area in Floodplain	

		Cultural Resources	Visitor Use and Experience Park Operations	Socio-economic Impacts	Cumulative Impacts
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>None</u> Bus drop-off and Car Parking Area Still Near Tavern	<u>None</u> No additional Americans with Disability Act compliant parking	None	Degraded Parking Facilities Increased Maintenance Expenses Potential Future Safety Liabilities No Improvement in Greenspace or Drainage near Tavern
Beneficial	None	None	None	None	
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	<u>Minor</u> Due to Construction	None	Minor Vegetation and Visitor Accessibility Impacts During Construction
	Beneficial	None	None	Temporary Employment	None
	<i>Permanent Impacts</i>				
	Adverse	None	<u>Minor</u> Visitor Parking Further From Tavern	None	Minor Impacts to Visitor Accessibility
Beneficial	Expanded Greenspace Around Tavern	Increased Staff Parking and Americans with Disability Act compliant Parking	None	Improved Visitor Accessibility and Safety Improved Greenspace near Tavern Area Improved Drainage near Tavern Area	
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	<u>Minor</u> Due to Construction	None	Minor Vegetation and Visitor Accessibility Impacts During Construction
	Beneficial	None	None	Temporary Employment	None
	<i>Permanent Impacts</i>				
	Adverse	None	<u>Minor</u> Visitor Parking Further From Tavern	None	Minor Impacts to Visitor Accessibility
Beneficial	Expanded Greenspace Around Tavern	Increased Staff Parking	None	Improved Park Operations Improved Greenspace near Tavern Improved Drainage near Tavern	
<b>Alternative Three</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	<u>Minor</u> Due to Construction	None	Minor Vegetation and Visitor Accessibility Impacts During Construction
	Beneficial	None	None	Temporary Employment	None
	<i>Permanent Impacts</i>				
	Adverse	None	<u>Minor</u> Visitor Parking Further From Tavern	None	Minor Impacts to Visitor Accessibility
Beneficial	Expanded Greenspace Around Tavern	None	None	Improved Park Operations Improved Greenspace near Tavern Improved Drainage near Tavern	



## VIII. ENVIRONMENTAL EFFECTS FOR COMFORT STATION

### A. Natural Resources

#### 1. Vegetation

##### a. *No Action Alternative*

No change from existing conditions.

##### b. *Alternative One*

The proposed construction of the comfort station would make it necessary to disturb an estimated .03 acres within the Park. The overall impact to vegetation would be minor.

##### c. *Alternative Two*

The proposed location of the comfort station under Alternative Two is in place of removed portions of the Lower Parking Lot. As such, Alternative Two is not expected to disturb any vegetation

##### d. *Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative and Alternative Two. Under Alternative One, minor removal of vegetation would be required for constructing the comfort station. No impairment to the vegetation within the Park would occur.

#### 2. Threatened and Endangered Species

##### a. *No Action Alternative*

No change from existing conditions..

##### b. *Alternative One*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative One is not likely to adversely affect federally listed threatened and endangered species.

##### c. *Alternative Two*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Two is not likely to adversely affect federally listed threatened and endangered species.

##### d. *Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under any alternative.

3. Birds and Wildlife

a. *No Action Alternative*

No change from existing conditions..

b. *Alternative One*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in a disturbed area, it is likely that these areas are already avoided to some extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

c. *Alternative Two*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in a disturbed area, it is likely that these areas are already avoided to some extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

d. *Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under either alternative. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Only negligible short-term impacts from emissions would occur during construction and no long-term impacts would result.

c. *Alternative Two*

Only negligible short-term impacts from emissions would occur during construction and no long-term impacts would result.

d. *Conclusions*

Under the No Action Alternative no change from existing conditions. During construction, temporary, minor impacts to air quality levels may occur under the Alternatives; however, no

adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

The increase in impervious area represented by the proposed comfort station would increase the storm water runoff and thus have a minor net permanent adverse impact on water quantity.

c. *Alternative Two*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

The increase in impervious area represented by the proposed comfort station would increase the storm water runoff and thus have a minor net permanent adverse impact on water quantity.

c. *Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternative, there are potential effects to the water quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

a. *No Action Alternative*

The geology and soils of the area would remain unchanged under the No Action alternative.

b. *Alternative One*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-

term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

*c. Alternative Two*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

*d. Conclusions*

Neither the No Action nor the Alternatives would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur.

4. Noise

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

The increase in the ambient noise around the proposed comfort station is a negligible addition to the noise levels around the existing concession stand and is balanced by the decrease in ambient noise around the current restroom facilities to be closed.

*c. Alternative Two*

Construction activities would have negligible, short-term, adverse impacts on noise levels.

The increase in the ambient noise around the proposed comfort station is a negligible addition to the noise levels and is balanced by the decrease in ambient noise around the current restroom facilities to be closed.

*d. Conclusions*

The No Action Alternative would maintain current noise levels. Under the Alternatives, minor increases in noise levels would occur during construction. After construction, noise levels would be expected to return to normal. No impairment to noise levels within the Park would occur.

5. Floodplains

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative One*

An estimated area of .03 acres would be disturbed in the floodplain.

The construction of the Comfort Station near the Concession Stand and therefore closer to the canal and river would increase the building's risk for damage or destruction due to a flood event. This risk is considered minor and would be mitigated by the use of sandbags for flood control if necessary.

*c. Alternative Two*

An estimated area of .03 acres would be disturbed in the floodplain.

The construction of the Comfort Station in the Lower Parking Lot would place the structure closer to the canal and river. This would increase the building's risk for damage or destruction due to a flood event, but this risk is considered minor and would be mitigated by the use of sandbags for flood control if necessary.

*d. Conclusions*

The No Action Alternative would have no impact on the floodplain. Under the Alternatives, the floodway would be impacted by .03 acres to construct the comfort station. The risk to the Comfort Station in a flood event is considered minor. No significant impairment to the floodplains within the Park would occur.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural

Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No change from existing conditions.

2. Alternative One

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by the Alternative.

The proposed location would have an affect on the historical integrity as it relates to the canal and would interfere with the entry experience and visitors views from the entry road to the canal and views from the canal/towpath along the canal.

3. Alternative Two

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park found no artifacts and no historical sites within the area affected by the Alternative.

The proposed location of the Comfort Station is far enough from the Great Falls Tavern and the design of the building's exterior such that no effect on the historical integrity of the site is expected.

4. Conclusions

Under the No Action Alternative, cultural resources would remain undisturbed. It has been determined by the Cultural Resources Staff at the Park that the Alternatives would have no adverse effect on cultural resources. No impairment to cultural resources would occur under the Alternative Two.

**D. Visitor Use and Experience/Park Operations**

1. No Action Alternative

No change from existing conditions. The existing adverse impact on visitor experience due to inadequate and hard to find restroom facilities would not be solved.

2. Alternative One

There would be no impact on visitor needs during construction because the existing restroom facilities would remain accessible during construction.

Alternative One would enlarge the restroom facilities, provide family restrooms, make the facilities ADA compliant, improve ventilation, and make the restroom facilities easier for visitors to find.

3. Alternative Two

There would be no impact on visitor needs during construction because the existing restroom facilities would remain accessible during construction.

Alternative Two would enlarge the restroom facilities, provide family restrooms, make the facilities ADA compliant, improve ventilation, and make the restroom facilities easier for visitors to find.

4. Conclusions

Under the No Action Alternative, visitor use and experience and Park operations would remain unchanged. The Alternatives offer more convenience to park visitors. No impairment to the visitor experience or the use of the park would occur under the Alternative.

**E. Socioeconomic Impacts**

1. No Action Alternative

No change from existing conditions.

2. Alternative One

Under Alternative One, Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

3. Alternative Two

Under Alternative Two, Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

4. Conclusions

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternatives would have no effects on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

## **F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects.

### 1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. However, the lack of adequate restrooms would continue to negatively impact visitor enjoyment. Park maintenance expenses can be expected to increase in order to keep the existing comfort station.

### 2. Alternative One

The total vegetation impacts for the comfort station equals .03 acres, and is considered minor due to the abundance of similar type vegetation found within the Park. Construction would be staged to minimize disruptions to park visitors.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Risks of flood damage to the proposed structure are minor and would be mitigated by the use of sandbags as needed. Public use would be enhanced given the choice of a more modern and conveniently located comfort station.

### 3. Alternative Two

There is no expected impact to vegetation from Alternative Two. Construction would be staged to minimize disruptions to park visitors.

Impacts associated with water quality would not be significant, nor would the short-term disruptions to wildlife species. Risks of flood damage to the proposed structure are minor and would be mitigated by the use of sandbags as needed. Public use would be enhanced given the choice of a more modern and conveniently located comfort station.

### 4. Conclusions

The No Action Alternative maintains the present condition of the Park, with the exception of increased future maintenance expenditures. Under the Alternatives, the cumulative affects are minimal, and adverse impacts would only occur during the construction effort and are not likely to continue once construction is complete.



## Comparison of Alternatives for the Comfort Station

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Alternatives.

		<b>Vegetation</b>	<b>Threatened and Endangered Species</b>	<b>Birds and Wildlife</b>	<b>Air Quality</b>
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> 0.03 Acre Disturbed Area	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> 0.03 Acres of Vegetation Replaced by Comfort Station	Negligible	<u>Negligible</u> 0.03 Acre Loss of Habitat	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	Negligible	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Negligible</u> No Vegetation Present at Proposed Location	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	Negligible
	<i>Permanent Impacts</i>				
	Adverse	<u>Negligible</u> No Vegetation Present at Proposed Location	Negligible	<u>Negligible</u> No Habitat Loss Expected	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	Negligible	None	Negligible

		<b>Hydrology, Water Quality, and Wetlands</b>			
		<b>Geology and Soils</b>	<b>Noise</b>	<b>Floodplains</b>	
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	Negligible	Negligible
	Beneficial	None	None	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	Negligible	Negligible
	Beneficial	None	None	None	None

		Visitor Use and Experience		Socio-economic	
		Cultural Resources	Park Operations	Impacts	Cumulative Impacts
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None Restrooms Remain Difficult to Find Facilities remain Inadequate	None	Increased Maintenance Expenses Facilities Remain Inadequate Not Americans with Disability Act compliant
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	Minor impact to historical integrity	Negligible	None	Minor Vegetation Impacts During Construction
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	Minor impact to historical integrity	None	None	Minor Impacts to Natural Resources
	Beneficial	None	Improved Restroom Facilities Restrooms Easy to Find Restrooms ADA Compliant Reduced Maintenance Expenses	None	Improved Visitor Accessibility Improved Restroom Facilities Comfort Station Easier to Find
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	None	Negligible	None	Negligible
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Minor Impacts to Natural Resources
	Beneficial	None	Improved Restroom Facilities Restrooms Easy to Find Restrooms ADA Compliant Reduced Maintenance Expenses	None	Improved Visitor Accessibility Improved Restroom Facilities Comfort Station Easier to Find

## IX. ENVIRONMENTAL EFFECTS FOR TAVERN YARD AREA RECONSTRUCTION

### A. Natural Resources

#### 1. Vegetation

##### a. *No Action Alternative*

There would be no changes to the existing vegetation around the Great Falls Tavern.

##### b. *Alternative One*

There would be minor impacts to vegetation on the north and south faces of the Great Falls Tavern Yard Area and along the northern and northeastern paved access routes during reconstruction of the current paved areas.

There would be no permanent decrease in vegetated area.

##### c. *Alternative Two*

There would be minor impacts to vegetation in the Tavern Yard Area during reconstruction of the Plaza.

There would be a permanent increase in vegetated areas around the Tavern after the completion of reconstruction.

##### d. *Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative. Under the Alternatives, minor removal of vegetation would be required for reconstructing the Yard Area. There would be an increase in vegetation under Alternative Two. No impairment to the vegetation within the Park would occur.

#### 2. Threatened and Endangered Species

##### a. *No Action Alternative*

No change from existing conditions.

##### b. *Alternative One*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative One is not likely to adversely affect federally listed threatened and endangered species.

c. *Alternative Two*

By letter dated August 24, 2004, the USFWS concurs with the FHWA's determination that Alternative Two is not likely to adversely affect federally listed threatened and endangered species.

d. *Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under any alternative.

3. Birds and Wildlife

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in an existing paved area, it is likely that these areas are already avoided to great extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

c. *Alternative One*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in an existing paved area, it is likely that these areas are already avoided to great extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

d. *Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under either alternative. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

a. *No Action Alternative*

No change from the existing conditions is expected.

b. *Alternative One*

Only negligible short-term impacts from emissions would occur during construction of any alternative and no long-term impacts would result.

c. *Alternative Two*

Only negligible short-term impacts from emissions would occur during construction of any alternative and no long-term impacts would result.

d. *Conclusions*

Under the No Action Alternative no change from existing conditions. During construction, temporary, minor impacts to air quality levels may occur under the Alternatives; however, no adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

c. *Alternative Two*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

d. *Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternatives, there are potential effects to the water quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

a. *No Action Alternative*

The geology/soils of the area would remain unchanged under the No Action alternative.

b. *Alternative One*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

c. *Alternative Two*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

d. *Conclusions*

Neither the No Action nor the Alternative would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur.

4. Noise

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Existing noise levels would temporarily increase during construction. Park visitors, employees, and residents in the immediate vicinity of the project area would be subject to the minor noise pollution generated from construction. After construction, noise levels would be expected to return to normal levels.

c. *Alternative*

Existing noise levels would temporarily increase during construction. Park visitors, employees, and residents in the immediate vicinity of the project area would be subject to the minor noise pollution generated from construction. After construction, noise levels would be expected to return to normal levels.

*d. Conclusion*

The No Action Alternative would maintain current noise levels. Under the Alternatives, a minor increase in noise levels would occur temporarily during construction. After construction, noise levels would be expected to return to normal levels. No impairment to noise levels within the Park would occur.

5. Floodplains

*a. No Action Alternative*

No change from existing conditions. NPS Personnel would continue to use sandbags for flood control. The existing danger of damage to or destruction of the historic Great Falls Tavern from Potomac River flooding is considered moderate because of the building's historic value. The walkway foundation would remain unable to support the more effective deployable gabions. Sandbags remain the only flood control option.

*b. Alternative One*

Alternative One would have an impact on flood control during excavation of the paved areas, the pouring of concrete, and the placement of new pavement. This alternative would not increase the fill in the flood area and would not increase the impervious area. This impact is considered minor because the use of sandbags for flood control would be slightly hindered.

*c. Alternative Two*

Alternative Two would have an impact on flood control reconstruction of the Yard Area. This alternative would not increase the fill in the flood area and would not increase the impervious area. This impact is considered minor because the use of sandbags for flood control would be hindered during construction.

*d. Conclusion*

The No Action Alternative would have no impact on the floodplain and no improvement of the existing flood risks. Under the Alternatives, no substantive adverse impact to the floodplain would occur. The Alternatives decrease the present risk of flood damage to the Tavern.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.



The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No change from existing conditions. The existing historical brick pavement of the Tavern Yard Area would remain.

2. Alternative One

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

As stated in Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park, six archaeological excavations were conducted along the Tavern's northern, western, and southern faces. A total of thirty-five artifacts were found. These artifacts may date to the nineteenth century, but they were also widely available into the mid- to late-twentieth century. Given the highly disturbed nature of the soils found in these six dig sites, it is highly likely that these artifacts are not from the Great Falls Tavern, but were deposited around the Tavern by the flooding of the Potomac. No artifacts that can be definitely attributed to the Great Falls Tavern were found. It is highly unlikely that the area surrounding the Tavern can offer any new or additional historical information. Thus, construction would not disturb any archaeological or cultural artifacts.

The cultural landscape of the Tavern complex would be temporarily impaired during construction.

After construction, the existing brick pavement, added in the 1950s, would be replaced with a more historical paving treatment spelled out in the NPS Cultural Landscape Treatment Plan. This would improve the historical integrity of the Tavern complex.

3. Alternative Two

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

As stated in Phase I Archaeological Investigations Within the Great Falls Section of the Chesapeake and Ohio Canal National Historical Park, six archaeological excavations were conducted along the Tavern's northern, western, and southern faces. A total of thirty-five artifacts were found. These artifacts may date to the nineteenth century, but they were also widely available into the mid- to late-twentieth century. Given the highly disturbed nature of the soils found in these six dig sites, it is highly likely that these artifacts are not from the Great Falls Tavern, but were deposited around the Tavern by the flooding of the Potomac. No artifacts that can be definitely attributed to the Great Falls Tavern were found. It is highly unlikely that the area surrounding the Tavern can offer any new or additional historical information. Thus, construction would not disturb any archaeological or cultural artifacts.

The cultural landscape of the Tavern complex would be temporarily impaired during construction.

After construction, the Tavern Yard Area would more closely resemble the configuration of the Yard Area during the Tavern's period of historical significance. This would improve the historical integrity of the Tavern complex.

4. Conclusions

Under the No Action Alternative, cultural resources would remain undisturbed. It has been determined that the Alternatives would improve the cultural resources of the Great Falls Tavern Area by restoring some areas to a more historical character. No impairment to cultural resources would occur under the Alternative.

**D. Visitor Use and Experience/Park Operations**

1. No Action Alternative

No change from existing conditions. The current requirement to remove the brick pavement of the Great Falls Tavern area before operating heavy vehicles would continue to hinder NPS Operations around the Tavern Complex.

2. Alternative One

Under Alternative One, there would be an adverse impact to visitor access during construction. The phasing of the project and the fact that the east face of the Tavern Yard Area would remain undisturbed during construction would mitigate any impact.

After construction, Park operations around the tavern would be improved because the plaza would no longer have to be removed to prevent damage.

3. Alternative Two

Under Alternative Two, there would be an adverse impact to visitor access during construction. The phasing of the project would mitigate any impact.

After construction, Park operations around the tavern would be improved because the plaza would no longer have to be removed to prevent damage. The visitor experience would also be improved because the Tavern has greater historical integrity.

4. Conclusions

Under the no Action Alternative, visitor use and experience and Park operations would remain unchanged. Both Alternatives improve park operations; Alternative Two also improves the visitor experience. No impairments to visitor experience or park operations would occur.

**E. Socioeconomic Impacts**

1. No Action Alternative

No change from existing conditions.

2. Alternative One

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

3. Alternative Two

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

4. Conclusions

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternative would have no effects on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

**F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects.

1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. However, the continued risk of flood damage to or destruction of the Great Falls Tavern would not be addressed. The historical brick pavement would remain, and NPS vehicular access would remain impaired.

2. Alternative One

Construction efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Minor inconveniences to the public would occur under each of the proposed projects during construction.

Alternative Two allows for superior flood control by allowing the deployment of a gabion-style system and improving the needed vehicular access to the Tavern area. The historical integrity of the Great Falls Tavern Complex is also improved.

3. Alternative Two

Construction efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Minor inconveniences to the public would occur under each of the proposed projects during construction.

Alternative Two allows for superior flood control by allowing the deployment of a gabion-style system and improving the needed vehicular access to the Tavern area. The historical integrity of the Great Falls Tavern Complex is considerably improved.

4. Conclusions

The No Action Alternative maintains the present condition of the park, with the exception of increased future maintenance expenditures. Under the Alternative the cumulative affects are beneficial, and adverse impacts would only occur during the construction effort and are not likely to continue once construction is complete.

## Comparison of Alternatives for the Tavern Yard Area Reconstruction

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Alternatives.

		Vegetation	Threatened and Endangered Species	Birds and Wildlife	Air Quality
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Negligible</u>	Negligible	<u>Negligible</u> No Habitat Loss Expected	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	Negligible	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Negligible</u> No Vegetation Present at Proposed Location	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	Negligible	None	Negligible
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	<u>Negligible</u> No Habitat Loss Expected	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	Increased Vegetation in Tavern Yard Area	Negligible	None	Negligible

		<b>Hydrology, Water Quality, and Wetlands</b>			
		<b>Geology and Soils</b>	<b>Noise</b>	<b>Floodplains</b>	
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Moderate Building Remains at Risk for Flood Damage or Destruction
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	Negligible	Negligible
	Beneficial	None	None	None	Extensive Improvements in Flood Control Serious Reduction in Risk of Flood Damage
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	Negligible	Negligible	Negligible	Negligible
	Beneficial	None	None	None	Extensive Improvements in Flood Control Serious Reduction in Risk of Flood Damage

		Cultural Resources	Visitor Use and Experience Park Operations	Socio-economic Impacts	Cumulative Impacts
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	<u>None</u> Existing Reduction in Historical Integrity Not Addressed	None	Flood Control Needs Not Addressed Inadequate Vehicular Access Historical Integrity Not Improved
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	None	Negligible	None	Minor Vegetation Impacts During Construction
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Minor Impacts to Natural Resources
	Beneficial	Improved Historical Integrity of Tavern Paved Areas	Improved Vehicle Access	None	Improved Flood Control Improved Vehicle Access Improved Historical Integrity
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	None	Negligible	None	Negligible
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Minor Impacts to Natural Resources
	Beneficial	Improved Historical Integrity of Tavern Yard Area	Tavern Yard Area ADA Compliant Improved Vehicle Access	None	Improved Flood Control Improved Vehicle Access Improved Historical Integrity

## X. ENVIRONMENTAL EFFECTS FOR TAVERN ELECTRICAL IMPROVEMENTS

### A. Natural Resources

#### 1. Vegetation

##### a. *No Action Alternative*

There would be no changes to the existing vegetation around the Great Falls Tavern.

##### b. *Alternative One*

There would be minor impacts to vegetation near the existing Control Gatehouse during construction. No permanent effect on vegetation is expected.

##### c. *Alternative Two*

There would be minor impacts to vegetation near the existing Control Gatehouse and at the toe of the hill by the Entrance Station during construction. There would be a permanent slight reduction in vegetation at the toe of the hill. This adverse impact is considered minor and is mitigated by the presence of similar vegetation throughout the park and the increase in vegetation near the Control Gatehouse.

##### d. *Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative. Under the Alternative, minor removal of vegetation would be required for installing the transformer. No impairment to the vegetation within the Park would occur.

#### 2. Threatened and Endangered Species

##### a. *No Action Alternative*

No change from existing conditions.

##### b. *Alternative One*

By letter dated August 24, 2004, the FWS concurs with the FHWA's determination that Alternative One is not likely to adversely affect federally listed threatened and endangered species.

##### c. *Alternative Two*

By letter dated August 24, 2004, the FWS concurs with the FHWA's determination that Alternative Two is not likely to adversely affect federally listed threatened and endangered species.



c. *Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under either alternative.

3. Birds and Wildlife

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in an existing disturbed area, it is likely that these areas are already avoided to great extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

c. *Alternative Two*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in an existing disturbed area, it is likely that these areas are already avoided to great extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

d. *Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under any of the alternatives. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

a. *No Action Alternative*

No change from the existing conditions is expected.

b. *Alternative One*

Only negligible short-term impacts from emissions would occur during construction and no long-term impacts would result.

c. *Alternative Two*

Only negligible short-term impacts from emissions would occur during construction and no long-term impacts would result.

d. *Conclusions*

Under the No Action Alternative no change from existing conditions. During construction, temporary, minor impacts to air quality levels may occur under the Alternative; however, no adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

c. *Alternative Two*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

d. *Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternatives, there are potential effects to the water quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

a. *No Action Alternative*

The geology/soils of the area would remain unchanged under the No Action alternative.

b. *Alternative One*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

c. *Alternative Two*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

d. *Conclusions*

Neither the No Action nor the Alternatives would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur

4. Noise

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Existing noise levels would temporarily increase during construction. Park visitors, employees, and residents in the immediate vicinity of the project area would be subject to the minor noise pollution generated from construction. After construction, noise levels may increase depending upon the size of the installed transformer. This adverse impact is minor.

c. *Alternative Two*

Existing noise levels would temporarily increase during construction. Park visitors, employees, and residents in the immediate vicinity of the project area would be subject to the minor noise pollution generated from construction. After construction, noise levels near the Control Gatehouse would fall. The may increase near the toe of the hill depending upon the size of the installed transformer. This impact is minor and is mitigated by the fact that many utilities are already located near the Entrance Station.

d. *Conclusion*

The No Action Alternative would maintain current noise levels. Under the Alternative, a minor increase in noise levels would occur temporarily during construction. After construction, noise levels may increase. No impairment to noise levels within the Park would occur.

5. Floodplains

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Construction activities would occur in the floodplain. There is no permanent impact on the floodplain, and the floodplain is not impaired.

c. *Alternative Two*

Construction activities would occur in the floodplain. There is no permanent impact on the floodplain, and the floodplain is not impaired.

d. *Conclusion*

The No Action Alternative would have no impact on the floodplain. Under the Alternatives, no substantive adverse impact to the floodplain would occur.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No change from existing conditions. The existing impairment of the historical integrity of the Control Gatehouse would remain.

2. Alternative One

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

3. Alternative Two

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects this alternative may have on the cultural resources. The Park has submitted documentation for Section 106 of the NHPA for the proposed work (See Appendix).

The removal of the existing transformer and concrete slab at the Control Gatehouse should improve the historical integrity of that building.

4. Conclusions

Under the No Action Alternative, cultural resources would remain adversely impacted by the present transformer. Alternative Two would improve the historical integrity of the Control Gatehouse by moving the transformer near the entrance location. No impairment to cultural resources would occur under this Alternative.

**D. Visitor Use and Experience/Park Operations**

1. No Action Alternative

No change from existing conditions. The current unsatisfactory electrical system would not be addressed.

2. Alternative One

Under Alternative One, there would be an adverse impact to visitor use during construction. The phasing of the project would mitigate any impact.

After construction, visitor use and safety around the tavern would be improved because of the upgraded electrical system

3. Alternative Two

Under Alternative Two, there would be an adverse impact to visitor use during construction. The phasing of the project would mitigate any impact.

After construction, visitor use and safety around the tavern would be improved because of the upgraded electrical system

4. Conclusions

Under the no Action Alternative, visitor use and experience and Park operations would remain unchanged. The Alternatives improve visitor use of the Tavern. No impairments to visitor experience or park operations would occur.

## **E. Socioeconomic Impacts**

### 1. No Action Alternative

No change from existing conditions.

### 2. Alternative One

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

### 3. Alternative Two

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

### 4. Conclusions

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternatives would have no effects on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

## **F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects.

### 1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. Park maintenance expenses can be expected to increase in order to keep the existing electrical system functioning in a safe manner. The unaddressed safety concerns may lead to future liabilities in the Park. The historical character of the Control Gatehouse is neither improved nor further impaired.

### 2. Alternative One

Construction efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Minor inconveniences to the public would occur under each of the proposed projects during construction.

Alternative One improves the electrical system of the Great Falls Tavern Complex, improving visitor use and enjoyment. The historical integrity of the Control Gatehouse is further impaired.

3. Alternative Two

Construction efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Minor inconveniences to the public would occur under each of the proposed projects during construction.

Alternative Two improves the electrical system of the Great Falls Tavern Complex, improving visitor use and enjoyment. The relocation of the transformer to the toe of the hill improves the historical integrity of the Control Gatehouse.

4. Conclusions

The No Action Alternative maintains the present condition of the park, with the exception of increased future maintenance expenditures. Under Alternative One the cumulative affects are both adverse and beneficial, and adverse impacts would occur during and after the construction effort is complete. Under Alternative Two, the cumulative effects are beneficial, and the adverse impacts would only occur during construction and are not likely to persist once construction is completed.

## Comparison of Alternatives for the Tavern Electrical Improvements

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Alternatives.

		<b>Vegetation</b>	<b>Threatened and Endangered Species</b>	<b>Birds and Wildlife</b>	<b>Air Quality</b>
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	Negligible	Negligible	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	None	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Construction	Negligible	<u>Negligible</u> Due to Construction	<u>Minor</u> Due to Construction
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> Small Vegetation Loss Near Entrance Station	Negligible	Negligible	<u>Negligible</u> No Impairment of Park Air Quality
	Beneficial	None	None	None	None



		Hydrology, Water Quality, and Wetlands	Geology and Soils	Noise	Floodplains
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	Negligible	<u>Minor</u> Noise may Increase With New Transformer	None
	Beneficial	None	None	None	None
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	<u>Minor</u> Due to Erosion During Construction	<u>Negligible</u> Due to Erosion During Construction	<u>Negligible</u> Due to Construction	<u>Minor</u> Construction in Floodplain
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	None	Negligible	<u>Minor</u> Noise may Increase With New Transformer	None
	Beneficial	None	None	Noise near Control Gatehouse may decrease	None

		Cultural Resources	Visitor Use and Experience Park Operations	Socio-economic Impacts	Cumulative Impacts
<b>Non-Action Alternative</b>	<i>Temporary Impacts</i>				
	Adverse	None	None	None	None
	Beneficial	None	None	None	None
	<i>Permanent Impacts</i>				
	Adverse	<u>None</u> Existing Reduction in Historical Integrity Not Addressed	<u>Minor</u> No Improvement to Electrical System	None	Electrical System Improvement Need Not Addressed Historical Integrity Not Improved
	Beneficial	None	None	None	None
<b>Alternative One</b>	<i>Temporary Impacts</i>				
	Adverse	None	<u>Minor</u> Due to Construction	None	Minor Visitor Use Impacts During Construction
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	<u>Minor</u> Further Reduction in Historical Integrity of Control Gatehouse	None	None	Further Reduction of Historical Integrity of Control Gatehouse
	Beneficial	None	Improved Electrical System	None	Improved Electrical System
<b>Alternative Two</b>	<i>Temporary Impacts</i>				
	Adverse	None	<u>Minor</u> Due to Construction	None	Minor Visitor Use Impacts During Construction
	Beneficial	None	None	Temporary Employment Opportunities	None
	<i>Permanent Impacts</i>				
	Adverse	None	None	None	Minor Impacts to Natural Resources
	Beneficial	Improved Historical Integrity of Control Gatehouse	Improved Electrical System	None	Improved Electrical System Historical Integrity of Control Gatehouse Improved

## **XI. ENVIRONMENTAL EFFECTS FOR TAVERN HVAC SYSTEM IMPROVEMENTS**

### **A. Natural Resources**

#### **1. Vegetation**

##### *a. No Action Alternative*

There would be no changes to the existing vegetation around the Great Falls Tavern.

##### *b. Alternative*

There would be minor impacts to vegetation near the existing Boiler House during construction. A permanent reduction in existing vegetation in proportion to the footprint of the chiller pad is expected.

##### *c. Conclusions*

No impact to vegetative resources is anticipated under the No Action Alternative. Under the Alternative, minor removal of vegetation would be required for installing the chiller. No impairment to the vegetation within the Park would occur.

#### **2. Threatened and Endangered Species**

##### *a. No Action Alternative*

No change from existing conditions.

##### *b. Alternative*

By letter dated August 24, 2004, the FWS concurs with the FHWA's determination that the Alternative is not likely to adversely affect federally listed threatened and endangered species.

##### *c. Conclusions*

No impact to federally or state listed threatened, endangered, or otherwise noteworthy species would occur under either alternative.

#### **3. Birds and Wildlife**

##### *a. No Action Alternative*

No change from existing conditions.

*b. Alternative*

Birds and other wildlife may avoid potential habitat adjacent to the project site because of noise and other factors; however, since the proposed project occurs in an existing disturbed area, it is likely that these areas are already avoided to great extent and no additional impact may result. The overall impact to birds and wildlife would be minor.

*c. Conclusions*

No long-term adverse impacts to birds or other wildlife species are anticipated under any of the alternatives. No impairment to the Park's birds or wildlife species would occur.

**B. Physical Environment**

1. Air Quality

*a. No Action Alternative*

No change from the existing conditions is expected.

*b. Alternative*

Only negligible short-term impacts from emissions would occur during construction. Long-term emissions from the chiller would increase, but only negligible adverse impacts are expected to result.

*c. Conclusions*

Under the No Action Alternative no change from existing conditions. During construction, temporary, minor impacts to air quality levels may occur under the Alternative; however, negligible adverse, long-term impacts are anticipated. No impairment to the Park's air quality would occur.

2. Hydrology, Water Quality and Wetlands

*a. No Action Alternative*

No change from existing conditions.

*b. Alternative*

Potential short-term impacts to water quality due to erosion may exist during construction; however, best management practices would be utilized to minimize these potential impacts. Should this alternative be selected, a sediment and erosion control plan, including the use of best management practices, would be prepared by the FHWA and included in the final construction plans.

c. *Conclusions*

Water quality, hydrology, and wetlands would not be affected under the No Action Alternative. Under the Alternative, there are potential effects to the water quality; however, these impacts would be minimized with the implementation of a sediment and erosion control plan. No impairment to the Park's water quality, hydrology, or wetlands would occur.

3. Geology and Soils

a. *No Action Alternative*

The geology/soils of the area would remain unchanged under the No Action alternative.

b. *Alternative*

The proposed action would have only negligible, localized, short-term, adverse impacts to soils due to construction and no short-term or long-term change to the existing geology or topography, or result in any long-term impact to these features.

c. *Conclusions*

Neither the No Action nor the Alternative would affect the present condition of the geology or soils. No impairment to the Park's geology or soils would occur

4. Noise

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative*

Existing noise levels would temporarily increase during construction. Park visitors, employees, and residents in the immediate vicinity of the project area would be subject to the minor noise pollution generated from construction. After construction, noise levels may increase depending upon the size of the installed chiller. This adverse impact is minor and may be mitigated by the concealment determined in the NPS Cultural Landscape Treatment Plan.

c. *Conclusion*

The No Action Alternative would maintain current noise levels. Under the Alternative, a minor increase in noise levels would occur temporarily during construction. After construction, noise levels may increase. No impairment to noise levels within the Park would occur.

5. Floodplains

a. *No Action Alternative*

No change from existing conditions.

b. *Alternative One*

Construction activities would occur in the floodplain. There is no permanent impact on the floodplain, and the floodplain is not impaired.

c. *Conclusion*

The No Action Alternative would have no impact on the floodplain. Under the Alternative, no substantive adverse impact to the floodplain would occur.

**C. Cultural Resources**

Potential impacts on cultural resources must be addressed under the provisions for assessing effects outlined in 36 CFR, par 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.). Under the "Criteria of Effect" (36 CFR Part 800.9[a]), federal undertakings are considered to have an effect when they alter the character, integrity, or use of a cultural resource, or the qualities that qualify a property for listing on the National Register of Historic Places.

The NPS has consulted with the Maryland State Historic Preservation Officer (SHPO) to ensure that the NPS operation, management, and administration provide for the treatment of cultural resources in accordance with the intent of NPS policies and with section 106, 110, and 111 of the NHPA, as stated in the 1990 Nationwide programmatic agreement among the NPS, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers. Under stipulation D of the programmatic agreement, all undertakings that are not considered programmatic exclusions, or are not included in the plans reviewed under the former programmatic memoranda of agreement, would be reviewed in accordance with 36 CFR, Part 800 and NPS-28, *Cultural Resource Management*.

Completion of compliance with Section 106 of the National Historic Preservation Act would be carried out by the NPS in accordance with the NPS's Cultural Resources Management Guidelines (DO-28), and appropriate documentation and consultations undertaken.

1. No Action Alternative

No change from existing conditions.

2. Alternative

Based on the proposed construction activities, the SHPO is being consulted in regard to any possible adverse affects the chiller may have on the cultural resources (See Appendix).

Any potential adverse effects by the proposed alternative would be mitigated by a concealment identified in the NPS Cultural Landscape Treatment Plan

3. Conclusions

Under the No Action Alternative, cultural resources would remain adversely impacted by the air chiller. It has been determined that the Alternative may adversely impact the historical integrity of the Boiler House by installing the air chiller.

**D. Visitor Use and Experience/Park Operations**

1. No Action Alternative

No change from existing conditions. The current unsatisfactory HVAC system would not be addressed.

2. Alternative

Under the Alternative, there would be an adverse impact to visitor use during construction. The phasing of the project would mitigate any impact.

After construction, there may be an impairment of the viewscape around the Boiler House. This impact is considered minor and may be mitigated if the NPS Cultural Landscape Treatment Plan calls for using vegetation to hide the chiller.

After construction, visitor use of the Tavern would be improved because of the upgraded HVAC system

3. Conclusions

Under the no Action Alternative, visitor use and experience and Park operations would remain unchanged. The Alternatives improve visitor use of the Tavern. No impairments to visitor experience or park operations would occur.

**E. Socioeconomic Impacts**

1. No Action Alternative

No change from existing conditions.

2. Alternative

Minimal employment opportunities and some related revenues for construction materials are anticipated during construction. The impacts would be negligible, short-term, and beneficial.

3. Conclusions

Under the No Action Alternative, the socioeconomic environment would remain essentially the same. The Alternative would have no effects on existing or long-term site use or conditions; as such, there would be no impact on the socioeconomic environment or land use. No impairment to the socioeconomic environment of the road would occur.

**F. Cumulative Impacts**

Cumulative impacts are those impacts on the environment that result from the incremental effect of the project when considered with interrelated past, present, and reasonable foreseeable future projects.

1. No Action Alternative

The No Action Alternative would have little impact on future park development plans. Park maintenance expenses can be expected to increase in order to keep the existing HVAC system functioning in a safe manner.

2. Alternative

Construction efforts would be phased to minimize disruptions to park visitors and recreational commercial activities.

Impacts associated with the removal of vegetation and water quality would not be significant, nor would the short-term disruptions to the wildlife species. Minor inconveniences to the public would occur under each of the proposed projects during construction.

Alternative One updates the HVAC system of the Great Falls Tavern Complex, improving visitor comfort and enjoyment. The historical integrity of the Boiler House may be impaired.

3. Conclusions

The No Action Alternative maintains the present condition of the park, with the exception of increased future maintenance expenditures. Under the Alternative, the cumulative affects are both adverse and beneficial, and adverse impacts would occur during the construction effort. The adverse effects may persist once construction is completed.



## Comparison of Alternatives for the Tavern HVAC System Improvements

The following chart summarizes and compares the likely results of implementing the No Action Alternative and the Build Alternatives.

	Vegetation	Threatened and Endangered Species	Birds and Wildlife	Air Quality	Hydrology, Water Quality, and Wetlands	Geology and Soils
<i>Temporary Impacts</i>						
Adverse	None	None	None	None	None	None
Beneficial	None	None	None	None	None	None
<i>Permanent Impacts</i>						
Adverse	None	None	None	None	None	None
Beneficial	None	None	None	None	None	None
<i>Temporary Impacts</i>						
Adverse	Minor Due to Construction	Negligible	Minor Due to Construction	Minor Due to Construction	Minor Due to Erosion During Construction	Negligible Due to Erosion During Construction
Beneficial	None	None	None	None	None	None
<i>Permanent Impacts</i>						
Adverse	Minor Loss in Vegetation near Boiler House	Negligible	Negligible Potential Loss of Habitat Area	Negligible No Impairment of Park Air Quality	Negligible	Negligible
Beneficial	None	None	None	None	None	None

**Non-Action Alternative**

**Alternative**

	Noise	Floodplains	Cultural Resources	Visitor Use and Experience Park Operations	Socio-economic Impacts	Cumulative Impacts
<i>Temporary Impacts</i>						
Adverse	None	None	None	None	None	None
Beneficial	None	None	None	None	None	None
<i>Permanent Impacts</i>						
Adverse	None	None	None	<u>None</u> System Inadequacies not Addressed	None	Increased Maintenance Expenses HVAC System Remains Inadequate
Beneficial	None	None	None	None	None	None
<i>Temporary Impacts</i>						
Adverse	<u>Minor</u> Due to Construction	<u>Minor</u> Construction in Floodplain	Negligible	<u>Minor</u> Due to Construction	None	Minor Vegetation Impacts During Construction
Beneficial	None	None	None	None	Temporary Employment	None
<i>Permanent Impacts</i>						
Adverse	<u>Minor</u> Chiller may Increase Ambient Noise	None	<u>Minor</u> Chiller May Impair Historical Integrity of Boiler House	<u>Minor</u> Boiler House Viewscape May be Impaired.	None	Historical Integrity of Boiler House may be Impaired
Beneficial	None	None	None	Improved HVAC System Improved Visitor Comfort and Enjoyment	None	Improved HVAC System

**Non-Action  
Alternative**

**Alternative**

## **XII. MITIGATION**

### **A. Hydrology and Water Quality**

A sediment and erosion control plan would be prepared and included in the final construction plans in accordance with Maryland Department of the Environment Standards.

### **B. Cultural Resources**

Any impacts to cultural resources would be mitigated in accordance with the C&O NPS Cultural Landscape Treatment Plan.

### **C. Visitor Use and Experience/Park Operations**

Construction would be staged according to a schedule that would impact visitors as little as possible during peak visitation periods.

### **D. Socioeconomic Impacts**

Construction schedules would be sensitive to commercial recreational activities associated with the Great Falls Tavern. This could include planning construction activities during the off-season and perform construction activities during off peak hours in season.

### **XIII. ENVIRONMENTAL COMMITMENTS**

#### **A. Unavoidable Adverse Environmental Effects**

No substantial unavoidable adverse environmental effects are anticipated.

#### **B. Local Short-Term Uses and Maintenance/Enhancement of Long-Term Productivity**

Short-term maintenance costs would decline if the proposed reconstruction and rehabilitation work occurs in the near future. As a result, the Park may allocate more time and personnel to the protection of the Park's more prominent cultural and natural resources.

#### **C. Natural or Depletable Resources**

The use of some natural resources would be required under the Alternative in order to complete construction operations, however no natural resources would be depleted. The quantity of materials in comparison to those readily available would be negligible.

#### **D. Energy Requirements and Conservation**

The preferred alternative would be expected to provide some benefits in terms of energy conservation because reduced traffic congestion along the Entrance Road would result in fewer idling vehicles and less gasoline use.

## **XIV. COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

The 1999 Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) authorized funds for the Federal Lands Highway Program (FLHP), which distributes funds from the federal motor fuel tax revenues for the construction and rehabilitation of federal roads, including roads in units of the National Park System. This Act includes funding under the Public Lands Highway Discretionary Program for roads accessing and serving federal lands. It also includes funding under the Emergency Relief Program for roads that have suffered serious damage as a result of a natural disaster. The FHWA is coordinating the design and construction of these roads in cooperation with the NPS. This design and construction of the proposed work would occur using Public Lands Highway Discretionary funds and Emergency Relief funds.

The proposed improvements to the Great Falls Tavern area are entirely consistent with the C&O Canal management documents.

### **A. National Environmental Policy Act (NEPA)**

This Environmental Assessment (EA) and resultant decision documents provide disclosure of the decision-making process and potential environmental consequences of the alternatives. This EA will be available for a 30-day public review and comment period, after which the NPS will decide if the impacts from the proposed action are significant. If the NPS determines that the impacts are significant, an Environmental Impact Statement (EIS) will be prepared. If an EIS is not required, the NPS's National Capital Regional Director may sign a Finding of No Significant Impact (FONSI). Together this EA and the FONSI would conclude the NEPA compliance for this project.

### **B. Endangered Species Act of 1973**

Section 7 of the Endangered Species Act (ESA) directs all federal agencies to use their authority in furtherance of the purposes of the Act by carrying out programs for the conservation of rare, threatened, and endangered species. Federal agencies are required to consult with the U. S. Fish and Wildlife Service (FWS) to ensure that any actions authorized, funded, and/or carried out by the agency does not jeopardize the continued existence of any listed species or critical habitat.

Informal consultation pursuant to the ESA was initiated on May 30, 2002, when a letter was sent to the U. S. Fish and Wildlife Service inquiring whether any federal or state listed or candidate threatened or endangered plant or animal species or any other special status plant or animal species occur in the project area. The FWS responded with a letter dated September 9, 2004, concurring that the proposed project is not likely to adversely affect federally listed endangered and threatened species.

**C. Clean Water Act of 1972**

This Act seeks to restore and maintain the chemical, physical, and biological integrity of the nations water by a variety of means. Section 404 of the Clean Water Act directs wetlands protection by authorizing the Army Corps of Engineers to prohibit or regulate, through a permit process, discharge of dredged or fill material into the waters of the United States, including wetlands. Actions described in this document comply with the requirements of Section 404 of the Clean Water Act and all other applicable federal, state, and local agencies.

Water quality in the project area would be protected by the implementation of erosion and sediment controls, such as silt fencing, straw bales, and sediment traps, as needed. Reseeding and mulching would quickly stabilize disturbed areas. Staff at the FHWA would prepare the Erosion and Sediment Control Plan for inclusion in the construction plans.

**D. National Historic Preservation Act of 1966**

This Act requires federal agencies to establish programs for evaluating and nominating properties to the National Historic Register of Historic Places, and to consider the effects of undertaking a proposal on listed or eligible properties. Section 106 mandates that federal agencies take into account the effects of their actions on properties listed or eligible and to give the Advisory Council on Historic Preservation a reasonable opportunity to comment on said actions, if appropriate.

The NPS will coordinate with the Maryland State Historic Preservation Officer (MD SHPO) and complete roadwork according to National Register of Historic Places standards and criteria. All ground disturbing activities associated with the project would be reviewed for archeological needs. Completion of compliance with Section 106 of the National Historic Preservation Act has been carried out in accordance with the NPS's Cultural Resources Management Guidelines (RM-28), and appropriate documentation and consultations undertaken.

Although no adverse effects to cultural resources are anticipated with the Implementation of the proposed action, measures would be taken to ensure that adequate protection and consideration of cultural resources are carried out throughout the design and construction phases of the proposed project.

**E. The National Park Service Organic Act of August 25, 1916**

This Act states that the fundamental purpose of national parks is "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The preferred alternative is supportive of this Act because it is the least intrusive on the natural and historic environment, and maintains the scenic viewshed within the Park.

**F. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations**

This Executive Order requires federal agencies to promote “nondiscrimination in federal programs substantially affecting human health and the environment.” In response to this direction, federal agencies must implement actions to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority and low-income populations. The proposed project is located within the boundaries of the National River and would not cause the displacement of any residents, nor would it eliminate jobs, low wage or otherwise. The proposed project would not affect low income and minority populations. The project therefore is in compliance with this Executive Order.

**G. Compliance with State and Local Government Regulations**

The Alternatives area of disturbance does not exceed the Division of Water Resources threshold to trigger NPDES reporting. A copy of the Sediment and Erosion Plan will be required to be sent to the Southern Soil Conservation District.

## **XV. LIST OF PREPARERS AND REVIEWERS**

The following individuals contributed to the development of this document:

### **Federal Highway Administration**

Jack Van Dop	Environmental Compliance Specialist
Kevin Rose	Environmental Protection Specialist
Rob Herrick	Engineering Student Trainee
Tom Shifflett	Project Manager

### **National Park Service**

Douglas D. Faris	Superintendent, retired
Kevin D. Brandt	Superintendent
Robert Hartman	Chief of Maintenance
Tina Orcutt	Chief of Resources
James Perry	Historian
Dianne Ingram	Natural Resource Specialist
Marie Frias Sauter	GIS Specialist
William Spinrad	Lands Coordinator
Daniel Copenhaver	Park Engineer
Mike Seibert	Exhibits Specialist
Lynne Wigfield	Compliance Officer
Keith Kelly	District Law Enforcement Supervisor
Bill Justice	Chief of Interpretation
Hugh Duffy	Denver Service Center
Charles Borders	Denver Service Center
Mark Alexander	Denver Service Center
Jane Sikoryak	Denver Service Center



## **XVI. COORDINATION**

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

Consultation and coordination have occurred with numerous agencies for the development of the alternatives and preparation of the EA. The following people, organizations, and agencies were contacted for information, which assisted in identifying important issues, developing alternatives, and analyzing impacts:

U.S. Fish and Wildlife Service

Maryland Department of the Environment

Natural Heritage Program

State Historic Preservation Officer

U.S. Army Corps of Engineers

In order to give the public and all interested parties a chance to review the EA, it will be noticed for public comment for a minimum of 30 days through local newspapers. During this 30-day period, the EA will be available for review at the Chesapeake and Ohio Canal National Historical Park, and on the World Wide Web at <http://www.epl.fhwa.dot.gov/planning/nepa/index.htm>.

## **XVII. REFERENCES**

- MGS, 1981. *A Brief Description of the Geology of Maryland*. Maryland Geologic Survey. Jonathan Edwards, Jr. 1981.
- NPS, 2000. *Finding of No Significant Impact and Notice of Decision for the Placement of Wireless Telecommunication Facility for Bell Atlantic Mobile (Verizon Wireless) at the Ridge Trail Site in Great Falls Park, Virginia*. National Park Service, August 2000.
- NPS, 2001. *Final Management Plan/Environmental Impact Statement, Glen Echo Park, Montgomery County, Maryland*. National Park Service, February 2001.
- NPS, 2001. *Cultural Landscape Inventory: Great Falls Tavern, Chesapeake and Ohio National Historical Park*. National Park Service, revised 2004.
- URS Corporation, 2003. *Phase I Archaeological Investigations Within The Great Falls Section of Chesapeake and Ohio Canal National Historical Park*. URS Corporation, November 2003.
- USDA, 1995, *Soil Survey of Montgomery County, Maryland*, United States Department of Agriculture, July 1995.

## **APPENDIX - Documentation of Agency Consultation**

- FHWA letter to the Fish and Wildlife Service dated May 30, 2002 requesting a review of the project area and concurrence that the proposed action is not likely to affect federally listed or proposed-for-listing species and is in compliance with the Endangered Species Act of 1973.

Fish and Wildlife Service response to FHWA dated August 24, 2004.

- Chesapeake and Ohio National Historical Park – Assessment of actions having an effect on Cultural Resources. Section 106 determination “No historic or archeological properties are present” at the Great Falls Entrance Road and Lower Parking Lot.

SHPO response dated July 23, 2002.

Chesapeake and Ohio National Historical Park - Assessment of actions having an effect on Cultural Resources.

Continuing Section 106 consultation memo dated October 27, 2004.



## United States Department of the Interior

NATIONAL PARK SERVICE  
C&O Canal National Historical Park  
1850 Dual Highway, Suite 100  
Hagerstown, Maryland 21740

IN REPLY REFER TO:  
D2215(CHOH)

October 27, 2004

Rodney J. Little, Director  
Division of Historical-Cultural Programs  
100 Community Place  
Crownsville, Maryland 20132-2023

Dear Mr. Little:

In 2002, we contacted your staff regarding several proposed projects in the Great Falls Tavern area of the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP). We have a Draft Environmental Assessment (EA) that evaluates *The Rehabilitation of the Great Falls Entrance Road, Lower Parking Lot and the Repair/Rehabilitation of the Great Falls Tavern Visitor Center [Phase II]*. At the time of our 2002 correspondence, we were in the process of funding approval. As requested, we are now contacting you with further project information to continue with the Section 106 consultation.

We have enclosed the Draft Environmental Assessment, the Draft Cultural Landscape Plan, and selected information regarding utility upgrades for the Great Falls Tavern. We will be happy to supply full copies of project drawings. We have also enclosed a brief description of the projects' planning to date.

If you have any questions, please contact Lynne Wigfield, Compliance Officer, at (301) 745-5802. Please forward your concurrence or comments to my attention with a copy to Ms. Wigfield.

Thank you for your time in reviewing this proposed project.

Sincerely,

Kevin D. Brandt  
Superintendent

Enclosure

The Maryland Historic Trust concurs with the Chesapeake and Ohio Canal National Historical Park's proposal to undertake *The Rehabilitation of the Great Falls Entrance Road, Lower Parking Lot* and *the Repair/Rehabilitation Great Falls Tavern Visitor Center [Phase II]*. The projects will not have an adverse effect on historic properties.

Signature : \_\_\_\_\_ Date: \_\_\_\_\_

## **ENTRANCE ROAD REHABILITATION**

The Entrance Road for the Great Falls Tavern area of the C&O Canal NHP is in need of substantial repairs and upgrades. The National Park Service, in conjunction with the Federal Highway Administration, has been working to develop alternatives for roadway improvements in the area of safety for motorists and bicyclists/pedestrians. The current situation has motorists and bicyclists/pedestrians sharing the vehicle travel lanes due to no road shoulders.

The Entrance Road was constructed in 1873 by the Washington Aqueduct for access to their water intake facility connecting Falls Road with the Great Falls Tavern area. The two-lane road has not significantly changed from its original alignment. It is narrow and winding with a tree canopy and steep embankments in several locations. The goal of the project is to retain this historic character with little to no disturbance to the roadside features while making improvements to the roadway.

FHWA presented several alternatives regarding the roadway for evaluation by park staff. These alternatives incorporated a wider roadway to provide various shoulder widths that would provide a travel lane for bicyclists. Additional alternatives evaluated involved the establishment of an off-road bike path. The off-road paths presented significant cultural and natural resource impacts and were excluded from further consideration.

Through various planning sessions, we have determined that the preferred alternative is two 10-foot travel lanes with three-foot shoulders. Minimal cutting of existing embankments can be accomplished with the installation of curbing, thus retaining the historic character of the roadway. Also, minimal impacts to vegetation would be incurred. The other shoulder-widening alternatives present more overall impacts to existing features.

Our preferred alternative will meet the project goals.

## **PARKING LOTS**

The two parking lots associated with the Rehabilitation of the Entrance Road project are addressed within the Environmental Assessment. The two lots are identified as the Upper and Lower Lots. The Upper Lot is the larger of the two and extends upstream of the rotary upon entering the Great Falls area of the park. The Lower Lot is the smaller lot located between the Washington Aqueduct's Gatehouse and the rotary.

The proposed project calls for the elimination of the Lower Lot. In its place will be a green space with a new visitor walkway and comfort station. The service access road that currently exists behind the Great Falls Tavern would be extended to connect with the rotary.

The Upper Lot would have some minor alterations, but the primary configuration would remain the same. A dedicated bus loading/unloading area would be located adjacent to the concession building. Parking spaces would be restriped to absorb the displaced spaces from the Lower Lot.

It is being proposed to construct dedicated bus parking spots at the far end of the Upper Parking Lot. This would involve construction beyond the current lot configuration. It is anticipated that no resources would be impacted, but archeological monitoring prior to construction would be undertaken.

Concurrent with the parking lot and comfort station projects will be upgrades to existing utilities. It is also anticipated that the park's maintenance facility will be connected to the existing sewer system. Currently it is on a separate septic system.

Phase I archeology has been conducted throughout the project area regarding the flood wall, the entrance road, and the parking lots.

### **FLOOD PROTECTION FOR THE GREAT FALLS TAVERN**

Initial project planning proposed the installation of a commercially manufactured flood "wall" that could be quickly installed in the event of high waters. The Great Falls Tavern is vulnerable during flooding and protection historically has been from the placement of sandbags along the north, west, and south elevations of the building. This treatment is effective, but extremely time consuming. Additionally, the brick paved walkway areas used for the sandbag barrier were not constructed to accommodate the heavy equipment needed to move material and supplies into position.

Several flood "walls" were proposed. One type was a retractable system that would be enclosed in an underground vault. This type posed several concerns. First, the impact to the cultural resources would be extensive. Secondly, the maintenance on this type of system would require frequent attention to ensure the unit would work in the event of an emergency. With the location of the flood protection within the main corridor of visitor activity, routine maintenance could impact the visitor experience.

Another type of flood barrier discussed was a removable panel system. This would require that removable posts be attached to special permanent footings/brackets. Once the posts were installed, panels would be slipped into place between the posts. This type of system had fewer potential impacts to resources than the retractable flood wall. Concerns were raised regarding the sloping area on the north elevation. The flat panels would need to be tapered to fit the terrain, and installers would need to ensure that the panels were correctly positioned. This type of system would be time consuming and storage of all the components was an issue.

During Hurricane Isabel, the park purchased a gabion basket system. These baskets were locked together and plastic sheeting installed. The baskets were then filled with sand. This system proved to be less time consuming than the sand bag process. Storage after the flood event involved folding the baskets and stockpiling the sand. The advantage with this system was that it posed no impacts the cultural resources. This system was seen as the best alternative for flood protection of the Great Falls Tavern and is being presented as our preferred alternative.

Regardless of the selected flood protection alternative, the brick sidewalks around the Great Falls Tavern were not constructed to withstand the movement of heavy equipment and materials. The project proposes to structurally improve the sidewalks to accommodate the equipment and

materials associated with the gabion basket flood protection. This will involve building a concrete base over which the approved walkway treatment would be established. The Cultural Landscape Report will recommend that the walkways surrounding the Great Falls Tavern be an exposed aggregate concrete to simulate a gravel pathway. The existing brick walkways were part of the 1950s landscape efforts and cannot be documented as historic in character to the canal operational period of the Great Falls Tavern.

## **COMFORT STATION**

The existing public restroom facilities for the Great Falls Tavern area are within the original restroom building which was built by the Civilian Conservation Corps (CCC). This building is located near the historic Great Falls Tavern. The existing facility, however, has degraded with time, and efforts to upgrade it would not prove to be economically feasible. The park is looking to construct a new facility that would provide more modern facilities with family friendly units. The new structure would also increase the capacity, a factor that is limited with the current facility.

The proposed comfort station has been evaluated for two potential locations near the parking areas of the Great Falls Tavern. Both of these locations were extensively evaluated during the development of the Cultural Landscape Report (CLR). An interdisciplinary team was assembled under the guidance of the National Capital Region's Cultural Resources staff.

The first location was adjacent to the existing concession building along the lower edge of the Upper Parking Lot. This location, as determined by the CLR team, was determined to pose a significant visual impact for visitors entering the park. It also placed the comfort station a significant distance from the park features. The small stream, Carroll Creek, would continue to have stream channel impacts with this alternative.

The second location was identified as the upper tier of the Lower Parking Lot area. The Lower Parking Lot is proposed to be removed as a component of the Entrance Road project. This location for the comfort station provides a less intrusive site for the building, and allows for a new ADA compliant pathway to the Great Falls Tavern that will not impact Carroll Creek. The comfort station would be approximately midway between the Upper Parking Lot and the park's historic features.

The CLR team determined that the second location would be presented within the EA as the preferred alternative.

Upon construction of a new comfort station, the current restroom facilities will be taken out of service. The park will evaluate appropriate uses for the building under future funding. When funding becomes available, the Maryland Historical Trust will be consulted during project planning.

The existing service access road that is located behind the Tavern building will need to remain as it provides vehicular access to the intake structure for the Washington Aqueduct. Under the preferred comfort station alternative, the access road would be extended to the Rotary and would provide maintenance access for the comfort station.



## **ELECTRIC TRANSFORMER & AIR CHILLER**

Both of these are components of the utility upgrades for the Great Falls Tavern. These items have been included within the EA as they pose potential impacts to the visual resources of the area. Both have been discussed by the interdisciplinary team for the Cultural Landscape Report (CLR).

The air chiller will be a new feature. It will be needed for the air conditioning upgrades for the Great Falls Tavern. It will be located close to the existing Boiler House. The existing terrain offers some possible concealment advantages. However, additional concealment will need to be added. The CLR team felt that appropriate fencing or vegetation screening would be acceptable. The final treatment for concealment for the air chiller will be determined during the design phase of the project.

The air chiller's noise factor was also discussed and the CLR team felt that noise from the unit would not detract from the overall visitor experience. The area is quite noisy due to the Great Falls of the Potomac River.

The electric transformer has been indicated to replace an existing transformer. The existing transformer is located at the corner of the Washington Aqueduct's Gatehouse. This structure is on the National Register. We are proposing to relocate the transformer away from the Gatehouse.

## **UTILITY UPGRADES TO THE GREAT FALLS TAVERN**

The Phase II improvements for the Great Falls Tavern are focused on the utility upgrades within the structure. Under the *Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), The Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers*, the NPS is authorized to undertake improvements to HVAC systems and to install fire detection and suppression systems.

All work, except the air chiller unit and the electric transformer, fall within the expectations of the programmatic agreement. All work regarding the installation of new underground conduit will be within the limits of disturbance of the existing infrastructure. The approach for all new utility work will follow the *Secretary of Interior's Standards for Rehabilitation* even though most of the building's interior fabric is not original. We have stipulated within our review of the current 50 percent designs that we want caution exercised when installing the utility conduits through the masonry of the building's original foundation.

## **SIDEWALK UPGRADES**

The Entrance Road/Parking Lot project and the Great Falls Tavern Rehabilitation projects both address improvements to the site walkways to achieve ADA standards. In order to achieve this goal, the Cultural Landscape planners are developing recommendations to be implemented and join the two projects together. The area of the Lower Parking Lot, upon removal, will be returned to a green space. Walkways within this area and the walkways surrounding the Great Falls Tavern will be redesigned to be ADA compliant and more evocative of the late 1800s operational period of the C&O Canal.

**Great Falls Tavern,  
Chesapeake and Ohio Canal National  
Historical Park  
Cultural Landscape Report**

**Treatment Plan  
August 19, 2004**



## **Treatment Alternatives**

**General Design Requirements** – The following is recommended for this alternative.

1. The emergency access / service road should be at the base of the slope within the old lower parking lot.
2. The boat drop-off area should be on the rotary near the emergency access / service road to facilitate the use of the service road by the boaters.
3. The bus drop-off area should be along the straight-away near the existing concessions building. The existing road wide is enough already for designating this area as the bus drop-off. The pedestrian path along the drop-off area would need to be made wider.
4. The rotary travel lanes should be narrowed to 22 to 25 feet, especially on the canal side of the rotary.
5. Exposed aggregate concrete will be used for most of the pedestrian paths and a portion of the service road, but the surface treatments for the concrete will be different depending on its location and use to make it compatible to the historic tavern landscape. .

### **Great Falls Tavern Comfort Station and Walkways**

#### *Lower Parking Lot Location*

General Concept – The comfort station is located on the south-side of the rotary within the old lower parking lot. A designated short term / boat drop-off is located off the rotary near the restroom facility. A new accessible pedestrian path would be developed from the Upper Parking Lot to the comfort station, continuing to the Great Falls Tavern yard where the path and gate opening to the tavern yard will be aligned with the front door of the tavern. The existing lower parking lot and pedestrian promenade would be removed. These areas would be regraded and revegetated to serve as a transition from the parking area to the historic zone. A separate designated emergency access / service road would be developed behind the restroom, along the base of the slope and would connect with the existing alignment between the Washington Aqueduct Gatehouse and pump house. A short-term official vehicle parking area (maximum two cars) will be located along the emergency access / service road.

### **Great Falls Tavern Yard Area**

General Concept – The yard of the tavern is more clearly defined to reflect the late 1800s patterns as documented by historic photographs between 1880 and 1900. The formal front pedestrian paths will be wider (12 feet) on the north, west and south sides to emphasize the more historically public space of the tavern yard, whereas backyard pedestrian paths on the east side will be narrower (8 feet) to represent the informal nature of the private yard of the lock-keeper. The same material will be used for all pathways, but the pathways will only be reinforced on the north, west and south sides to sustain vehicular use for transporting the portable gabion-style flood control system. The front door to the tavern will be made accessible, to draw more people into the exhibit space. The pathway to the existing restroom will be removed and a new connection from the backyard would be introduced to the service road. A wooden picket-style fenced-(reproduced based on historic photographs) will be installed along three sides of the yard (north, east and south). In the backyard, the 1870s kitchen addition will be outlined with stone flush to the ground to give a better sense to the spatial arrangement of the yard. A post and rope barrier will be installed along Lock 20 to provide a safety barrier between NPS Park Rangers demonstrating the operation of the lock and the general public,

viewing the demonstration. To also better interpret and represent the historic landscape, a lock shanty will be built in the same location as the historic shanty.

*Terminology Used in Cultural Landscape Report to represent the site. Recommended to be used in the Environmental Assessment and within each individual project.*

**Rotary** - 1930s concept and 1950s installed traffic circle. One of the few elements that represents the 1930s parkway concept that was actually implemented. Similar design to the Mount Vernon terminus (1930s) for Mount Vernon Memorial Highway (GWMP)

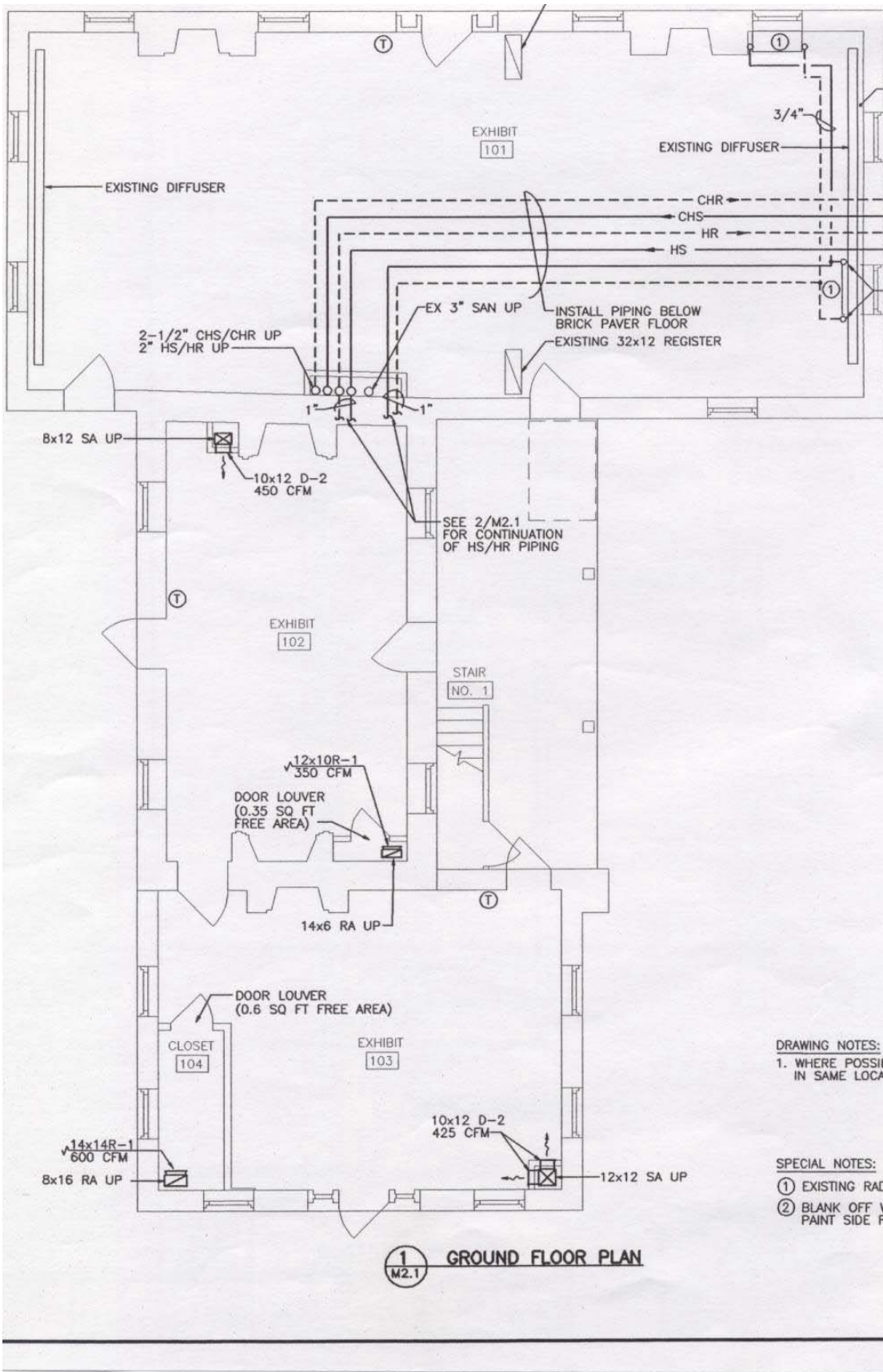
**Entrance Road** - historically called Conduit Road and then MacArthur Boulevard. Built in the 1870s by the Corps of Engineers. It is now used as the official entrance to the Great Falls Tavern area.

**Upper Parking Lot** - The large parking lot north of the concession stand.

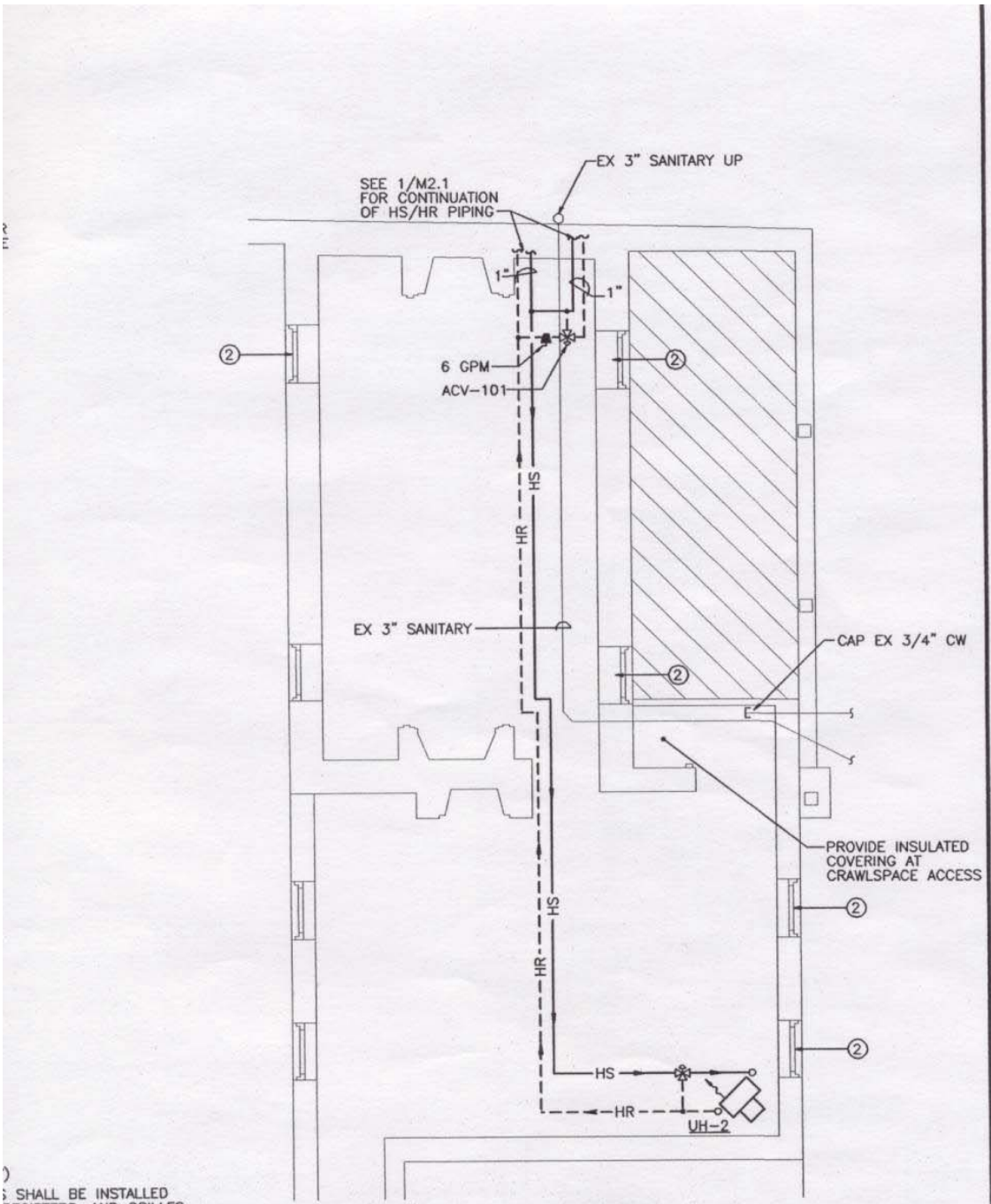
**Lower Parking Lot** - The small parking north of the Washington Aqueduct Gatehouse, that is proposed to be removed.

**Great Falls Tavern Yard** - The historic boundaries of the lock keepers yard, surrounded by a fence on three sides and fronted by the canal and Lock 20. It includes paths and grass and kitchen building outline.

**Great Falls Tavern Area** - Represents the general site where the proposed action is taking place.

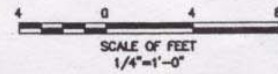




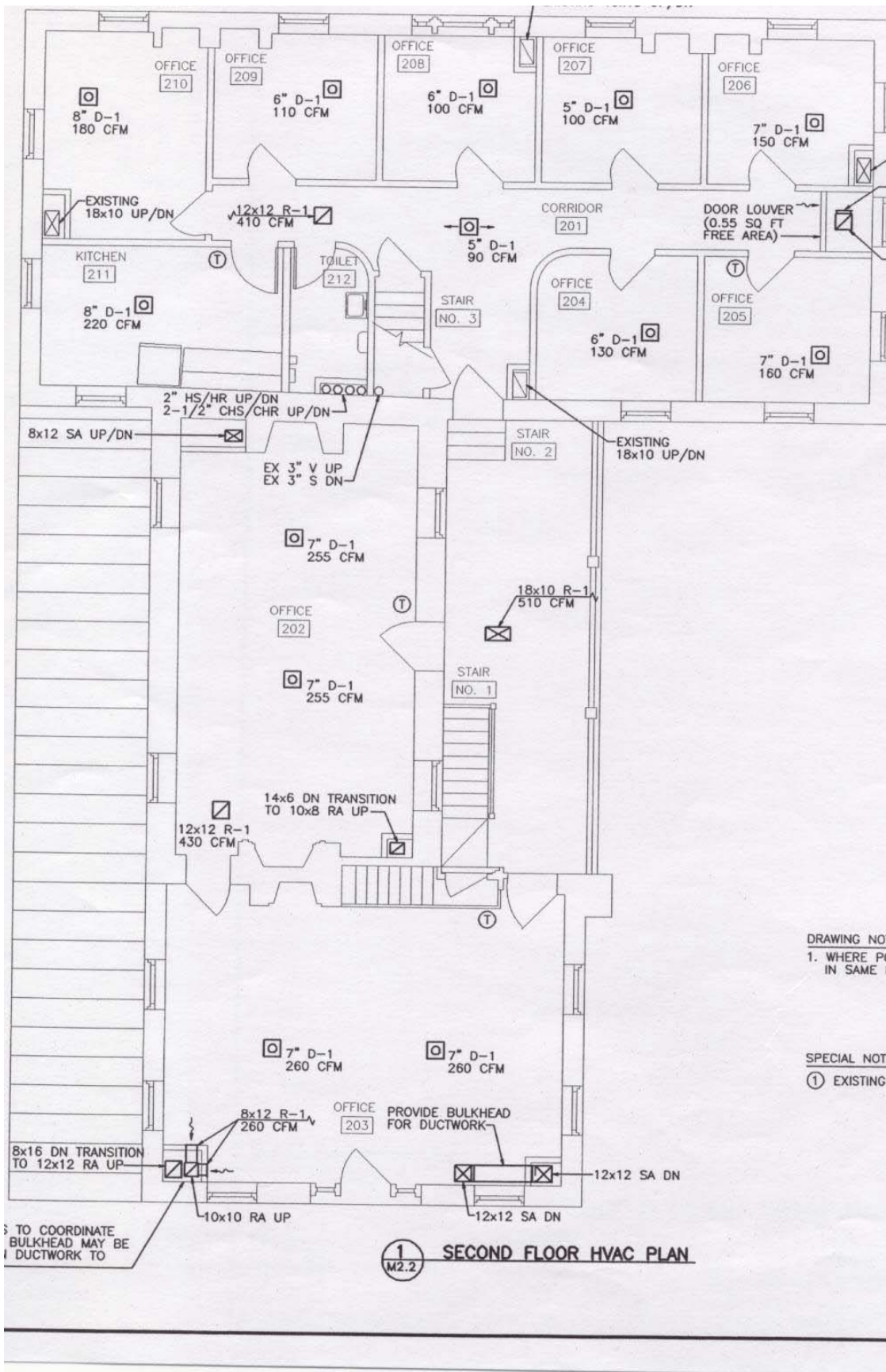


SHALL BE INSTALLED  
REGISTERS, AND GRILLES.

**2**  
M2.1 CRAWLSPACE PLAN



A/E FIRM PRIME: 0211 GWVO INC. BALTIMORE, MD SUB: HENRY ADAMS, INC. BALTIMORE, MD	DESIGNED: <b>SRH</b> DRAWN: <b>NBK</b> TECH. REVIEW: <b>DFS</b> DATE: 03-04	SUB SHEET NO <b>M2.1</b>	TITLE OF SHEET <b>VISITOR CENTER GROUND FLOOR &amp; CRAWLSPACE HVAC PLAN</b> CHESAPEAKE AND OHIO CANAL NATIONAL HISTORIC PARK	DRAWING NO. <b>412 41081</b> PKG. NO. CHOH 149 30 SHEET <b>X</b> OF <b>XX</b>
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**Maryland  
Department of  
Housing and  
Community  
Development**

*Division of Historical and  
Cultural Programs*

100 Community Place  
Crownsville, Maryland 21032

410-514-7600

1-800-756-0119

Fax: 410-987-4071

Maryland Relay for the Deaf:

711 or 1-800-735-2258

<http://www.dhcd.state.md.us>

Parris N. Glendening  
Governor

Raymond A. Skinner  
Secretary

Marge Wolf  
Deputy Secretary

RECEIVED  
C&O CANAL NHP

July 23, 2002

Mr. Douglas D. Faris, Superintendent  
National Park Service  
C&O Canal National Historical Park  
1850 Dual Highway, Suite 100  
Hagerstown, MD 21740

Re: Two Proposed Projects: 1.) Repair/Rehab of Great Falls Visitor Center & Facilities and 2.) Stabilization of Historic Towpath Wall & Construction of Footbridge, C&O National Historical Park

Dear Mr. Faris:

Thank you for notifying the Maryland Historical Trust (Trust) of the two above-referenced undertakings. We have reviewed the project information in accordance with Section 106 of the National Historic Preservation Act and are writing to provide our initial comments regarding effects upon historic properties.

Based upon our review of the information provided and a conversation between Andrew Lewis and Lynne Wigfield of our respective staffs, the Trust concurs with the National Park Service's general concepts for both undertakings. However, as your letter indicates, the National Park Service will coordinate further with the Trust if funding for these projects becomes available.

Assuming funding does become available, the Trust is likely to request additional information regarding the new restroom facilities. In addition to potential archeological concerns at the proposed new site, we understand that the current facilities were constructed by the CCC. Therefore, we are likely to have additional questions regarding why these facilities cannot be rehabilitated/adapted for continued use; what the future plans are for the facilities etc.

At this point, most of the remaining proposed work appears acceptable, but we look forward to working with the National Park Service if the projects are to be implemented. If you should have any questions or comments regarding these matters, please contact me (for archeology) at 410-514-7631 or Andrew Lewis (for historic built environment) at 410-514-7630. Thank you for providing us this opportunity to comment.

Sincerely,

Elizabeth Cole  
Administrator  
Project Review and Compliance

EJC/CAL  
200202629/200202630





## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Chesapeake Bay Field Office  
177 Admiral Cochrane Drive  
Annapolis, MD 21401



August 11, 2004

Mr. Alan T. Teikari  
Planning and Programming Engineer  
U.S. Department of Transportation  
21400 Ridgetop Circle  
Sterling, VA 20166-6611

**RE:** Chesapeake and Ohio Canal National Historical Park

Dear Mr. Teikari

This responds to your letter, received May 21, 2004, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

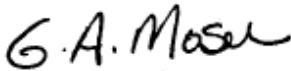
Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Maricela Constantino at (410) 573-4542.

Sincerely,



G. Andrew Moser  
Acting Program Supervisor, Threatened and Endangered Species

