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ARCHES NATIONAL PARK  
VISITOR CENTER AND PARK ENTRY ROAD REALIGNMENT  
Environmental Assessment  
April 2002  
Prepared for:  
U.S. Department of Interior  
National Park Service  
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Arches Arches National Park  
BMP Best Management Practices  
CBA  
Choosing By Advantages  
CCC  
Civilian Conservation Corps  
CEQ  
Council on Environmental Quality  
CFR  
Code of Federal Regulations  
aC  
degrees Celsius  
DOE Department of Energy  
EA  
Environmental Assessment  
EPA  
U.S. Environmental Protection Agency  
ESA  
Endangered Species Act of 1973  
OF  
degrees Fahrenheit  
ft  
foot/feet  
GMP  
General Management Plan  
LEED  
U.S. Leadership in Energy and Environmental Design  
NEPA  
National Environmental Policy Act  
NHPA  
National Historic Preservation Act  
NMFS  
National Marine Fisheries Service  
NPS  
National Park Service  
NRCS  
Natural Resources Conservation Service  
OSHA Occupational Safety and Health Administration  
PMF probable maximum flood  
Project Area Arches National Park Entry Road Realignment and Visitor Center EA Project Area  
SEUG  
Southeast Utah Group  
SHPO  
State Historic Preservation Office  
sq ft  
square feet  
TCP  
Traditional Cultural Place  
UDOT  
Utah Department of Transportation  
USC  
U.S. Code  
USDI  
U.S. Department of the Interior  
USFWS  
U.S. Fish and Wildlife Service  
VERP  
Visitor Experience and Resource Protection and Implementation Plan  
VIM  
Visitor Impact Management  
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0 EXECUTIVE SUMMARY  
At Arches National Park, the National Park Service (NPS) proposes to construct a new visitor center and realign the park entry road. The current visitor center facilities do not provide adequate space or an appropriate setting for NPS functions such as visitor contact, ranger operations, resource management, interpretive displays and programs, fee collection, and maintenance services. In addition, traffic safety is a critical issue at the park entrance due to limited sight distances for vehicles turning into the park from U.S.

Highway 191, poor location of the park entrance sign and photo pull-off area, and inadequate space for queued vehicles at the fee collection station.

This environmental assessment examines four alternatives; Alternative A-No Action; Alternative B-the NPS preferred alternative; Alternative C; and Alternative D. The preferred alternative proposes construction of a new visitor center adjacent to the existing visitor center, which would be remodeled to hold administrative offices and storage. This alternative would allow for adequate space within the new visitor center to accommodate current and future-projected visitor numbers. It would allow for interpretive displays on important natural and cultural resource topics. It would also provide improved scenic views from the visitor center.

The preferred alternative also proposes the realignment of the park entry road. This realignment would dramatically increase safety for vehicles entering and exiting the park. It would provide for adequate queuing room for vehicles at the fee collection booth.

The preferred alternative would not impact special status species (threatened, endangered, proposed or candidate species; species of concern; and designated critical habitat); cultural landscapes and historic structures; prime and unique farmlands; air quality; wetlands; land use; environmental justice; the socioeconomic environment; housing; visual/scenic resources; or natural soundscapes. Effects from the preferred alternative on biotic communities, soils, floodplains, archaeological and ethnographic cultural resources, visitor use and experience, park operations, and transportation would be adverse, but short-term and negligible to minor in intensity.

Note to Reviewers and Respondents

If you wish to comment on the environmental assessment, you may mail comments to the name and address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home addresses from the record, which we will honor to the extent allowable by law. If you wish to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Please address written comments to:

Rock Smith  
is Superintendent, Arches National Park  
P.O. Box 907  
Moab, UT 84532

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Executive Summary  
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Arches National Park  
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i. PURPOSE AND NEED

I.I Purpose

The National Park Service (NPS) is considering constructing a new visitor center and realigning the existing park entry road at Arches National Park (Arches), Utah. The 1989 General Management Plan (GMP) for Arches (USDI National Park Service 1989) calls for the development of a new visitor center to meet the increasing demands of public visitation and park operations. The current visitor center facilities do not provide adequate space or an appropriate setting for NPS functions such as visitor contact, ranger operations, resource management, interpretive displays and programs, fee collection, and maintenance services. In addition, traffic safety is a critical issue at the park entrance due to limited sight distances for vehicles turning into the park from U.S. Highway 191 (U.S. 191), poor location of the park entrance sign and photo pull-off area, and inadequate space for queued vehicles at the fee collection station (USDI National Park Service 1998a).

An Environmental Assessment (EA) analyzes the proposed action and alternatives, and their impacts on

the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1508-9)-

## 1.2 Need

• Arches National Monument was established as a national monument in 1929 and became a national park in 1971. The historic Rock House was built in 1941-1942 to house the Superintendent. The current visitor center was built in 1958, and the entrance station, library, residences, and maintenance shop were constructed from 1959-1963 (USDI National Park Service 1998a). At that time the entrance facilities were designed to accommodate approximately 71,000 visitors per year. In 2000, park visitation reached 786,429 people (USDI National Park Service 2001g). The present rate of visitation has already surpassed the level projected by the GMP for the year 2005, and is expected to increase for the foreseeable future (USDI National Park Service 1995). The dramatic rise in visitation and the expanding requirements of park operations have necessitated changes to the park's administration and infrastructure. Existing conditions and facilities at the park entrance are marginal for the present rate of visitation and will be seriously inadequate to meet even conservative growth projections (USDI National Park Service 1998a). The 1996 Resource Management Plan (USDI National Park Service 1996) states that the most critical issue affecting Arches is the impact of increasing visitation. The visitor center has no capacity for absorbing the anticipated growth in visitation. The current visitor center has a square footage of 4,618 square feet (sq ft) and the existing public parking lot has about 40 car and 4 RV spaces available (Thompson personal communication 2002). The existing parking lot is 42,862 sq ft. The amount of square footage available for public space inside the current visitor center, approximately 2,238 sq ft, can comfortably accommodate 75 visitors at any given moment (USDI National Park Service 1998a). This number is significantly below the estimated daily visitor count of 3,000-3,500 people per day (USDI National Park Service 1998a). The visitor center parking lot and the building's internal circulation have only one-third of the necessary capacity during peak season (May through September), causing many

• visitors to skip the orientation sessions that are necessary for resource protection and visitor safety. On busy days, the traffic on the existing entrance road backs up past the entrance, and cars queue up along

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the shoulders of the highway and in the southbound turn lane in the middle of the highway. Excessively

long lines often discourage visitors, who decide to bypass the park or visitor center rather than endure the delay.

## 1.3 Background

Arches National Park is in southeastern Utah, adjacent to the Colorado River, in high desert country known as the Colorado Plateau (Figure 1-1). The park is located 5 miles north of the city of Moab, Utah,

100 miles west of Grand Junction, Colorado, and 240 miles southeast of Salt Lake City, Utah (USDI

National Park Service 1995). The Arches National Park Entry Road Realignment and Visitor Center EA

Project Area (Project Area) encompasses approximately 60 acres (Figure 1-2). The Project Area contains approximately 2 acres that are allocated for the new visitor center, 0.5 acre for the temporary visitor center facilities, and 5 acres for the entry road realignment.

### 1.3.1 Park Purposes and Significance

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by

the General Authorities Act, as amended, begins with a mandate to conserve park resources and values.

As stated earlier, Arches was designated a national monument in 1929. The Arches GMP states that the

purpose of the monument was to "protect extraordinary examples of wind erosion in the form of gigantic arches, natural bridges, 'windows', spires, balanced rocks, and other unique wind-worn sandstone formations, the preservation of which is desirable because of their educational and scenic

value." (USDI National Park Service ig89). In 1938, the monument boundary was enlarged and the purpose was amended to include protection of "prehistoric structures of historic and scientific interest." (USDI National Park Service ig89). Further acreage changes to the monument took place in 1960, 1969, 1971, and again in 1997, where it remains today at 76,519 acres. In 1971, the title was also changed from national monument to national park (USDI National Park Service 1989). It was then stated that "the National Park Service, under the direction of the Secretary, shall administer, protect, and develop the park subject to the provision of the Act entitled 'An Act to establish a National Park Service, and for other purposes,' approved August 26, 1916" (USDI National Park Service 1989). The park contains one of the largest concentrations of arches in the world, and its numerous extraordinary geological features are easily accessible, especially by vehicle. It also contains significant cultural resources as well as containing part of the most concentrated dinosaur megatrack site in the world. The park serves to impart interpretive themes to visitors, such as ongoing geological processes, Colorado Plateau ecosystems, cryptobiotic soils, and an awareness that protected areas are essential for understanding natural processes and predicting the results of human-induced changes in other areas (USDI National Park Service 1995).

#### 1.3.2 Project Background and Scope

The 1978 National Parks and Recreation Act (P.L. 95-625) requires each park's GMP to include "identification of an implementation commitment for visitor carrying capacities for all areas of the unit."

The 1989 GMP for Arches (USDI National Park Service 1989) called for the development of a new visitor center to meet the increasing demands of public visitation and park operations. In addition, the GMP also recognized that the effects of increased visitation on park resources needed to be addressed and called for the development of the Visitor Impact Management (VIM) program (USDI National Park Service 1995).

Part of the function of the proposed VIM was to "identify key indicators and standards for analyzing the Arches National Park

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Chapter 1 impacts of visitors, compare these standards with existing field conditions, and determine appropriate management strategies to deal with probable causes of the impacts (USDI National Park Service 1995).

Using the VIM concept and the 1989 GMP, the NPS developed a process to help park planners and management staff address visitor carrying capacity and visitor use. The Visitor Experience and Resource

Protection Implementation Plan (VERP Implementation Plan) was implemented for Arches and a report was published in 1995.

The Arches GMP and the VERP Implementation Plan identified the need to address the increase in park visitation. The GMP provided direction on construction of a new visitor center, larger parking area, and additional fee collection lanes. It outlined several requirements that would facilitate the construction of a larger and better-designed building that would meet visitor and staff needs. The GMP proposed building

a 9,000-sq ft visitor center with parking to accommodate 46 cars and 13 RVs or buses (USDI National Park Service 1989; USDI National Park Service 1998a). The GMP also proposed retaining the current park employee residences and maintenance facilities, and the existing entry road alignment.

In 1998, the NPS published the Park Entrance Design Development Report for Arches National Park. This preliminary report assessed the impacts of increased park visitation, evaluated the demands for additional resources at or near the park entrance, and prepared a preliminary design for an entrance complex. This report also detailed the desired resource conditions for the park entrance complex, including:

- development outside of the floodplain; development that does not detract from the aesthetic setting of the park; buildings and roadways that are consolidated and minimized while providing essential services; and
- the protection of historic resources (USDI National Park Service 1998a). Goals developed for the desired visitor center experience included: safe park access; providing a clear sequence of events for

the visitor;

availability of orientation and interpretation within the entrance complex; and convenient visitor services

(USDI National Park Service 1998a). The estimated size of the proposed building was 18,000 sq ft. The

proposed development would also include support structures, an enlarged parking area, utilities, landscaping, and site work. Further analysis of this report identified several conflicts with proposed

housing and maintenance facilities detailed in this report (Jarvis personal communication 2001). However,

using the same desired resource conditions and goals of the desired visitor experience, new designs were

later completed to develop the current alternatives.

In early October 2001, a Choosing By Advantages (CBA) workshop was held at the Southeast Utah Group

(SEUG) office in Moab, Utah, to plan and scope action alternatives from three new visitor center building

design schemes. During this workshop, proposed action alternatives were evaluated. The three action

alternatives are presented in Chapter 2, Proposed Action and Alternatives, and their impacts are analyzed

in Chapter 4, Environmental Consequences.

A Mini-Value Analysis Study for the Entrance Road Relocation was completed in 1999. The NPS, in partnership with the Utah Department of Transportation (UDOT), developed four study objectives to

facilitate development of a design for the park entry road realignment:

- 1) Remove current safety concerns generated during peak visitation.
- 2) Provide a solution that does not increase maintenance burden.
- 3) Provide a solution that does not impact park resources.

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4) Ensure that visitors clearly understand the entry process.

In this study, a park entry road realignment design alternative was identified that met all of these

objectives. The proposed alternative is described in Chapter 2 and the impacts are analyzed in Chapter 4.

1.3.3 Relationship of the Proposed Action to Previous and Current Planning Efforts

The Arches GMP (USDI National Park Service 1989) provides vision and policy guidance for the preservation of park resources, visitor use and experience, the types and general intensities of development, visitor carrying capacities, and partnership opportunities to address management issues

both internal and external to the park. It also identifies connections among the various park programs

and provides a framework for more site-specific planning. The Resource Management Plan (USDI National Park Service 1996) presents the current status and plans for managing the resources of Arches.

Further, the VERP Implementation Plan (USDI National Park Service 1995) details the parkwide zoning

scheme and the indicators and standards for each zone. This EA seeks to examine the environmental

benefits and consequences of constructing a new visitor center and realigning the park entry road in order

to preserve and protect park resources in keeping with the park mission, the 1989 GMP, the 1996 Resource Management Plan, and the 1995 VERP Implementation Plan.

1.4 Issues and Impact Topics

1.4.1 Issues and Derivation of Impact Topics

Issues and concerns affecting this project were identified by NPS specialists, as well as from the input of

other federal, state, and local agencies and the general public. A public scoping notice was released on

August 27, 2001, with the comment period extending until October 1, 2001. The impact topics were also

identified based on federal laws, regulations, and executive orders; Management Policies 2001 (USDI

National Park Service 2001a); the 1989 Arches GMP; and the 1996 Resource Management Plan.

The major resources evaluated for inclusion in this EA are natural resources including biotic communities, special status species, soils, prime and unique farmlands, air quality, floodplains, and

wetlands; cultural resources; visitor use and experience; and socioeconomic environment including population and economy, housing, community services and infrastructure, transportation, land use,

recreation, visual/scenic resources, natural soundscapes, and impairment.

A brief rationale for the selection of each impact topic is presented below, as well as the justification for

dismissing specific topics from further consideration.

1.4.2 Impact Topics Selected for Detailed Analysis

1.4.2.1 Biotic Communities

NEPA requires an examination of the potential environmental impacts on all components of affected

ecosystems. NPS policy is to protect the natural abundance and diversity of all of the park's



naturally

occurring communities. The 1996 Resource Management Plan states that the natural resource management objectives for Arches are to protect and preserve the outstanding erosional features of arches, fins, and erosional remnants; the desert plant and animal communities; air and water resources; natural quiet; and Quaternary and paleontological resources in such a way that human impacts on these resources are minimized and that management is consistent with legislative and executive requirements

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Park

Monticello

Bluff

ARIZONA

Figure 1-1. Arches National Park-Local Vicinity

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and NPS policies and guidelines. This impact topic addresses all impacted vegetation and wildlife

communities. Because the action alternatives involve manipulation of natural resources, biotic communities are addressed as an impact topic in this EA.

1.4.2.2 Soils

Soils in the Project Area would be disturbed as a result of the action alternatives. The 1916 NPS Organic

Act mandates that the Park Service conserve resources such as soil. NPS policy (USDI National Park

Service 2001a) is to maintain all the components and processes of naturally evolving park ecosystems.

Therefore, soils are addressed as an impact topic in this EA.

1.4.2.3 Floodplains

Executive Order 11988, Floodplain Management, and Director's Order No. 77-2, Floodplain Management

Guidelines (USDI National Park Service 1993) requires an examination of impacts to floodplains and the

potential risk involved in placing facilities within floodplains. Because the visitor center is in the probable

maximum flood (PMF) floodplain, this impact topic is addressed in this EA.

1.4.2.4 Cultural Resources

1.4.2.4.1 Archeological Resources and Ethnographic Resources

The National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.), the National Environmental Policy Act, and the NPS Cultural Resource Management Guideline (1996), Management Policies (2001), and Conservation Planning, Environmental Impact Analysis and Decision Making Handbook (2001) require the consideration of effects on cultural resources, including those

listed on or eligible for listing on the National Register of Historic Places.

The undertakings described in this document are subject to Section 106 of the National Historic Preservation Act under the terms of the 1995 programmatic agreement among the National Park

Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. This document will be submitted to the State Historic Preservation

Officer (SHPO)

for review and comment.

1.4.2.4.2 Archeological Resources

Archeological resources within the Project Area include a historic road segment (42GR2565.18), a berm or

possible road segment (42GR2813.5), a historical earthen road culvert, the existing NPS Visitor Center, the

existing NPS Office Checking Station or Fee Collection Booth, and a prehistoric lithic site (42GR1531).

Under Section 106 of the National Historic Preservation Act of 1966, only historic resources that are

eligible for or are listed on the National Register of Historic Places are analyzed for impacts. An impact,

or effect, to a property occurs if a proposed action would alter in any way the characteristics that qualify it

for inclusion on the register. Of the archeological resources within the Project Area, only 42GR2565.18 (a

berm or possible road segment) and an earthen road culvert (the existing Arches entrance road

bridge)  
appear eligible for listing on the National Register of Historic Places. These resources will be avoided by the proposed project.

If any additional archeological resources are discovered as a result of this project, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and Arches National Park

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documented and an appropriate mitigation strategy developed in consultation with the Utah Division of State History. is

1.4.2.43 Ethnographic Resources  
Ethnographic resources are defined by NPS as any "site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (Cultural Resource Management Guideline, DO-28: 19i)(USDI National Park Service 1998b). NPS, in concert with their general management planning process, has contacted 23 affiliated tribes and 5 affiliated agencies about this project and invited participation in the planning process. Five tribes have consulted with NPS: Navajo Nation, Hopi Tribe, Ute Mountain Ute, Northern Ute Indian Tribe, and Zuni Pueblo.

One ethnographic resource or Traditional Cultural Place (TCP) has been identified at Arches. Tribal consultation between NPS and spokespersons for Northern Ute Indian Tribe (Fort Duchesne, Utah) in 1992, 1999, and 2001 identified TCP 42GR2824, which is associated with the collection of purple sage (*Poliomintha incana*). To preserve the existing purple sage located at 42GR2824, the orientation of the new park entrance has been adjusted by relocating it to an area occupied by UDOT for a gravel stockpile.

A limited number of parking spaces will be provided at the new entrance to accommodate Native American elders wishing to continue parking at this location to access 42GR2824. The Arches National Park archeologist, resource managers, and Ute youth will transplant any stand of purple sage found in the Project Area-relocating the plants within Moab Canyon on NPS land. These measures will help maintain the integrity of 42GR2824 and are acceptable with Ute representatives. The site will remain National Register eligible.

Copies of the EA will be forwarded to each affiliated tribe for review and comment. If the tribes subsequently identify the presence of ethnographic resources, appropriate mitigation measures would be undertaken in consultation with the tribes. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 would be followed.

1.4.2.5 Visitor Use and Experience  
Providing for visitor enjoyment is one of the many purposes of the NPS, according to the 1916 Organic Act. As the proposed project involves constructing a new visitor center and realigning the park entry road, alternatives presented in this EA have the potential to affect visitor use and experience. Therefore, visitor use and experience is addressed as an impact topic in this EA.

1.4.2.6 Park Operations  
All alternatives addressed in this EA have the potential to affect park operations, specifically park employees, within Arches National Park. Therefore, park operations is addressed as an impact topic in this EA.

1.4.2.7 Transportation  
All alternatives addressed in this EA, including the No Action alternative, have the potential to affect traffic and transportation into and out of Arches National Park. Therefore, transportation is addressed as an impact topic in this EA.

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• 1.4.2.8 Impairment

In addition to determining the environmental consequences of the preferred action and other alternatives, National Park Service policy, Management Policies 2001(USDI National Park Service 2001),

requires analysis of potential effects to determine whether or not actions would impair park resources.

As stated earlier, the fundamental purpose of the national park system, established by the Organic Act and

reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources

and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the

National Park Service the management discretion to allow impact to park resources and values when

necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute

impairment of the affected resources and values. Although Congress has given the management discretion

to allow, certain impacts within parks, that discretion is limited by the statutory requirement that the

National Park Service must leave park resources and values unimpaired, unless a particular law directly

and specifically provides otherwise. The prohibited impairment is an impact that, in the professional

judgment of the responsible National Park Service manager, 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. An impact to any park resource of value may constitute impairment. An impact

would be more likely to constitute impairment to the extent it affects a resource or value whose conservation is:

Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the

park;

Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

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

Impairment may result from National Park Service activities in managing the park, visitor activities, or

activities undertaken by concessionaires, contractors, and other operating in the park. This EA will

analyze the potential effects of all alternatives presented to determine of the alternative would result in an

impairment of park resources. An impairment finding is included in the conclusion section for the

following impact topics: Biotic Communities; Soils; Floodplains; Cultural Resources; Visitor Use and

Experience; and Transportation.

1.4.3 Impact Topics Dismissed From Detailed Analysis

1.4.3.1 Special Status Species (Threatened, Endangered, Proposed, or Candidate Species; Species of Concern; and Designated Critical Habitats)

The 1973 Endangered Species Act, as amended, requires an examination of impacts to all federally listed

threatened or endangered species. NPS policy requires examination of the impacts to state listed threatened or endangered species and federal candidate species. In a letter dated October 9,

2001, the U.S.

Fish and Wildlife Service (USFWS) provided a list of special status species that may be within the Project

Area or depend on it for critical habitat.

is NPS natural resource staff conducted a literature search on park records and current field survey results

of the Project Area for listed species that may live in or depend on the project site for habitat. There are

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no special status species within the Project Area (Schelz personal communication 2001). The action

alternatives would have no effect on any listed special status species or designated critical or essential is

habitats. Therefore, impacts to special status species is dismissed as an impact topic in this EA.

1.4.3.2 Cultural Landscapes and Historic Structures

The National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.), the National Environmental Policy Act, and the NPS Cultural Resource Management Guideline (1996), Management

Policies (2001), and Conservation Planning, Environmental Impact Analysis and Decision Making Handbook (2001) require the consideration of effects on cultural resources, including those

listed on or

eligible for listing on the National Register of Historic Places.

#### 1.4.3.2.1 Historic Structures

There are no known historic structures in either the Project Area or its general vicinity. Northeast of the current visitor center in Moab Canyon is the custodian's residence, or Rock House (Arches Building 08).

The structure received National Register status in October 1988 (National Register Number 88001186), and is preserved and maintained in accordance with park's List of Classified Structures (LCS Number 10473). The custodian's residence is outside the proposed Project Area and will not be affected by the undertaking.

#### 1.4.3.2.2 Museum Collections

There are no museum collections (natural or cultural) associated with the Project Area or its general vicinity. Because there are no known museum collections within the Project Area or its general vicinity, museum collections were dismissed as an impact topic.

is

#### 1.4.3.2.3 Cultural Landscapes

According to the NPS Cultural Resource Management Guideline (DO-28), a cultural landscape is: "...a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions." (USDI National Park Service 1998b)

The park's developed area, including the existing visitor center and entrance road and the proposed new visitor center and entrance road, is located in a narrow canyon that has served as a north/south transportation corridor since prehistoric times. In historic and contemporary times this corridor has been highly impacted by modern transportation; it is the only corridor for north/south transportation in southeastern Utah. U.S. 191 currently occupies most of Moab Canyon.

There are no known cultural landscape resources in either the Project Area or the general vicinity of

Moab Canyon. Copies of the EA will be forwarded to each affiliated tribe for review and comment. If tribes subsequently identify the presence of cultural landscapes, appropriate mitigation measures would be undertaken in consultation with the tribes. Because there are no known cultural landscapes within the

Project Area or its general vicinity, cultural landscape resources were dismissed as an impact topic.

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#### • 1.4.3.3 Prime and Unique Farmlands

In August 1980, the CEQ directed that federal agencies must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS)

as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common fruits, vegetables, and nuts. According to NRCS, none of the soils in the Project Area are classified as prime or unique farmlands. Therefore, the topic of prime and unique farmlands is dismissed as an impact topic in this EA.

#### 1.4.3.4 Air Quality

The 1963 Clean Air Act, as amended (42 USC 7404 et seq.), requires federal land managers to protect park

air quality. The Management Policies 2001 (USDI National Park Service 2001a) address the need to analyze air quality during park planning. Arches National Park is designated as a Class I airshed under the

1963 Clean Air Act, as amended. Class I designated areas require that ambient air quality must essentially

remain unchanged and cannot experience increases in air pollution above baseline levels. The action

alternatives may result in some short-term decreases in air quality, but the alternatives do not impact long-term air quality and the Class I designation for Arches would not change.

There may be limited removal of some hazardous materials from the remodeling of the existing visitor center. All work at the site would be completed in compliance with appropriate federal, state, and local

laws as well as Occupational Safety and Health Administration (OSHA) health and safety standards. Any

risk for exposure to hazardous materials would be mitigated to the fullest extent possible. For

these

reasons, air quality is dismissed as an impact topic in this EA.

#### 1-4.3.5 Wetlands

Executive Order 11990, Protection of Wetlands. requires examination of impacts to wetlands and protection of wetlands. The Management Policies tool (USDI National Park Service 2001a) and the Reference Manual to Director's Order No. 12 (USDI National Park Service 2001b) provide

direction on

developments proposed in wetlands. There are no designated wetlands within the Project Area

(U.S. Fish

and Wildlife Service 2001). Section 404 of the Clean Water Act requires a permit for discharging of

dredged or fill material into waters of the United States. including wetlands. The road

realignment proposed in Alternatives B, C, and D would involve tilling part of the Bloody Mary Wash.

However, this

issue will be addressed under Floodplains and not Wetlands throughout this EA. Therefore,

impacts to

wetlands are dismissed as an impact topic in this EA.

#### 1.4.3.6 Land Use

Land uses within the Project Area would remain the same following implementation of any of the alternatives. Therefore, land use is dismissed as an impact topic in this EA.

#### 1.4.3.7 Environmental Justice

Executive Order 12898, General Actions to Address Environmental Justice in Minority Populations

and Low-Income Populations, requires all federal agencies to incorporate environmental justice into

their missions by identifying and addressing disproportionately high and adverse human health or

environmental effects of their programs and policies on minorities and low-income populations

and

• communities. The alternatives would not have any health or environmental effects on

minorities or low-income populations or communities as defined in the Environmental Protection Agency (EPA)

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Environmental Justice Guidance (EPA 1998). Therefore, environmental justice is dismissed as an

impact

topic in this EA.

#### 1.4.3.8 Socioeconomic Environment

Socioeconomic values consist of local and regional businesses and residents, and the local and

regional economy. The local and regional economies of this area are strongly influenced by tourism.

Should the proposed action be implemented, short-term economic benefits from construction-

related expenditures and employment would include economic gains for some local and regional businesses

and individuals. Possible inconvenience to park visitors from construction activities would be

temporary and occur only during the construction period.

While there would be short-term benefits to the local and regional economies, local and regional

businesses would not be appreciably affected in the long term. Therefore, socioeconomic values

are dismissed as an impact topic in this EA.

#### 1.4.3.9 Housing

Due to the proposed construction of the new visitor center and proposed entry road realignment,

a temporary influx of construction contractors and workers would occur in the area. There may be

short-term impacts to housing, as workers would need to relocate to Moab if traveling from a remote

location. However, these impacts would be minor or negligible and short-term to the local economy and

housing supply. Therefore, housing is dismissed as an impact topic from this EA.

#### 1.4.3.10 Visual/Scenic Resources

Replacement of the visitor center and realignment of the road would have some effect on the

park's visual quality during construction. The main scenic attractions at the park are the arches, which are

geographically and visually separated from the Project Area. Therefore, visual/scenic quality

would not be affected by the action alternatives. Any potential impacts would be temporary and acceptable

to visitors as necessary to improve the function of the visitor center and park entrance complex.

Therefore, this topic is dismissed from further analysis.

#### 1.4.3.11 Natural Soundscapes

The Management Policies 2001 (USDI National Park Service 2001a) state that the NPS will strive

to preserve the natural quiet and natural sounds associated with the physical and biological

resources of parks. Activities causing excessive or unnecessary unnatural sounds in and adjacent to parks

will be

monitored, and action will be taken to prevent or minimize unnatural sounds that adversely affect park resources or values and visitors' enjoyment of them. The activities proposed in this EA do not have a potential long-term impact on natural soundscapes. All noise from construction would be temporary and would not cause long-term noise pollution. Therefore, natural soundscapes is dismissed as an impact topic in this EA.

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## 2. PROPOSED ACTION AND ALTERNATIVES

This chapter describes the action alternatives that wholly or partially meet the Purpose and Need for

Action. The No Action alternative is also discussed. Each action alternative was developed in response to

identified issues, resulting in different building design schemes to achieve the Purpose and Need. This

chapter also describes the environmentally preferred alternative and alternatives considered but dismissed. It provides an alternative comparison matrix, an impact comparison matrix, and a description

of mitigation measures.

### 2.1 Alternative Comparison

#### 2.1.1 Alternative A-No Action Alternative

Under the No Action alternative, the NPS would not construct a new visitor center or realign the park

entry road. Structures would remain as they are today, with no proposed modification of existing conditions or proposed future management activities under this alternative. There would continue to be

overcrowding at the current visitor center facility. Visitors may continue to skip the visitor center and

orientation sessions. Traffic on the existing entrance road would continue to back up past the entrance,

with cars queuing up along the shoulders of the highway and in the southbound turn lane in the middle of

the highway. There would continue to be excessively long lines, which often discourage visitors, who

decide to bypass the park or visitor center rather than endure the delay. Further, due to the inadequate

building facilities, there would continue to be trampling of vegetation around the existing building.

- Visitors would be forced to congregate around the building entrance, adjacent to the existing outdoor restrooms.

#### 2.1.2 Alternative B-Preferred Alternative

This alternative is the NPS preferred alternative. This alternative would include construction of a new

visitor center, remodeling of the existing visitor center for NPS administrative functions, and realignment

of the park entry road (Figure 2-1). The completed visitor center complex would be an integration of the

new and old buildings. The current visitor center would be converted to office space and storage allowing

the new building to be dedicated to visitor functions. This building would be then be linked to the new

addition via a display that conceals the existing structure from view. The new visitor center would have a

north/south orientation and offer unobstructed views of the scenic cliffs leading to the interior of the

park. The new visitor center complex would be 19,473 sq ft (4,618 sq ft for the existing visitor center plus

14,855 sq ft for the new visitor center). The total capacity of the visitor center would be 200 people.

A major feature of this alternative is the remodeling and reuse of the existing visitor center, with

approximately 40 percent of the original building maintained (Tippets personal communication 2002).

This feature would follow the building reuse standards established by the U.S. Leadership in Energy and

Environmental Design (LEED), Green Building System (LEED 2001), and Executive Order 13123, Greening the Government Through Waste Prevention, Recycling and Federal Acquisition. Further, the

remodeling of the existing visitor center would be accomplished using natural air circulation and

ventilation and sustainable construction materials.

- Construction of the new visitor center complex under this alternative would also include construction of

a new parking lot that would be located adjacent to the new building. It would be 74,596 sq ft and would

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open until the new visitor center complex and parking lot were constructed and open to the public. All areas impacted by the temporary visitor center would be revegetated and restored after the new visitor center is operational. The park entry road would be realigned in Alternative C, and would be the same as proposed under Alternative B. Figure 1-2 shows the proposed realignment, which would extend the existing park entry road further south and east, along Bloody Mary Wash. The length of the new road would be approximately 0.5 mile. As stated in Alternative B, the proposed entrance would incorporate the following improvements, based on UDOT design standards: minimum of 1,100 ft sight distance; less than 6 percent slope on approach, lighting at the intersection; and, enough queuing area onsite so that cars are not backing up onto the highway (USDI National Park Service 1998a). This realignment would reduce or eliminate the problem of cars waiting on U.S. 191 to enter the park. It would also move the intersection of the park entry road and U.S. 191 to a location with a much longer sight distance, which would greatly improve safety. Further, the alignment of the proposed road would be placed as close as possible to U.S. 191 to allow the maximum area of bighorn sheep habitat to remain undisturbed.

The total acreage affected under this alternative is approximately 7.0 acres, with 1.0 acres allocated for the new visitor center complex and parking lot, 0.5 acres allocated for the temporary visitor center facilities, and 5.5 acres for the park entry road realignment. An Alternative Comparison Matrix can be found in

Section 2.3.

#### 2.1.4 Alternative D

Alternative D includes building a new visitor center on the site. The new building would be positioned to take maximum advantage of solar orientation and the surrounding views (Figure 2-3). The new building would be 18,600 sq ft. As in Alternative C, the existing visitor center would be demolished in order to construct the new facility. The architecture of the new building is organic in nature. The building's broad curve would contain the primary functions of visitor information and exhibit space. The exterior courtyard would be a primary feature greeting visitors, while the outer radius of the building would direct visitors towards a spectacular view.

The parking lot for this new facility would be located south of the new building, and would utilize part of the existing parking lot. The new parking area would accommodate 86 public parking stalls for cars and 8 RV stalls. Additional parking for staff and service personnel would be located along the western side of the administrative section of the new building and would provide 21 stalls.

As stated in the other action alternatives, construction of the new visitor center would take approximately

12 to 14 months to complete. At the initiation of construction, temporary visitor center facilities would be placed adjacent to the leach field just to the east of the proposed construction site. These facilities would include one 12 ft by 60 ft office trailer, one 8 unit restroom trailer, and one doublewide 1,440 sq ft modular structure for the visitor center and retail bookstore. In addition, a temporary gravel parking area

would be placed to accommodate 50 vehicles. Temporary utilities would be installed for water, sewer, phone, and computer. The site would encompass approximately 0.5 acre. The temporary visitor center

facilities would remain open until the new visitor center complex and parking lot were constructed and

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analysis of this report identified several conflicts with existing housing and maintenance facilities (Jarvis personal communication 2001). New designs were then completed to develop the current alternatives.

#### 2.3 Alternative Comparison Matrix

An alternative comparison matrix is presented in Table 2-1, which summarizes the proposed actions under each alternative.

Alternative B, the NPS preferred alternative, meets the project objectives of:

- i. Improving visitor center functions by providing updated facilities that are capable of accommodating current park visitation levels and projected future visitation;

2. Improving visitor use and experience and visitor safety (less crowded conditions at visitor center; improved access to ranger station and educational information on park resources; safer traffic conditions on park entry road and at fee collection station);

3. Following the NPS Management Policies 2001 on sustainable energy design (see Section 9.1.1.7 in

USDI National Park Service 2001a) and building reuse standards established by LEED, Green Building System (LEED 2001), and Executive Order 13123, Greening the Government Through Waste Prevention, Recycling and Federal Acquisition, though reusing 40 percent of the current visitor center;

4. Following the four study objectives developed in the Mini-Value Analysis Study for the Entrance

Road Relocation (USDI National Park Service 1999) as stated in Section 1.3.2; and

5. Fully meeting the fundamental purpose of the NPS as mandated by the Organic Act and reaffirmed by the General Authorities Act, as amended, to conserve park resources and values. Alternatives A, C, and D would not fully meet the project objectives, specifically Objective 3, in

comparison with Alternative B.

2.4 Impact Comparison Matrix

An impact comparison matrix is presented in Table 2-2, which summarizes the environmental consequences by alternative.

2.5 Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, which is guided by the CEQ. The CEQ provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's

Section 101:

Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

2. Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.

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• 3. Attain the widest range of beneficial uses of the environment without degradation, risk of health

or safety, or other undesirable and unintended consequences.

4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain,

whenever possible, an environment that supports diversity and variety of individual choice.

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

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

Alternative A, the No Action Alternative, would allow overcrowded conditions at the current visitor

center and along the existing park entry road to continue to cumulatively impact natural resources, visitor

experience, and visitor safety in the long-term. Overall this alternative would not meet national policies

t-6.

Alternative B, the NPS preferred alternative, is the environmentally preferred alternative.

Construction of a new visitor center would provide updated facilities in order to better educate visitors on the importance

of Arches and introduce important ecological and cultural topics to the public. It would meet national

policy i. Through reducing crowding at the visitor center and improving safety at the park entry, national

policy 2 would be met. This alternative would also ensure pleasing surroundings by reducing crowding at

the facility and would provide substantial natural resource benefits through distribution of information

on resource use and protection. Policy 2 would also be met by utilizing a temporary visitor center that

would provide necessary visitor services during construction.

Although this alternative uses a sum total of 0.3 acres more than the other proposed action alternatives, it

would actually affect less acreage of currently undeveloped land by reusing the existing visitor center. In

addition, the site of the proposed new building is currently degraded from pristine conditions found

elsewhere in the park. Reusing the existing visitor center and providing a significant recycling element

would meet policies 3 through 6. For these reasons, this alternative would meet national policies i-6 more

fully than all other alternatives presented in this L.A.



Alternative C would provide pleasant surrounding, and readily available public information. This alternative would also provide a temporary visitor center during construction of the new facilities. There would be no degradation to cultural resources in the Project Area, as they would not be modified by the proposed alternative. However, Alternative C would not fully meet national policy 6 in comparison with Alternative B because it does not utilize the existing visitor center and therefore would not provide a significant recycling element to the project. It would also impact a larger area of undeveloped land and would not fully meet national policies 3, 4, and 5 in comparison to Alternative B. Alternative D would provide an environment that supports diversity and variety of individual choice and would also provide easier access to park information and visitor resources. This alternative would also provide a temporary visitor center during construction of the new facilities. There would be no degradation to cultural resources in the Project Area, as they would not be modified by the proposed alternative. However, Alternative D would not fully meet national policy 6 in comparison with

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Table 2-1. Alternative Comparison Matrix

Proposed Activities  
Alternatives

A-No Action  
B-Preferred Alternative

C  
D  
Construction of new visitor center  
The existing visitor center building would be removed and a new building, public parking lot, replaced. There would be no visitor center (4,618 sq ft) 19,298 sq ft building new 18,610 sq ft building employee parking lot) construction of a new visitor center would be remodeled to house constructed in its place. This center building. NPS administrative offices. building would house all building would house all Forty percent of the existing visitor functions and NPS visitor functions and NPS building would be maintained. administrative offices. The administrative offices. The A new 14,855 sq ft visitor public parking area would public parking area would center would be constructed have 86 parking stalls for cars have 86 parking stalls for adjacent to and connecting and 8 RV stalls. Employee cars and 8 RV stalls. with the remodeled building to parking would have 21 stalls. Employee parking would house all public visitation have 21 parking stalls. functions. Public parking would have 108 stalls for cars and 15 RV stalls. Employee parking would have 15 stalls. Realignment of Park Entry There would be no There would be a realignment

There would be a realignment  
There would be a  
Road  
realignment of the existing  
of the park entry road by  
of the park entry road by  
realignment of the park entry  
park entry road.

lengthening the entry road  
lengthening the entry road  
road by lengthening the  
further south and east  
further south and east  
entry road further south and  
approximately 0.5 mile.  
approximately 0.5 mile.  
east approximately 0.5 mile.

Temporary Visitor Center  
Since the current facilities  
Placement of 1,440 sq ft  
Placement of 1,440 sq ft  
Placement of 1,440 sq ft  
Facilities<sup>2</sup>

would not be modified, there  
temporary visitor center  
temporary visitor center  
temporary visitor center  
would not be any temporary  
building, restroom trailer, and  
building, restroom trailer, and  
building, restroom trailer,  
visitor center facilities placed  
parking lot in leach field area.  
parking lot in leach field area.  
and parking lot in leach field  
in the park.  
area.

Total Acres Affected by

0.0  
7.3  
7.0  
7.0

Proposed Activities acres s

Net Difference from Existing

0.0  
6.4  
6.1  
6.1

Visitor Center and Parking Lot  
(acres )<sup>4</sup>

1 The park entry road realignment acreage is approximately 5 acres.

2 Temporary visitor center facility acreage is approximately 0.5 acre.

3 Acreage calculations assume 53,000 sq ft per acre.

4 Existing visitor center and parking lot acreage is approximately 0.9 acre

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Table 2-2. Impact Comparison Matrix

Alternative B-Preferred

Impact Topics

Alternative A-No Action

Alternative

Alternative C

Alternative D

Biotic Communities

No direct and indirect

Minor short-term and long-term

Moderate short-term and long-

Moderate short-term and long-term

(Vegetation and Wildlife)

effects. Negligible adverse

adverse direct and indirect

term adverse direct and

adverse direct and indirect effects

cumulative impacts due to

effects to vegetation and wildlife

indirect effects to vegetation

to vegetation and wildlife through

vegetation trampling.

through mortality, habitat

and wildlife through mortality,

mortality, habitat alteration, and

Conditions would remain as alteration, and migration to other habitat alteration, and migration to other habitats; they are today.

habitats; minor short-term migration to other habitats; moderate short-term adverse adverse cumulative effects; moderate short-term adverse cumulative effects; long-term long-term beneficial cumulative effects; long-term beneficial cumulative effects. effects.

beneficial cumulative effects.

Soils

Negligible adverse direct and Negligible to minor short-term Negligible to minor short-term Negligible to minor short-term indirect effects. Negligible adverse direct and indirect adverse direct and indirect adverse direct and indirect effects, long-term adverse

effects, and negligible short-term effects, and negligible short- and negligible short-term and long-cumulative effects. Soil

and long-term adverse term and long-term adverse term adverse cumulative effects compaction caused by visitor cumulative effects caused by cumulative effects caused by caused by soil disturbance and trampling of sensitive soils soil disturbance and soil disturbance and compaction.

would continue.

compaction.

com action.

Floodplains

No new direct or indirect Minor adverse direct and indirect Minor adverse direct and Minor adverse direct and indirect effects. Negligible long-term effects. Negligible adverse indirect effects. Negligible effects. Negligible adverse adverse cumulative effects. cumulative effects. The natural adverse cumulative effects. cumulative effects. The natural The current visitor center is and beneficial values of The natural and beneficial and beneficial values of floodplains located in the PMF

floodplains would not be values of floodplains would not would not be affected by the floodplain, making it affected by the proposed be affected by the proposed proposed alternatives.

susceptible to large, rare alternatives.

alternatives.

floods.

Cultural Resources

Negligible direct, indirect, or Negligible direct, indirect, and Negligible direct, indirect, and Negligible direct, indirect, and (Archeology and cumulative effects. cumulative effects.

cumulative effects.  
cumulative effects.  
Ethnographic  
Conditions would remain as  
Resources)  
they are today.  
Visitor Use and  
No new adverse direct or  
Minor short-term adverse direct  
Moderate short-term adverse  
Moderate short-term adverse  
Experience  
indirect effects; moderate  
and indirect effects; minor  
direct and indirect effects;  
direct and indirect effects; minor  
long-term adverse  
beneficial cumulative impact on  
minor beneficial cumulative  
beneficial cumulative impact on  
cumulative effects.  
visitor use; moderate beneficial  
impact on visitor use; moderate  
visitor use, moderate beneficial  
cumulative impact on visitor  
beneficial cumulative impact on  
cumulative impact on visitor  
experience.  
visitor experience.  
experience.

Park Operations  
Minor adverse short and  
Minor adverse short-term direct  
Minor adverse short-term direct  
Minor adverse short-term direct  
long-term direct and indirect  
and indirect effects; major  
and indirect effects; major  
and indirect effects; major  
effects; minor to moderate  
beneficial long-term cumulative  
beneficial long-term cumulative  
beneficial long-term cumulative  
adverse cumulative effects.  
effects on park operations.  
effects on park operations.  
effects on park operations.

Transportation  
No new direct or indirect  
Minor short-term adverse direct  
Minor short-term adverse direct  
Minor short-term adverse direct  
effects; moderate adverse  
and indirect effects; moderate  
and indirect effects; moderate  
and indirect effects; moderate  
cumulative effects.  
beneficial cumulative effects.  
beneficial cumulative effects.  
beneficial cumulative effects.

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Alternative B because it does not utilize the existing visitor center and therefore would not provide a significant recycling element to the project. It would also impact a larger area of undeveloped land and would not fully meet national policies 3, 4, and 5 in comparison to Alternative B. Consequently, Alternative B is the environmentally preferred alternative because it more fully meets national policies r-6 in comparison to all other project alternatives. It would enhance the quality of renewable resources and promote the maximum attainable recycling of depletable resources possible, in comparison to other alternatives. Implementation of this alternative will cause the smallest amount of degradation of natural resources in currently undeveloped areas and no degradation of cultural resources while still meeting the project objectives. Public safety would be greatly improved by realigning the park entry road and providing for a greater number of visitors to safely enter and exit the park. It

would also

ensure pleasing surroundings by reducing crowding at the facility and would provide substantial natural resource benefits through the distribution of information on resource use and protection.

Further, the use of temporary visitor center facilities during construction would reduce the impact to visitor use and experience, and may reduce construction time of the new visitor center complex by allowing construction work to be completed on both buildings simultaneously.

## 2.6 Mitigation Measures

### 2.6.1 Mitigation Measures Common to All Action Alternatives

This section identifies proposed mitigation measures common to all action alternatives.

Best Management Practices (BMPs) would be used for all phases of construction activity, including pre-construction, actual construction, and post-construction.

A pre-construction meeting would be held to inform construction contractors about significant impact topics and natural resource concerns of the park.

Temporary visitor center facilities including 3 structures and a 50-stall gravel parking lot would be built, separate from the construction site, to provide basic park and safety information and a small retail sales outlet for park visitors.

The temporary visitor center facilities would encompass 0.5 acres and would include trailers set on concrete blocks to help mitigate ground disturbance. Upon removal of these facilities, the area would be restored and revegetated with native plants.

The park entry road realignment would be placed as close to U.S.191 as possible in order to preserve bighorn sheep habitat between the entry road and talus slopes along the floodplain.

A revegetation plan would be developed in conjunction with the construction documents of the park.

Ground disturbance and site management would be carefully controlled to prevent undue damage to vegetation, soils, and cultural resources, and to minimize air, water, soil, and noise pollution.

Protective fencing and barricades around the construction site would be provided for safety, and to preserve natural and cultural resources adjacent to construction area.

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- Effective storm water management measures specific to the site would be implemented and appropriate erosion and sediment control measures would be in place at all times.

Solid, volatile, and hazardous wastes would be stockpiled, transported, and disposed of, as appropriate, in compliance with federal, state, and local laws and regulations. All materials would be recycled whenever possible.

Any "hot work" (e.g., welding, use of open flame, grinding) would be reviewed and approved to ensure fire safety at the construction site.

Construction equipment would be in satisfactory condition, i.e., it would be equipped with required safety components, and would not be leaking hazardous liquids or emitting hazardous or undesirable fumes above allowable local air quality legal limits.

Care would be taken to ensure that construction equipment and all construction materials imported into the park are free of undesirable plant species. The construction contractor would be required to wash construction vehicles prior to their entry into the park to remove weed seeds.

Fugitive dust emissions during construction would be minimized by application of water to the construction area and unpaved access routes.

A Traffic Control Plan would be developed in conjunction with the construction documents of the park.

- Information would be distributed via signs and/or written materials to encourage visitors to stay on established walkways. Traffic signs and pavement markings on park roads will be consistent with the standards contained in the Manual on Uniform Traffic Control Devices, as supplemented by the National Park Service Sign Manual (USDI National Park Service 1988).

Disturbance to vegetation would be minimized because construction would primarily be completed in previously disturbed areas or within narrow construction limits around the new building or parking areas. Whenever practicable, soils and plants affected by construction will be salvaged for use in site restoration. Any revegetation plantings would use native species and would strive to reconstruct the natural spacing, abundance, and diversity of native plant species. During the construction in the Project Area, the park archeologist would monitor all subsurface excavation. Should subsurface construction expose cultural materials, excavation in that area

would  
cease pending notification of the park superintendent and the office of the State Historic Preservation Officer, and pending subsequent site evaluation as specified in accordance with the Archaeological Resources Protection Act of 1979 (16 USC 470 cc), Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001-13), and National Historic Preservation Act of 1966 (16 USC 470-470t).

The new visitor center would be designed and constructed to withstand a PMF flood event and an evacuation plan would be developed by the park to direct park employees to gather visitors into • designated shelter areas in the new visitor center in the event of a flood. The evacuation plan would also require flash flood warning signs and directions for fee station attendants to seek shelter within

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the visitor center. The entrance road would be closed during floods, and park visitors on the realigned

road would be immediately advised to return to U.S. 191.

An Evacuation Plan would also be placed in the administrative building instructing park employees to

evacuate to the main visitor center building in the event of the most extreme flood.

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### 3.1.1 Topography and Geology

Situated within the Colorado Plateau physiographic province, the Arches landscape typifies the most

common elements of this region. The topography of the area is diverse, ranging from open flats to steep-

walled cliffs (USDI National Park Service 1996). The area has been greatly affected by geologic activity

associated with salt intrusions of the Paradox Formation. The landscape has been carved by wind and

water and preserved by the arid climate and lack of earthquake activity (USDI National Park Service

1996). The park has pronounced angular topography and contains many horizontal layers of sedimentary

rocks with steep escarpments and cliffs (Hoffman 1985). It is dominated by sandstone canyon walls,

slickrock terraces, towering monoliths, and intricately eroded arches (USDI National Park Service 1995).

The more than 2,000 stone arches found in the park are the primary visitor attraction (USDI National

Park Service 1998a). The major rock formations visible in the park today are the salmon-colored Entrada

sandstone, in which most of the arches formed, and the buff-colored Navajo sandstone (USDI National

Park Service 2001c). Modern wind-blown deposits also cover much of the landscape.

The geology of the Project Area near the existing visitor center is dominated by alluvial materials,

consisting of water-lain deposits of clay, silt, sand, and gravel. These sediments have accumulated along

Bloody Mary Wash. North of the visitor center, Navajo sandstone cliffs rise sharply above the valley

floor. The massive, light-hued, wind-blown (eolian) sandstone contains isolated thin, hard, gray carbonate beds. On the southern and eastern sides of the Project Area, the topography gently

slopes downward through Bloody Mary Wash towards the Colorado River.

## 3.2 Impact Topics

### 3.2.1 Biotic Communities

#### 3.2.1.1 Vegetation

The vegetation within the Project Area is primarily sand dune habitat, with a mixture of desert grassland/scrub, blackbrush (*Coleogyne ramosissima*), and Great Basin sagebrush communities

(Schelz personal communication 2001; MacMahon 1988) (Figure 3-2). Other associate species include sand

sage (*Artemisia filifolia*), galleta (*Hilaria jamesii*), threeawn (*Aristida longiseta*), mat saltbush

(*Atriplex corrugata*), Indian ricegrass (*Oryzopsis hymenoides*), rubber rabbitbrush (*Chrysothamnus*

*nauseosus*), winterfat (*Ceratoides lanata*), and black greasewood (*Sarcobatus vermiculatus*) (Schelz personal

communication 2001; Hoffman 1985; MacMahon 1988).

There are no federal or state designated threatened or endangered plant species present within the

Project Area. However, the purple sage (*Poliomintha incana*) can be found in small patches within the

Project Area. This species is a special interest species because it has Ute Tribal cultural significance as

discussed in Section 3.3, Cultural Resources.

#### 3.2.1.2 Wildlife

The terrestrial wildlife species found in and near the Project Area consists of mostly desert-adapted small mammals, birds, and reptiles. There are no special status species within the Project Area (Schelz personal communication 2001). Selected mammal species in the Project Area are listed in Table 3-1. There is a small band of five desert bighorn sheep (*Ovis canadensis nelsoni*) that move in and out of the park and the Project Area (Schelz personal communication 2001). The entire Project Area is considered potential bighorn sheep habitat. Most observations of sheep have occurred between the sandstone cliffs and U.S. 191 on the southeastern end of the Project Area, where browse and escape terrain are available.

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Table 3-1. Selected Wildlife Species Potentially Occurring in the Project Area

Wildlife Category

Common Name (Scientific Name)

Mammals<sup>1</sup>

Ord's kangaroo rat (*Dipodomys ordi*)

Desert woodrat (*Neotoma lepida*)

Apache pocket mouse (*Perognathus apache*)

Plains pocket mouse (*Perognathus flavescens*)

White-tailed antelope squirrel (*Ammospermophilus leucurus*)

Black-tailed jackrabbit (*Lepus californicus*)

Desert cottontail (*Sylvilagus audubonii*)

Coyote (*Canis latrans*)

Desert bighorn sheep (*Ovis canadensis nelsoni*)

Bobcat (*Lynx rufus*)

Birds<sup>2</sup>

Golden eagle (*Aquila chrysaetos*)

Red-tailed hawk (*Buteo jamaicensis*)

Northern harrier (*Circus cyaneus*)

Cooper's hawk (*Accipiter cooperi*)

Mourning dove (*Zenaidura macroura*)

Rock dove (*Columba livia*)

Rock wren (*Salpinctes obsoletus*)

Sage thrasher (*Oreoscoptes montanus*)

Sage sparrow (*Amphispiza belli*)

Reptiles<sup>3</sup>

Collared lizard (*Crotaphytus collaris*)

Sagebrush lizard (*Sceloporus graciosus*)

Side-blotched lizard (*Uta stansburiana*)

Tree lizard (*Urosaurus ornatus*)

Plateau striped whiptail (*Cnemidophorus velox*)

Western whiptail (*Cnemidophorus tigris*)

Mesa Verde night snake (*Hypsiglena torquata loreala*)

Painted Desert glossy snake (*Arizona elegans philipi*)

Striped whipsnake (*Masticophis taeniatus*)

Midget faded rattlesnake (*Crotalus viridis concolor*)

<sup>1</sup> Dalton et al. 1990; Hoffman 1985; MacMahon 1988; USDI National Park Service 2001d

<sup>2</sup> Dalton et al. 1990; MacMahon 1988; USDI National Park Service 2001 e

<sup>3</sup> Dalton et al. 1990; Hoffman 1985; MacMahon 1988; USDI National Park Service 2001f

The Project Area contains small, isolated outcroppings of cryptobiotic soils in currently undisturbed areas

near Bloody Mary Wash along the proposed road realignment (Schelz personal communication 2001).

These well-developed, dark brown soil crusts may represent 70 to 80 percent of the living ground cover in

the cold deserts of the Colorado Plateau region (USDI National Park Service 1995). The soil crust consists

of a variety of organisms, including cyanobacteria, lichens, algae, mosses, and fungi.

Filamentous

cyanobacteria, such as *Microcoleus vaginatus*, dominate the cryptobiotic soils. The sticky sheaths from

these cyanobacteria form an intricate webbing of fibers throughout the soil. This webbing stabilizes the

soil and protects the soil surface from wind and water erosion (USDI National Park Service 1995).

### 3.2.3 Floodplains

The only stream in the Project Area is Bloody Mary Wash, a small, sandy, ephemeral tributary of the

Colorado River. This channel is nearly always dry, and typically contains water for only a few hours

during the year. It lies between two roads, U.S. 191 on the south and the existing park entrance road on the

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north. Segments of Bloody Mary Wash have been straightened and stabilized in the western extent

of the Project Area, reducing the size of the flood-prone area. The active floodplain near the proposed road relocation occupies a wider expanse, spanning the area from the highway berm to the sandstone cliff on the northern side of the canyon (Reed 1990). This segment of the Bloody Mary Wash has not been stabilized and likely shifts course frequently during high-flow events. The small watershed of the Bloody Mary Wash consists of bare rock, thin soils, and sparse desert vegetation. These characteristics result in rapid runoff after heavy rains, resulting in periodic flash flooding. High intensity rainstorms commonly occur in the arid climate of this region, sometimes causing Bloody Mary wash to fill to its banks during summer months. However, the potential for regional flooding exists all year.

#### 3.2.4 Cultural Resources

An overview of archeological research pertaining to Arches National Park, Canyonlands National Park, and areas surrounding Moab Valley are detailed in Cultural Resource Summary of the East Central Portion of Moab District 1980 (Pierson 1980). Parts of Moab Canyon and NPS lands surrounding the existing Arches National Park Visitor Center, which includes the proposed Project Area, were first archeologically surveyed in 1957. In 1982, NPS Midwest Archeological Center surveyed the areas adjoining the park's current visitor center, and in 1988 an archeological survey was conducted along road corridors throughout the park, including the current entrance road (Kramer 1991). In April 1999, NPS resource managers revisited known sites and resurveyed the land within the proposed development area, inspecting for prehistoric, historical, ethnographic, and other cultural materials. These surveys by the

- NPS for cultural materials in the proposed Project Area have provided a 100 percent survey for cultural resources.

##### 3.2.4.1 Archeology

Seven cultural sites are nearby or associated with the Project Area. Three are associated with the proposed new entrance and entrance road described in all Alternatives: a historic road segment (42GR2565.18), a berm or possible road segment (42GR2813.5), and a historical earthen road culvert. At the proposed location of the new Arches Visitor Center, four cultural sites include the existing NPS Visitor Center, the existing NPS Office Checking Station or Fee Collection Booth, the historical Rock House or custodian's residence, and a prehistoric lithic site (42GR1531).

##### 3.2.4.1.1 Site 42GR2565.18

A segment of old U.S. Highway 160 (42GR2565.18) is located at the UDOT gravel stockpile, at the location of the proposed new park entrance. The gravel stockpile is situated upon this road segment, which is also used as an impromptu parking area and side road to U.S. 191. The stockpile, which covers an area of about 2,200 square meters, has heavily impacted the historical road segment. It is used as a turn-around, camping, and local stopping point. Montgomery Archaeological Consultants (Patterson and Montgomery 2001) conducted an archeological survey along U.S. 191 for UDOT and Bureau of Land Management (Permit U-oi-MQ-451b,p,s) and has determined that 42GR2566.18 is not eligible for the National Register.

The NPS believes this site does not meet National Register Criteria for Evaluation. Site 42GR2565.18 retains no historical integrity due to impacts from the UDOT gravel stockpile, U.S. 191, turn-around traffic, heavy equipment, erosion, and shoulder work along U.S. 191. By confining the new gravel stockpile, development would further avoid ethnographic site 42GR2824 to the south.

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##### 3.2.4.1.2 Site 42GR2813.5

A segment of what may be a historical dirt-grade road (circa 1880 to 1938), or a NPS-era berm, is located north of the proposed new entrance, north of the UDOT gravel stockpile. An archeological survey along U.S. 191 for UDOT and Bureau of Land Management (Permit U-ol-MQ-451b,p,s) by Montgomery Archaeological Consultants (Patterson and Montgomery 2001) suggests this may be a remnant of the "Moab to Thompson Road." This segment is in poor condition, visible on the ground as a broken alignment of cobbles that do not retain historical integrity. This is due to impacts by utilities along the shoulder of U.S. 191, erosion (arroyo cutting) from Moab Canyon Wash, impacts from old U.S. Highway 160, and impacts from U.S. 191. Although NPS believes the segment (42GR2813.5) does not meet



National

Register Criteria for Evaluation due to the site's poor condition and inconclusive date of construction,

Montgomery Archaeological Consultants (Patterson and Montgomery 2001) has determined 42GR2813.5 is eligible for the National Register. Therefore, the alignment of the proposed new entrance road will

avoid this site. It would be fenced to prevent inadvertent impact during construction.

#### 3.2.4.13 Earthen Road Culvert or Entrance Road Bridge

An earthen road culvert constructed in 1941 by the Civilian Conservation Corps (CCC) is included on the park's List of Classified Structures and may be eligible for the National Register of Historical Places.

However, significant rehabilitation to the structure's corrugated steel passageway in 1957 and later modifications in 1988 suggests that despite the culvert's unaltered cut-stone masonry, it may be out-of-period.

NPS proposes to preserve the culvert in place as proposed in the park's 1989 General Management Plan,

Development Concept Plan, and Environmental Assessment. With the completion of the park's new entrance and entrance road, the current entrance road and 1941 culvert will be closed.

Improvements to

the culvert that were made in 1957 and 1988, which included adding overburden so that the park entrance

road could connect with U.S. 191, will be removed. By removing the overburden and returning the structure to the grade it had in 1941, the culvert will be less of a hindrance to the hydrology of Moab

Canyon, and will regain its original appearance-suitable for National Register nomination.

#### 3.2.4.1.4 Arches National Park Visitor Center

The current Arches National Park Visitor Center (Arches Building 1) was constructed in 1959 and completed on March 23, 1960. The center was designed by Cecil Doty, Western Office of Design and Construction (Allaback 2000), and its original concept was considered a good example of Mission

66 design. In 1989 a new roofing system was designed, and in 1998 the Visitor Center's flat roof was replaced

with a contemporary metal-pitched roof. Correspondence dated January 7, 1999 from the NPS

Mission 66 Panel concludes that the "Arches Visitor Center no longer has integrity because of the roof structure..."

It has been determined that the existing visitor center does not meet National Register Criteria for Evaluation and would be remodeled or removed to facilitate Alternative B, C, or D.

#### 3.2.4.1.5 Arches National Park Fee Collection Booth

Adjacent to the existing visitor center is the Arches fee collection booth (Arches Building 1A), which was designed and constructed in 1959 by A. Bennett, Western Office of Design and Construction. The structure has been extensively modified by NPS throughout its lifetime and no longer retains its original

design integrity. It has been determined that the park fee collection booth does not meet

National

Register Criteria for Evaluation and would be removed.

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#### 3.2.4.1.6 Custodian's Residence

Is Northeast of the current visitor center in Moab Canyon is the custodian's residence, or Rock House

(Arches Building 08). The single-story, stone and wood-shingle roof structure was constructed in 1941 by the CCC, serving as the park's custodian residence until Mission 66 housing became available in the late

1950s and early 1960s. It is presently an administrative office and is in its original location and nearly

original condition. The structure received National Register status in October 1988 (National

Register Number 8800ii86), and is preserved and maintained in accordance with park's List of Classified Structures (LCS Number 10473). The custodian's residence is outside the proposed Project Area and

would not be affected by any of the alternatives.

#### 3.2.4.1.7 Site 42GRI531

West of the present visitor center parking facility, NPS Midwest Archeological Center recorded a small

surface lithic scatter (42GRI531) near the head of Moab Canyon, at the foot of the canyon's sandstone

escarpment. When first documented in 1982 the site was judged non-significant due to its poor condition.

The site had/has been impacted by the existing park entrance road, including modern construction debris

and piles of asphalt from the entrance road. No mention of the site is made in the 1988 archeological

survey of road corridors throughout the park. When revisited in 1999, no evidence of 42GRI531

could be discerned. It is the opinion of NPS that 42GR1531 no longer exists and therefore does not meet National Register Criteria for Evaluation.

#### 3.2.4.2 Ethnography

The National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.), the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), the National Park Service's

#### Director's Order

No. 28 (USDI National Park Service 1998b), Management Policies, 2001 (USDI National Park Service 2001a) and Director's Order No. 12 (USDI National Park Service 2001b) require the consideration of

impacts on ethnographic resources listed in or eligible to be listed in the National Register of Historic Places.

##### 3.2.4.2.1 Ethnographic Resources

Ethnographic resources are defined by NPS as any "site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (Director's Order No. 28, Cultural Resource Management Guideline, 191) (USDI National Park Service 1998b).

One ethnographic or TCP has been identified. Tribal consultation between NPS and spokespersons for

the Ute Indian Tribe (Fort Duchesne, Utah) in 1992, 1999, and 2001, identified TCP 42GR2824, which is

associated with the collection of purple sage (*Poliomintha incana*).

Ute spokespersons agree on several aspects concerning the TCP: (1) the site as recorded is adjacent to the

proposed new park entrance described in all alternatives- adjoining a gravel stockpile operated by UDOT; (2) the stockpile is being used by Ute elders for parking to access purple sage in the vicinity; and

(3) purple sage in Moab Canyon in general, and at 42GR2824, appears to be diminishing, possibly due to

contemporary impacts from U.S. 191 and access to the gravel stockpile. These impacts, including the installation of shoulder utilities, accumulation of debris, side road use by vehicles and heavy machinery,

and camping by recreational vehicles, are gradually compromising the site. Based upon site visits and

consultation with Ute spokespersons, 42GR2824 is eligible for the National Register. Similarly, the

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archaeological survey by Montgomery Archaeological Consultants (Patterson and Montgomery 2001) along U.S. 191 for UDOT and Bureau of Land Management (Permit U-01-MQ-451b,p,s) has determined is

42GR2824 is eligible for the National Register.

#### 3.2.5 Visitor Use and Experience

##### 3.2.5.1 Visitor Use

National Park Service 1998a). Visitation has increased by an average of 6 percent annually over the last 2 decades (USDI

777,000 in

1994 (USDI National Park Service 1995). In 2000, visitation rose to 786,429 visits (National

2001g). Peak visitation occurs during the months of May through September (USDI National Park

Service 1995). In a survey conducted in December 1992, 9.8 percent of visitors were local to the Moab

area, while 90.2 percent were non-locals residing in the United States or were international visitors

(Baylous 1993). Almost all visitors arrive by private vehicle and stay less than half a day, although some will

stay longer for extended camping or hiking activities (USDI National Park Service 1995).

##### 3.2.5.2 Visitor Experience

Most people come to Arches National Park to hike, see the arches, and to take pictures and scenic drives.

Approximately half of the park visitors hike for an hour or more to see specific park features; the

remaining visitors hike for less than an hour or stay near their vehicles (USDI National Park

Service 1995). Other activities may include picnicking, backpacking, four-wheel driving, camping, climbing, and

horseback riding (USDI National Park Service 1995). The 52-unit campground located at Devil's

Garden fills up daily from March through October, often by midmorning (USDI National Park Service

2001h). The current visitor center has a square footage of 4,618 sq ft (Thompson personal communication

2002), with only 2,233 sq ft available for public use (USDI National Park Service 1998a). This small

space can

often be frustrating to the park visitor, with poor internal circulation causing crowding inside the building. While the staffing at the visitor center is adequate, there is not enough space to provide for the number of daily visitors (Allen personal communication 2001). During peak visitation months, lines at the information desk are often long. Some visitors do not choose to wait in line and simply bypass the desk altogether. Others gravitate towards the water fountain and weather information only. The bookstore sales area is small and is also subject to long lines at the cashier desk. Additionally, traffic moves slowly on the park entry road (Allen personal communication 2001), and some visitors find that the small parking area in front of the visitor center is already full. Visitors may not take the time to enter the visitor center building, thus skipping the interpretive experience that the visitor center is meant to provide (Figure 3-3).

### 3.2.6 Park Operations

Arches National Park staff that would be affected by the action alternatives include 12 full-time employees, 13 term or seasonal employees, up to 8 volunteer employees, and 2 cooperating association employees. Currently these employees and associated support functions are located in four different buildings, including the existing visitor center, covering 0.25 acre (Smith, personal communication 2002).

### 3.2.7 Transportation

The park entrance is located on U.S. 191, approximately 4 miles northwest of Moab, Utah. U.S. 191 has one through-lane in each direction and left and right turn lanes for entering the park. The posted speed limit on U.S. 191 is 65 miles per hour and decreases to 50 miles per hour at the park entrance (USDI National

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Park Service 1998a). Figure 3-4 shows the location of U.S. 191, the park entrance road, parking area, and service road complex. The intersection of U.S. 191 and the park entry road has proven to be problematic.

This is a dangerous crossing because of the high volume of traffic traveling on U.S. 191 (annual average vehicle per day is 5,612 [UDOT 2000] ). Limited sight distance and high travel speed of the vehicles on the

highway contributes to this safety hazard. NPS and UDOT feel that safety improvements at this intersection are a high priority (USDI National Park Service 1998a). In addition to the entry road

realignment proposed by the NPS in this EA, UDOT is considering widening U.S.191 along Moab Canyon

and near the Arches entrance road (Jarvis personal communication 2001). Widening the highway could help to alleviate traffic hazards and safety issues.

After turning into the entrance, visitors cross over a stone culvert and Bloody Mary Wash, and then turn

west toward the fee collection station and the visitor center. There is one entrance fee collection station.

During peak periods, traffic backs up along the entrance road, sometimes past the entrance and onto the

shoulder and southbound turn lane of U.S. 191 (USDI National Park Service 1998a).

There is a service road off of the entrance drive that is for NPS use only. This road provides access to

employee parking, the maintenance facility, the fire/rescue cache, and residences. This service road has

approximately 26 marked parking spaces for NPS employees. The number of spaces here do not meet the

demand for employee parking and overflow occurs along the service road (USDI National Park Service 1998a).

The visitor center parking lot has 40 car and 4 RV spaces (Thompson personal communication 2002).

- Oftentimes, these spaces are filled either by cars or oversized vehicles such as buses and RVs. This causes visitors to bypass the visitor center and to drive directly into the park without stopping for orientation or interpretive information (USDI National Park Service 1998a).

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## 4. ENVIRONMENTAL CONSEQUENCES

### 4.1 Introduction

This chapter discusses the environmental consequences of implementing the alternatives described

in

Chapter 2. The analysis discloses the impacts to resources identified as impact topics in Chapter 1 and provides the scientific and analytical basis for the comparison of the alternatives. Impacts to the environment are discussed in terms of their direct, indirect, and cumulative effects.

Definitions for these effects are as follows (40 CFR 1508.7 and 1508.8):

#### 4.1.1 Direct Effects

Effects caused by the action and occurring at the same time and place.

#### 4.1.2 Indirect Effects

Effects caused by the action but occurring later in time or further removed in distance.

#### 4.1.3 Cumulative Effects

The CEQ regulations, which implement NEPA, requires assessment of cumulative effects in the decision-making process. Cumulative effects are defined as " the impact on the environment which results from the incremental impact of the action when added to other past, present, or future foreseeable actions

• regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

Cumulative impacts are determined by combining the impacts of each alternative with other past, present, and reasonable foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonable foreseeable future actions within Arches National Park and, if applicable, the surrounding region.

The following identifies plans and proposals associated with implementing present and reasonably foreseeable actions:

Beginning in February 2003, UDOT is planning to widen a five-mile stretch of U.S. 191 to four lanes, from Potash Road to County Road 313. Long-term plans involve widening the entire 34-mile section of U.S. 191 from Moab to Interstate 70.

NPS is currently initiating a transportation study on the reduction of traffic congestion within the park.

The Department of Energy (DOE)-owned uranium tailings pile, currently located across U.S. 191 from the park, may be relocated away from the park and surrounding region. The decision on final deposition of the pile may be made within the next year.

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The NPS has a long-term plan of permanently removing the Mission 66 Library, constructed in 1963, and restoring and revegetating the landscape. Currently, plans have not been developed for this action.

#### 4.1.4 Duration and Intensity of Effects

Impacts from the proposed actions are also described in terms of duration (short-term or long-term) and intensity (negligible, minor, moderate, or major). In general, the thresholds of change for the duration and intensity of an impact are defined below. Specific criteria used for evaluation of impacts are described in

more detail for each significant impact topic.

Short-term: The impact lasts one year or less.

Long-term: The impact lasts more than one year.

Negligible: The impact is at the lowest levels of detection.

Minor: The impact is slight, but undetectable.

Moderate: The impact is readily apparent.

Major: The impact is a severe or adverse impact or of exceptional benefit.

#### 4.1.5 Impairment

In addition to determining the environmental consequences of the preferred action and other alternatives, NPS policy, Management Policies, 2001, (USDI National Park Service 2001a) requires analysis

of potential effects to determine whether or not actions would impair park resources.

As stated earlier, the fundamental purpose of the national park system, established by the Organic Act and

reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources

and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS the management discretion to allow impact to park resources and values when necessary and appropriate to

fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the management discretion to allow certain impacts

within parks, that discretion is limited by the statutory requirement that the NPS must leave park

resources and values unimpaired, unless a particular law directly and specifically provides

otherwise. The prohibited impairment is an impact that, in the professional judgement of the responsible National Park

Service manager, 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. An impact to any park resource of value may constitute an impairment. An impact would be more likely to constitute an impairment to the extent it affects a resource or value whose conservation is: Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;

Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

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

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken

by concessioners, contractors, and other operating in the park. This EA will analyze the potential effects

of all alternatives presented to determine of the alternative would result in an impairment of park

resources. An impairment finding is included in the conclusion section for each alternative for the

following impact topics: Biotic Communities; Soils; Floodplains; Cultural Resources; Visitor Use and

Experience; and Transportation.

4.1.6 Regulations and Policy

As with all units of the National Park System, management of Arches National Park is guided by the 1916

Organic Act; the General Authorities Act of 1970 and the act of March 27, 1978, relating to the management of the National Park System; NPS Management Policies 2001; and other applicable laws and

regulations. In addition to the discussion of Section 106 of the National Historic Preservation Act

presented below, a complete list of federal and state laws and regulations that were addressed in this EA is

provided in Section 6.

4.1.6.1 Impacts to Cultural Resources and Section 106 of the National Historic Preservation Act

In this EA, impacts to the cultural resources that are potentially eligible to be listed in the National

Register of Historic Places are described in terms of type, context, duration, and intensity, as described

above, which is consistent with the regulations of the CEQ that implement NEPA. These impact analyses

are intended, however, to comply with the requirements of both NEPA and Section 106 of the National

Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's

regulations implementing Section 106 of the NHPA (36 CFR Part 800, Protection of Historic Properties),

impacts to archeological and ethnographic resources were identified and evaluated by: (1) determining the

area of potential effects; (2) identifying cultural resources present in the area of potential effects that were

either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of

adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register;

and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations a determination of either adverse effect or no adverse effect must

also be made for affected National Register eligible cultural resources. An adverse effect occurs whenever

an impact alters, directly or indirectly, any characteristic of a cultural resource that qualify it for inclusion

in the National Register, e.g., diminishing the integrity of the resource's location, design, setting, materials,

workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused

by the preferred alternative that would occur later in time, be farther removed in distance, or be

cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect

means there is an effect, but the effect would not diminish in any way the characteristics of the cultural

resource that qualify it for inclusion in the National Register.

CEQ regulations and the NPS DO-12 (USDI National Park Service 2001b) also call for a discussion

of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g., reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by

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Section 106 is similarly reduced. Although an adverse effect under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis sections for archeological and ethnographic resources under the preferred alternative. The Section 106 Summary is intended to meet the requirements of Section 106 and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

4.2 Impact Topics

4.2.1 Biotic Communities

4.2.1.1 Introduction

Construction of a new visitor center and park entry road realignment may impact vegetation and wildlife species and habitat. New construction could alter previously undeveloped vegetation landscapes and

eliminate wildlife habitat.

4.2.1.2 Evaluation Criteria

4.2.1.2.1 Direct, Indirect, and Cumulative Effects

The primary concern related to plants and wildlife involves degradation or destruction of native vegetation and wildlife habitat. The intensity of disturbance was used as the evaluation criterion for this

impact topic assessment. Intensity of potential effects is defined as follows:

**Negligible:** An action that would affect few individuals of species populations, or have no noticeable effect on the existing physical environment within the park. The change would be so small or localized that it would have no measurable or perceptible consequence to the populations or natural system functions.

**Minor:** An action that would affect a relatively small number of individuals of species populations, or have a minor effect on the existing physical environment within the park. The change would require considerable scientific effort to measure, be limited to relatively few individuals of the populations, be very localized in area, and have barely perceptible consequences to the populations or natural system functions.

**Moderate:** An action that would cause measurable effects on (i) a relatively moderate number of individuals within a species population; (2) the existing dynamics or behavioral patterns between multiple species (e.g., predator-prey, herbivore-forage, vegetation structure-wildlife breeding habitat); (3) a relatively large habitat area or important habitat attributes; or (4) a large area of the natural physical environment within the park. A species population, plant and animal communities, essential habitats, or natural system function might deviate from levels of current existing conditions,

but all species would remain indefinitely viable within the park.

**Major:** An action that would have drastic consequences for species population numbers, dynamics or behavioral patterns between multiple species, habitat area or important habitat attributes, or the existing physical environment within the park. The change would be readily apparent throughout the

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Section 106 park area. A species population would be permanently altered from levels of current existing conditions, and species would likely be extirpated within the park.

4.2.1.3 Alternative Comparison

Analysis of the effects of each alternative was completed using the evaluation criteria stated above. For a discussion of mitigation measures common to all action alternatives, see Section 2.5. Any action alternative would include these mitigation measures that are designed to ensure compliance with federal, state, and local laws and regulations and consistency with NPS management policies.

#### 4.2.1.3.1 Alternative A

This alternative is the No Action alternative. Under this alternative, no new visitor center facility would

be constructed and the realignment of the park entry road would not occur (Table 2-1).

##### 4.2.1.3.1.1 Direct, Indirect, and Cumulative Effects

No new visitor center construction or park entry road realignment would occur in Arches National Park

under Alternative A. This alternative, therefore, would have no direct effect on biotic communities. There

would be negligible indirect effects on vegetation due to trampling from continued overcrowding near the

existing visitor center, as inadequate facilities may promote more off-trail use adjacent to the visitor

center. However, Alternative A is not likely to have significant adverse effects to biotic communities due

to the current disturbed conditions within the Project Area.

Reasonably foreseeable future actions, including the widening of U.S. 191, and the movement of the

uranium tailings pile across the highway from the park would potentially further impact biotic

communities. Any future development, however, would be located and completed in such a way as to minimize impacts on biotic communities. Thus, cumulative impacts of Alternative A, in combination with

future foreseeable actions as stated in Section 4.1.3, would be minor in intensity.

##### 4.2.1.3.1.2 Conclusion

Because there would be no new visitor center construction or park entry road realignment, there would

be no direct and negligible indirect effects associated with Alternative A. The site would continue to

experience overcrowding at the current visitor center facility and there would continue to be long-term,

negligible impacts from vegetation trampling. This alternative, in combination with future foreseeable

actions would have negligible cumulative adverse impacts to biotic communities.

Because there would be no major, adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.1.3.2 Alternative B

Alternative B is the NPS preferred alternative. Under this alternative, a new visitor center facility would

be constructed adjacent to the existing building and the park entry road would be realigned (Figure 2-1).

Mitigation measures described in Chapter 2 of this EA would be implemented under this alternative.

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##### 4.2.1.3.2.1 Direct, Indirect, and Cumulative Effects

Alternative B would directly affect approximately 12.3 acres of the go-acre Project Area (Table 2-1). The

proposed new visitor center building would be approximately 14,855 sq ft (entire new complex would be

19,473 sq ft, or 1.8 acres) and would extend into the undeveloped vegetated area. The proposed park entry

road realignment would affect approximately 5 acres and cross Bloody Mary Wash (Figure 1-2). The temporary visitor facilities would affect 0.5 acres and be placed near the leach field just east

of the existing visitor center. While these areas are currently degraded, the vegetation and wildlife habitat would be

directly adversely affected by construction. There would be minor short-term adverse direct impacts to

vegetation, with potential minor long-term adverse direct effects to vegetation possibly occurring in the

gravel parking area for the temporary visitor center facilities, even after it has been revegetated. There

would also be possible direct mortality of small mammals and reptiles from construction activity. Minor

short-term adverse indirect effects to wildlife may include a reduction in the quality of adjacent habitat

and avoidance of these habitats during construction. There may be some migration of small mammals

and reptiles to less disturbed habitats elsewhere in the Project Area. Populations of those species affected

by construction would not be adversely affected in the long term due to the limited habitat and number of

individuals actually impacted by this alternative.

No special status species are known to occur within the Project Area (Schelz personal

communication

2001). Thus, populations or habitats of special status species will not be affected. Bighorn sheep use the habitat area along the talus slopes at the northeastern edge of the Project Area (Hauke personal communication 2001). These sheep would lose some of their habitat due to the road realignment and would be adversely affected because the road realignment would alter 5 acres of potential habitat area.

This impact would be minor, but long-term. National Park Service and U.S. Army Corps of Engineers personnel have developed the road realignment site close to U.S. 191 to minimize any major adverse impacts to the bighorn sheep population and its habitat. In addition, most of the sheep known to inhabit the park commonly use habitat that is outside of the Project Area (Hauke personal communication 2001) and therefore would not be directly or indirectly adversely affected by this alternative. The road realignment would remove a very small amount of potential habitat and may cause some short-term noise disturbance. Overall, the direct or indirect adverse effects to biotic communities would be minor within the Project Area.

While any amount of construction into undeveloped landscapes has the potential to adversely affect biotic communities, mitigation measures proposed in Section 2.6 would help minimize cumulative effects from Alternative B. Ground disturbance and construction site management would be carefully controlled to prevent undue damage to existing vegetation. Care would be taken to ensure that construction equipment and all construction materials brought into the park are free of undesirable species. The construction contractor would be required to wash construction vehicles prior to their entry into the park to remove weed seeds. Whenever practicable, plants affected by construction would be salvaged for use in site restoration: Any revegetation activities would use native species and would strive to reconstruct natural spacing, abundance, and diversity of native plant species.

Under Alternative B, there may be beneficial long-term cumulative impacts to biotic communities. For example, the park entry road realignment may serve as a buffer to bighorn sheep individuals and may help reduce road-kill mortality (Hauke personal communication 2001). Sheep may be less likely to cross both the park entry road and U.S. 191. Furthermore, by constructing a larger visitor center and realigning the park entry road, there would be less crowding and more parking available, which may encourage park

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visitors to stop at the new visitor center. Information on resource protection would be more easily available due to less crowding in the new facility, thus educating the park visitor on the biotic communities within the park and the importance of protecting those communities.

Reasonably foreseeable future actions, including the widening of U.S. 191, and the movement of the uranium tailings pile across the highway from the park would potentially further impact biotic communities. Any future development, however, would be located and completed in such a way as to minimize impacts on biotic communities. Thus, cumulative impacts of Alternative B, in combination with future foreseeable actions as stated in Section 4.1.3, would be minor in intensity and, in some cases, beneficial.

4.2.1.3.2.2 Conclusion

Alternative B would have minor short-term and long-term adverse direct and indirect effects on the biotic communities on the visitor center construction site, the temporary visitor center location, and the park entry road realignment site. This alternative, in combination with past, present, and future foreseeable actions would have minor short-term adverse cumulative effects to biotic communities with possible long-term beneficial cumulative effects.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no



impairment of the park's resources or values.

#### 4.2.1.3.3 Alternative C

Under Alternative C, the existing visitor center would be demolished and a completely new facility would be constructed on the site (Figure 2-2). The park entry road would be realigned, as well as utilizing a temporary visitor center, as described in Chapter 2. Mitigation also measures described in Chapter 2 of this EA would be implemented under this alternative.

#### 4.2.1.3.3.1 Direct, Indirect, and Cumulative Effects

While, the total sum of acres affected under this alternative is less than Alternative B (12.0 versus 12.3 acres)

(Table 2-1), the amount of undeveloped land affected would be greater under Alternative C. The square

footage of the new building proposed under this alternative is 19,298 sq ft, and will not utilize the existing

footprint of the current visitor center. The proposed park entry road realignment would affect approximately 5 acres and cross Bloody Mary Wash (Figure 1-2). The temporary visitor center facilities

would affect 0.5 acres and be placed near the leach field just east of the existing visitor center. While these

areas are currently degraded, the vegetation and wildlife habitat would be adversely directly affected by

construction. Because this alternative does not use the existing visitor center and would convert more

undeveloped land as compared to Alternative B, there would be moderate short-term adverse direct impacts to vegetation and small mammals and reptiles from construction activity. There would be moderate short-term adverse direct impacts to vegetation, with potential minor long-term adverse

direct effects to vegetation possibly occurring in the gravel parking area for the temporary visitor center

facilities, even after it has been revegetated. Moderate short-term adverse indirect effects to wildlife may

include a reduction in the quality of adjacent habitat and avoidance of these habitats during construction.

There may be some migration of small mammals and reptiles to less disturbed habitats elsewhere in the

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Project Area. Populations of those species affected by construction would not be majorly adversely

affected in the long-term due to the limited habitat and number of individuals actually impacted by this

alternative.

No special status species are known to occur within the Project Area (Schelz personal communication

2001). Thus, populations or habitats of special status species will not be affected. Bighorn sheep use the

habitat area along the talus slopes at the northeastern edge of the Project Area (Hauke personal communication 2001). These sheep would lose some of their habitat due to the road realignment

and would be adversely affected because the road realignment would alter 5 acres of potential habitat area.

This impact would be minor, but long-term. National Park Service and U.S. Army Corps of Engineers

personnel have developed the road realignment site close to U.S. 191 to minimize any major adverse

impacts to the bighorn sheep population and its habitat. In addition, most of the sheep known to inhabit

the park commonly use habitat that is outside of the Project Area (Hauke personal communication 2001)

and therefore would not be directly or indirectly adversely affected by this alternative. The road

realignment would remove a very small amount of potential habitat and may cause some short-term noise

disturbance. Overall, the direct or indirect adverse effects to biotic communities would be minor to

moderate within the Project Area.

As stated above in Alternative B, any amount of construction into undeveloped landscapes has the potential to cumulatively adversely affect biotic communities, mitigation measures proposed in

Section 2.6 would help minimize cumulative effects from Alternative C. Ground disturbance and construction

site management would be carefully controlled to prevent undue damage to existing vegetation. Care

would be taken to ensure that construction equipment and all construction materials brought into the

park are free of undesirable species. The construction contractor would be required to wash construction

vehicles prior to their entry into the park to remove weed seeds. Whenever practicable, plants

affected by

construction would be salvaged for use in site restoration. Any revegetation activities would use native species and would strive to reconstruct natural spacing, abundance, and diversity of native plant species.

Under Alternative C, there may be beneficial long-term cumulative impacts to biotic communities. For

example, the park entry road realignment may serve as a buffer to bighorn sheep individuals and may help

reduce road-kill mortality (Hauke personal communication 2001). Sheep may be less likely to cross both

the park entry road and U.S. 191. Furthermore, by constructing a larger visitor center and realigning the

park entry road, there would be less crowding and more parking available, which may encourage park

visitors to stop at the new visitor center. Information on resource protection would be more easily

available due to less crowding in the new facility, thus educating the park visitor on the biotic

communities within the park and the importance of protecting those communities.

Reasonably foreseeable future actions, including the widening of U.S. 191, and the movement of the

uranium tailings pile across the highway from the park would potentially further impact biotic communities. Any future development, however, would be located and completed in such a way as to minimize impacts on biotic communities. Thus, cumulative impacts of Alternative C in combination with

future foreseeable actions as stated in Section 4.1.3, would be minor to moderate in intensity and, in some

cases, beneficial.

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#### 4.2.1.3.3.2 Conclusion

Alternative C would have moderate short-term and long-term adverse direct and indirect effects on the

biotic communities on the visitor center construction site, the temporary visitor center location, and the

park entry road realignment site. This alternative, in combination with past, present, and future

foreseeable actions would have moderate short-term adverse cumulative effects to biotic communities

with possible long-term beneficial cumulative effects.

Because there would be no major, adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.1.3.4 Alternative D

Under Alternative D, the existing visitor center would be demolished and a completely new facility would

be constructed on the site (Figure 2-3). The park entry road would be realigned, as well as utilizing a

temporary visitor center, as described in Chapter 2. Mitigation measures also described in Chapter 2 of

this EA would be implemented under this alternative.

#### 4.2.1.3.4.1 Direct, Indirect, and Cumulative Effects

Alternative D would impact approximately the same number of acres as Alternative C (12.0 acres) (Table

2-1). It would cause impacts nearly identical to those disclosed under Alternative C, except that the new

visitor center building proposed under Alternative D would be slightly smaller at 18,610 sq. ft. This

reduction in size, however, would not reduce the impacts from moderate to minor, as there would still be

more use of undeveloped land under this alternative, as compared with Alternative B.

Cumulative impacts under this alternative would be similar to those described under Alternative C and

would be moderate and adverse in the short term, but could be beneficial in the long term for the reasons

stated under Alternative C.

#### 4.2.1.3.4.2 Conclusion

Alternative D would have moderate short-term and long-term adverse direct and indirect effects on the

biotic communities on the visitor center construction site, the temporary visitor center location, and the

park entry road realignment site. This alternative, in combination with past, present, and future

foreseeable actions, would have moderate short-term adverse cumulative effects to biotic communities

with possible long-term beneficial cumulative effects.

Because there would be no major, adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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4.2.2 Soils

4.2.2.1 Introduction

In general, soil disturbance and compaction caused by the construction of a new visitor center and the

realignment of the entry road may affect sensitive soils by reducing water infiltration rates, water

retention capabilities, and by increasing soil erosion. Organisms on the Colorado Plateau have evolved

into cold desert ecosystems that depend heavily on microorganisms in the soils (USDI National Park

Service 1995). These soils are very sensitive to disturbance and recover slowly. Construction disturbance

could potentially crush cryptobiotic soil crusts. When dry, the crusts are very brittle and easily damaged.

Once the fiber connections within the crust are broken, the soils destabilize and become susceptible to

wind and water erosion. Disturbance of soil crusts may impair soil fertility and soil moisture retention.

Full recovery of cryptobiotic crusts can take more than 250 years, depending on the type and extent of

disturbance and the site conditions (USDI National Park Service 1995).

4.2.2.2 Evaluation Criteria

The potential effects of each of the alternatives on soil resources were evaluated by considering the

relevant properties of the dominant soil unit in the Project Area, the Nakai fine sandy loam (3 to 10

percent slopes.) Soil properties of particular importance include runoff and infiltration rates, water and

wind erosion hazards, available water capacity, shrink-swell potential, erosion factor K, and the degree of

soil limitation (USDA Soil Conservation Service 1989). The degree of soil limitation serves as an overall

indicator of the suitability of the soil to development. In general, soil limitations range from slight to

severe. A rating of "slight" means that soil properties are generally favorable and that limitations are

minor and easily overcome (USDA Soil Conservation Service 1989). "Severe" limitations indicate unfavorable properties with limitations that can be offset only by costly soil reclamation,

special design, intensive maintenance, or by limited use. The amount of disturbance to cryptobiotic soil crusts was used

as another evaluation criterion to compare the effects of the alternatives. The intensity and duration of

impacts, defined in Section 4.1.4, were used to evaluate the effects to soils.

4.2.2.3 Alternative Comparison

Analysis of the effects of each alternative was completed using the evaluation criteria stated above. For a

discussion of mitigation measures common to all action alternatives, see Chapter 2, Mitigation Measures.

Any action alternative would include these mitigation measures to ensure compliance with federal, state,

and local laws and consistency with NPS management policies.

4.2.2.3.1 Alternative A

This alternative is the No Action alternative. Under this alternative, no new visitor center facility would

be constructed and the realignment of the park entry road would not occur (Table 2-1).

4.2.2.3.1.1 Direct, Indirect, and Cumulative Effects

No new visitor center construction or park entry road realignment would occur under Alternative A.

This alternative would, therefore, have negligible adverse direct and indirect effects on soil resources. Soil

compaction caused by visitor trampling of sensitive soils would continue. Overuse caused by inadequate

facilities could promote more trampling of cryptobiotic and sensitive soils adjacent to the visitor center,

but the long-term effect would likely be negligible and adverse.

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Past development within the park has led to soil disturbance and erosion around Bloody Mary wash.

Future foreseeable actions, as described in Section 4.1.3, have the potential to alter natural erosional processes and disturb sensitive soils, causing adverse but negligible impacts on soils in the area.

Cumulative effects of Alternative A would include negligible long-term soil disturbance and compaction caused by the combination of activity and overuse.

Because of the overcrowded conditions of the visitor center and parking lot, some visitors may bypass the visitor center and proceed to experience the rest of the park. These visitors may be more likely to trample cryptobiotic soil crusts due to lack of education about their fragility and importance.

#### 4.2.2.3.1.2 Conclusion

Negligible adverse direct and indirect effects would occur under Alternative A. No new visitor center would be constructed and no realignment of the park entry road would take place under Alternative A.

The only potential impact, therefore, would be continued overcrowding at the current visitor center, potentially leading to trampling of sensitive soil resources. Thus, cumulative effect of this alternative, in

combination with future foreseeable actions would be negligible, adverse, and long-term.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### • 4.2.2.3.2 Alternative B

Alternative B is the NPS preferred alternative. Under this alternative, a new visitor center facility would

be constructed adjacent to the existing building. The park entry road would be realigned, as well as

utilizing a temporary visitor center, as described in Chapter 2. Mitigation measures also described in

Chapter 2 of this EA would be implemented under this alternative.

#### 4.2.2.3.2.1 Direct, Indirect, and Cumulative Effects

The direct and indirect effects of Alternative B would be negligible short-term soil disturbance and

compaction near the building construction and road realignment sites. Minor short-term adverse direct

and indirect effects to soil would occur as a result of the temporary gravel parking lot, even after it has

been revegetated. Erosion in this area may increase. These effects would be negligible to minor because

of the soil properties in the Project Area. The predominant soil type, the Nakai fine sandy loam (3 to 10

percent slopes), is characterized by slow runoff rates, moderate infiltration rates, low erosion hazards,

average available water capacity for the area (between 0.10 and 0.16 inches per inch), low shrink-swell

potential, and a relatively low K factor of 0.28. Most importantly, the Soil Conservation Service

determined that this soil type has "slight" limitations for construction purposes or local road relocations

(USDA Soil Conservation Service 1989). This rating means that soils have generally favorable soil

properties and easily overcome limitations.

The disturbance expected from this alternative would not require extensive revegetation to stabilize soils.

There are some areas that have cryptobiotic crusts in the path of the road realignment. These crusts would

be destroyed during construction; however, the benefit of stabilizing the soil would not be needed as the

area would be paved. There is a possibility that these small areas of cryptobiotic crusts could be removed

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and placed in an area that may benefit from the soil stabilization effects. Some areas of cryptobiotic crusts

that are adjacent to the road realignment may also be destroyed. These areas should be fenced to avoid

disturbance where practical. Mitigation measures and BMPs would be implemented to minimize any potential negative effects to soils. Overall, the direct and indirect effects would be

negligible to minor and

short term.

Past development within the park has led to soil disturbance and erosion around Bloody Mary wash.

Future foreseeable actions, as described in Section 4.1.3, have the potential to alter natural

erosional

processes and disturb sensitive soils, causing adverse but negligible impacts on soils in the area.

Cumulative effects of Alternative B would include negligible long-term soil disturbance and compaction caused by the combination of activity and overuse. Mitigation measures and BMPs would reduce the cumulative effects of this alternative on soils. Furthermore, construction of a new visitor center designed

to accommodate greater uses would alleviate some of the current soil trampling problems. The new facilities would also include educational materials on resource protection. Thus, cumulative impacts of

Alternative B, in combination with future foreseeable actions as stated in Section 4.1.3, would be negligible in intensity.

#### 4.2.2.3.2.2 Conclusion

No new direct or indirect effects would occur under Alternative A. Alternative B would have negligible to minor short-term adverse direct and indirect effects, and negligible long-term adverse cumulative effects

on soils near the construction site and road realignment site. This alternative, in combination with past, present and future foreseeable actions would have negligible short-term adverse cumulative effects to

soils. Thus, cumulative effect of this alternative, in combination with future foreseeable actions would be negligible and long-term.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or value, . . .

#### 4.2.2.3.3 Alternative C

Under Alternative C, the existing visitor center would be demolished and a completely new facility would

be constructed on the site (Figure 2-2). The park entry road would be realigned, as well as utilizing a

temporary visitor center, as described in Chapter Mitigation measures also described in Chapter 2 of

this EA would be implemented under this alternative.

#### 4.2.2.3.3.1 Direct, Indirect, and Cumulative Effects

The square footage of the new building proposed under this alternative is 19,298 sq ft, and will not utilize

the existing footprint of the current visitor center. The proposed park entry road realignment would

affect approximately 5 acres and cross Bloody Mary Wash (Figure 1-2). The temporary visitor center

would affect 0.5 acres and be placed near the leach field just east of the existing visitor center. The direct

and indirect effects of Alternative C are nearly identical to those described for Alternative B. Past development within the park has led to soil disturbance and erosion around Bloody Mary wash.

Future foreseeable actions, as described in Section 4.1.3, have the potential to alter natural erosional

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• processes and disturb sensitive soils, causing adverse but negligible impacts on soils in the area.

Cumulative effects of Alternative C would include negligible long-term adverse soil disturbance and

compaction caused by the combination of activity and overuse. Mitigation measures and BMPs would reduce the cumulative effects of this alternative on soils. Furthermore, construction of a new visitor

center designed to accommodate greater uses would alleviate some of the current soil trampling problems. The new facilities would also include educational materials on resource protection.

Thus,

cumulative impacts of Alternative B, in combination with future foreseeable actions as stated in Section

4.1.3, would be negligible in intensity.

#### 4.2.2.3.3.2 Conclusion

Alternative C would have negligible to minor short-term adverse direct and indirect effects, and negligible

long-term adverse cumulative effects on soils near the construction site, the temporary visitor center

facility location, and road realignment site. This alternative, in combination with past, present and future

foreseeable actions, would have negligible short-term adverse cumulative effects to soils.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or  
(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.2.3.4 Alternative D

• Alternative D is similar in scope to Alternative C (Figure 2-3), except that the building is 18,610 sq ft and would affect 1.5 acres (Table 2-1). The temporary visitor center would affect 0.5 acres and be placed in the leach field just east of the existing visitor center. The park entry road would be realigned, as well as utilizing a temporary visitor center, as described in Chapter 2. Mitigation measures also described in Chapter 2 of this EA would be implemented under this alternative.

##### 4.2.2.3.4.1 Direct, Indirect, and Cumulative Effects

The square footage of the new building proposed under this alternative is 18,610 sq ft, and will not utilize the existing footprint of the current visitor center. The proposed park entry road realignment would affect approximately 5 acres and cross Bloody Mary Wash (Figure 1-2). The temporary visitor center would affect 0.5 acres and be placed near the leach field just east of the existing visitor center. The direct and indirect effects of Alternative D are nearly identical to those described for Alternative B.

Past development within the park has led to soil disturbance and erosion around Bloody Mary wash. Future foreseeable actions, as described in Section 4.1.3, have the potential to alter natural erosional processes and disturb sensitive soils, causing adverse but negligible impacts on soils in the area. Cumulative effects of Alternative D would include negligible long-term soil disturbance and compaction caused by the combination of activity and overuse. Mitigation measures and BMPs would reduce the cumulative effects of this alternative on soils. Furthermore, construction of a new visitor center designed to accommodate greater uses would alleviate some of the current soil trampling problems. The new facilities would also include educational materials on resource protection. Thus, cumulative impacts of Alternative D in combination with future foreseeable actions as stated in Section 4.1.3, would be negligible and adverse in intensity.

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##### 4.2.2.3.4.2 Conclusion

Alternative D would have negligible to minor short-term adverse direct and indirect effects, and negligible long-term adverse cumulative effects on soils near the construction site and road realignment site. This alternative, in combination with past, present and future foreseeable actions, would have negligible short-term adverse cumulative effects to soils.

Because there would be no major, adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or  
(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.3 Floodplains

##### 4.2.3.E Introduction

The Floodplain Management Guide (USDI National Park Service 1993) states that "it is the policy of the

NPS to avoid, to the extent possible, the long and short-term environmental impacts associated with the

occupancy and modification of floodplains, and avoid direct and indirect support of floodplain development wherever there is a practicable alternative." In the event that it is not

practicable to locate development outside of a floodplain, the NPS will prepare and approve a Statement of Findings (Appendix A) consistent with Executive Order 11988, Floodplain Management, and NPS DO 77-2, Floodplain Management Guidelines (USDI National Park Service 1993).

##### 4.2.3.2 Evaluation Criteria

The potential effects of each of the alternatives on floodplains were evaluated by determining the flood

hazards for each of the proposed structures. The intensity and duration of impacts, defined in Section

4.1.4, were used to evaluate the effects to floodplains.

A statistical analysis of the magnitude and frequency of past floods led to the delineation of floodplains

for floods of different recurrence intervals. Recurrence intervals are mathematical estimations of the

likelihood that a flood of a given magnitude will occur in any given year. A 100-year flood has a 1 percent chance of occurring every year. On average, therefore, a 100-year flood occurs every 100 years.

However, a flood of this magnitude has the same probability of occurring during any given year; for example, a 100-year flood could occur 2 years in a row.

The 100-year floodplain encompasses the area that a flood of that recurrence interval would probably reach. The area within the 100-year floodplain has a 1 percent chance of being inundated every year.

Structures built on that floodplain experience the same 1 percent chance of being affected by floodwaters every year. The largest potential flood event on a river system is the probable maximum flood.

The PMF represents the largest, most extreme and infrequent flood. The PMF floodplain includes the area that would be inundated only during this extremely rare event.

#### 4.2.3.3 Alternative Comparison

Analysis of the effects of each alternative was completed using the evaluation criteria stated above. For a discussion of mitigation measures common to all action alternatives, see Section 2.5. Any action

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- alternative would include these mitigation measures that are designed to ensure compliance with federal, state, and local laws and regulations and consistency with NPS management policies.

##### 4.2.3.3.1 Alternative A

Alternative A is the No Action alternative. Under this alternative, no new visitor center facility would be

constructed and the realignment of the park entry road would not occur.

##### 4.2.3.3.1.1 Direct, Indirect, and Cumulative Effects

No new visitor center construction or park entry road realignment would occur in Arches National Park

under Alternative A. This alternative would therefore have no new direct or indirect effects on floodplains. The current visitor center is located in the PMF floodplain, making this structure susceptible

to large, rare floods.

There would be negligible adverse cumulative impacts under Alternative A, in combination with the

widening of U.S. 191.

##### 4.2.3.3.1.2 Conclusion

No new visitor center would be constructed and no realignment of the park entry road would occur under the Alternative A. There would be no new direct or indirect effects on floodplains. There would be

negligible adverse cumulative effects. The current visitor center would continue to occupy the PMF

floodplain. This building would continue to be at risk of flooding during particularly large and infrequent events.

- Because there would be no major, adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

##### 4.2.3.3.2 Alternative B

Alternative B is the NPS preferred alternative. Under this alternative, a new visitor center facility would

be constructed adjacent to the existing building and the park entry road would be realigned (Figure 2-1).

Mitigation measures described in Chapter 2 of this EA would be implemented under this alternative.

##### 4.2.3.3.2.1 Direct, Indirect, and Cumulative Effects

Both the visitor center and road relocations would occupy the PMF floodplain of the Bloody Mary Wash

(Smillie personal communication 2001). This floodplain represents the area that would be inundated only

during the largest, most infrequent flood events. Modeling efforts are currently underway to determine

the potential water depths and velocities that could be produced at the raised elevations of the PMF

floodplain during these large events (Smillie personal communication 2001). Floodwaters would probably

be less than 2 ft deep and travel at less than 6 ft per second (Smillie personal communication 2001).

The temporary visitor center would occupy the 100-year floodplain for the duration of the construction

(12 to 14 months). The Evacuation Plan would be the primary mitigation of flood hazard for this structure.

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In addition, the proposed construction of a fee collection station would occur in the too-year floodplain

(Smillie personal communication 2001). None of the facilities in the proposed alternatives are within is

areas subject to frequent flooding. Mitigation measures, including flood-resistant construction and the

proposed Evacuation Plan, would minimize any potential risk to life posed by flood hazards.

The natural and beneficial values of floodplains (moderation of floodwaters, maintenance of water quality, and groundwater recharge) would not be affected by the proposed alternatives. Extremely negligible effects on groundwater recharge would result from the additional impervious

structures and paved surfaces.

The park entry road would be realigned in Alternative B. The proposed realignment would extend the

existing paved park entry road further south and east, along the ephemeral Bloody Mary Wash. If implemented, Alternative B would include filling less than 300 feet of the Bloody Mary Wash channel

during road realignment. Section 404 of the Clean Water Act authorizes the Corps of Engineers to regulate discharges of dredged and fill material in waters of the United States. The Corps may authorize

discharge activities that cause only minimal individual and cumulative adverse environmental effects.

Alternatives to the proposed road alignment have been discussed and debated by the NPS for many years.

The present alignment was chosen after extensive consideration of cost, existing technology, environmental impact, and logistics. In addition, the primary driver behind the project is the strong

public interest inherent in an action potentially affecting the safety of nearly one million annual visitors to

this popular national park. Impacts on natural resources, including the dry Bloody Mary Wash, were

considered from the earliest planning stages. This process of assessing alternative road alignments is

documented in a number of sources, including Mini-value Analysis Study for Entrance Road Relocation

(USDI National Park Service 1999), Park Entrance Design Development Report (USDI National Park Service 1998a), and minutes of numerous meetings. Various alternatives were developed, discussed, and

modified during this internal scoping process. After an on-site meeting with a Corps of Engineers

representative in November 2001, the alignment and design of the roadway was further modified to minimize intrusion on the primary and secondary wash channels. This modification resulted in a reduction of approximately 75 percent of the area of wash channels affected by fill, compared to the

original design plans. The total intrusion of fill in the wash channels, by linear or areas measurement, is

now estimated to be minimal (less than 300 linear feet or one-half acre.)

To avoid and minimize effects on the channel. roadway sections would be kept as narrow as possible.

Channel improvements and restoration of the Bloody Mary Wash would include modifying the too- and

500-year floodplain for road safety. Where impacts to the channel are unavoidable, construction activities would be minimized. If this alternative were implemented, the NPS would incorporate environmental commitments into the project design to ensure that channel impacts were minimized.

Specifically, erosion control measures would be implemented, including riprap along selected areas of the

road fill. Where the proposed park entry road would cross the wash, a large box culvert and a number of

pipe culverts would minimize the impacts of road realignment to the channel and allow passage of the

most flash floods. Restoration of the filled channel would further minimize the impacts to the Bloody

Mary Wash.

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• 4.2.3.3.2.2 Conclusion

There would be minor adverse direct and indirect effects to flood plains. The visitor center and road

realignment would occur in the PMF floodplain under Alternative B. These developments would be subject to the most infrequent flood events on the Bloody Mary Wash. Also, a fee collection station and

the temporary visitor center would occupy the 100-year floodplain, exposing them to a 1 percent chance

of inundation each year. Furthermore, the beneficial functions of floodplains would not be affected.

Impacts of road realignment and channel filling would be minimized and, where unavoidable,



mitigated.

There would be negligible adverse cumulative impacts under Alternative B, in combination with the widening of U.S. igi.

Because there would be no major, adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.3.3.3 Alternative C

Alternative C is similar in scope to Alternative B; however, the existing visitor center would be demolished

and a completely new facility would be constructed on the site (Figure 2-2). Mitigation measures described in Chapter 2 of this EA would be implemented under this alternative.

##### 4.2.3.3.3.1 Direct, Indirect, and Cumulative Effects

Under Alternative C, the visitor center would be relocated to the same PMF elevation as the current

visitor center location. None of the facilities in Alternative C are within areas subject to frequent flooding.

Mitigation measures, including flood-resistant construction and the proposed Evacuation Plan would

minimize any potential risk to life posed by flood hazards.

The natural and beneficial values of floodplains would not be affected by the proposed relocations under

this alternative. Extremely minimal effects on groundwater recharge would result from the additional

impervious structures and paved surfaces. The potential effects of filling less than 300 feet of Bloody Mary

Wash for road realignment are described above in Section 4.23.3.2.

##### 4.2.3.3.3.2 Conclusion

There would be minor adverse direct and indirect effects to floodplains. The visitor center and road

realignment would occur in the PMF floodplain under Alternative C. These developments would be subject to the most infrequent flood events on the Bloody Mary Wash. Also, a fee collection

station and temporary visitor center would occupy the 100-year floodplain, exposing them to a 1 percent

chance of inundation each year. Furthermore, the beneficial functions of floodplains would not be

affected. Impacts of road realignment and channel filling would be minimized and, where unavoidable,

mitigated.

There would be negligible adverse cumulative impacts under Alternative C, in combination with the

widening of U.S. igi.

• Because there would be no major, adverse impacts to a resource or value whose conservation is

(i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

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(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.23.3.4 Alternative D

Alternative D is similar in scope to Alternative C (Figure 2-3). Mitigation measures described in Chapter 2

of this EA would be implemented under this alternative.

##### 4.2.3.3.4.1 Direct, Indirect, and Cumulative Effects

The direct, indirect, and cumulative effects would be identical to Alternative C.

##### 4.2.3.3.4.2 Conclusion

The visitor center and road realignment would occur in the PMF floodplain under Alternative D. These

developments would be subject to the most infrequent flood events on the Bloody Mary Wash. Also, a fee

collection station and temporary visitor center would occupy the 100-year floodplain, exposing them to a

1 percent chance of inundation each year. Furthermore, the beneficial functions of floodplains would not

be affected. Impacts of road realignment and channel filling would be minimized and, where unavoidable, mitigated.

Because there would be no major, adverse impacts to a resource or value whose conservation is

(i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.4 Cultural Resources

#### 4.2.4.1 Introduction

The proposed action could impact cultural resources through direct destruction, modification, or movement of significant archeological or ethnographical resources. For the purposes of this evaluation of the impacts, cultural resources will be divided into two sections: Archeology, and Ethnography and Tribal Consultation.

#### 4.2.4.2 Evaluation Criteria

The criterion used to evaluate the proposed alternatives involves determining whether cultural materials found in the proposed Project Area are currently listed on the National Register of Historic Places. Under

Section 106 of the National Historic Preservation Act of 1966, only historic resources that are eligible for or are listed on the National Register of Historic Places are analyzed for impacts (See Section 4.1.6.1). An

impact, or effect, to a property occurs if a proposed action would alter in any way the characteristics that qualify it for inclusion on the register.

For purposes of analyzing impacts to archaeological or ethnographic resources, thresholds of change for the intensity of an impact are based upon the potential of the site(s) to yield information important in

prehistory or history, as well as the probable historic context of the affected site(s):

Negligible: The impact is at the lowest level of detection-barely measurable with no perceptible consequences to archaeological or ethnographic resources.

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- Minor: The impact affects an archaeological or ethnographic site(s) with little or no potential to yield information important in prehistory or history. These archeological resources are generally ineligible to be listed in the National Register.

Moderate: The impact affects an archeological or ethnographic site(s) with the potential to yield information important in prehistory or history. The historic context of the affected site(s) would be local or state.

Major: The impact affects archeological or ethnographic site(s) with the potential to yield information about human history or prehistory. The historical context of the affected site(s) would be national.

#### 4.2.4.3 Archeology

##### 4.2.4.3.1 Alternative A

##### 4.2.4.3.1.1 Direct, Indirect, and Cumulative Effects

There would be negligible direct, indirect, and cumulative effects on archeological cultural resources

under this alternative. A new visitor center would not be constructed and there would be no park entry

road realignment. There would be no new ground disturbance under this alternative. However, there

may be continued ground trampling, but it would not involve major degradation of any archeological

cultural resources.

##### 4.2.4.3.1.2 Conclusion

I For purposes of this document, it is the opinion of NIPS that the undertaking of Alternative A in Moab

Canyon at Arches National Park would have negligible impacts to archeological cultural resources that

are either eligible or listed on the National Register of Historic Places. No archeological cultural materials

in the Project Area are currently listed on the National Register of Historic Places.

Because there would be no major adverse impact, to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or value..

##### 4.2.4.3.2 Alternative B

##### 4.2.4.3.2.1 Direct, Indirect, and Cumulative Effects

Alternative B, the NPS preferred alternative, would have negligible direct, indirect, and cumulative effects

on archeological cultural resources identified in the park's enabling legislation, and would not affect any

of the park's National Register properties, or affect resources that are eligible for the National Register of

Historic Places.

During the construction in the Project Area, the park archeologist would monitor all subsurface

excavation. Should subsurface construction expose cultural materials, excavation in that area would cease pending notification of the park superintendent and the office of the State Historic Preservation Officer, and pending subsequent site evaluation as specified in accordance with the Archaeological Resources Protection Act of 1979 (16 USC 470 cc), Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001-13), and National Historic Preservation Act of 1966 (16 USC 470-4700- Arches National Park

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The draft Cultural Resource Survey, Assessment of Effect on Cultural Resources, will be finalized by NPS and submitted to the Utah State Historic Preservation Officer. Preliminary correspondence between NPS and the State Compliance Archaeologist (dated June 16, 1999) regarding this project has identified no concerns with the park's Section 106 responsibilities as specified in 36 CFR 800 and presented herein.

#### 4.2.4.3.2.2 Conclusion

For purposes of this document, it is the opinion of NPS that the undertaking of Alternative B in Moab Canyon at Arches National Park would have negligible impacts to archeological cultural resources that

are either eligible or listed on the National Register of Historic Places. No archeological cultural materials

in the Project Area are currently listed on the National Register of Historic Places.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

The Section 106 summary for Alternative B is as follows: Adverse effect criteria are linked specifically to

objective National Register Criteria for Evaluation for eligibility to the National Register (36 CFR 60.4),

which are used to determine characteristics that contribute to a property's historic significance. The

standard set forth under Section 106 is effect, not proximity or magnitude (36 CFR 800.5). (See Federal

Register, Volume 65, No. 239, page 77707.) Thus, under Section 106, Alternative B constitutes no adverse effect.

#### 4.2.4.3.3 Alternative C

##### 4.2.43.3.1 Direct, Indirect, and Cumulative Effects

Alternative C would have negligible direct, indirect, and cumulative impacts on archeological cultural

resources identified in the park's enabling legislation, and would not affect any of the park's National

Register properties or resources that are eligible for the National Register of Historic Places. During the construction in the Project Area, the park archeologist would monitor all subsurface

excavation. Should subsurface construction expose cultural materials, excavation in that area would

cease pending notification of the park superintendent and the office of the State Historic Preservation

Officer, and pending subsequent site evaluation as specified in accordance with the Archaeological

Resources Protection Act of 1979 (16 USC 470 cc), Native American Graves Protection and Repatriation

Act of 1990 (25 USC 3001-13), and National Historic Preservation Act of 1966 (16 USC 470-470t).

The draft Cultural Resource Survey, Assessment of Effect on Cultural Resources, will be

finalized by NPS and submitted to the Utah State Historic Preservation Officer. Preliminary correspondence

between NPS and the State Compliance Archaeologist (dated June 16, 1999) regarding this project has

identified no concerns with the park's Section 106 responsibilities as specified in 36 CFR 800 and presented

#### 4.2.4.3.3.2 Conclusion

For purposes of this document, it is the opinion of NPS that the undertaking of Alternative C in Moab

Canyon at Arches National Park would have negligible impacts to archeological cultural resources that

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are either eligible or listed on the National Register of Historic Places. No archeological cultural materials

in the Project Area are currently listed on the National Register of Historic Places. Because there would be no major adverse impacts to a resource or value whose conservation is (r) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or  
(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.4.3.4 Alternative D

##### 4.2.43.4.1 Direct, Indirect, and Cumulative Effects

Alternative D would have negligible direct, indirect, and cumulative impacts on archeological cultural resources identified in the park's enabling legislation, and would not affect any of the park's National Register properties or resources that are eligible for the National Register of Historic Places. During the construction in the Project Area, the park archeologist would monitor all subsurface excavation. Should subsurface construction expose cultural materials, excavation in that area would

cease pending notification of the park superintendent and the office of the State Historic Preservation

Officer, and pending subsequent site evaluation as specified in accordance with the Archaeological

Resources Protection Act of 1979 (16 USC 470 cc), Native American Graves Protection and Repatriation

Act of 1990 (25 USC 3001-13), and National Historic Preservation Act of 1966 (16 USC 470-470t).

• The draft Cultural Resource Survey, Assessment of Effect on Cultural Resources, will be finalized by NPS

and submitted to the Utah State Historic Preservation Officer. Preliminary correspondence between NPS

and the State Compliance Archaeologist (dated June 16, 1999) regarding this project has identified no

concerns with the park's Section 106 responsibilities as specified in 36 CFR 800 and presented herein.

##### 4.2.4.3.4.2 Conclusion

For purposes of this document, it is the opinion of NPS that the undertaking of Alternative D in Moab

Canyon at Arches National Park would have negligible impacts to archeological cultural resources that

are either eligible or listed on the National Register of Historic Places. No cultural materials in the

proposed Project Area are currently listed on the National Register of Historic Places.

Because there would be no major adverse impacts to a resource or value whose conservation is (r) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.4.4 Ethnography

Under Section 106 of the National Historic Preservation Act of 1966, only historic resources that are

eligible for or are listed on the National Register of Historic Places are analyzed for impacts. An impact,

or effect, to a property occurs if a proposed action would alter in any way the characteristics that qualify it

for inclusion on the register.

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Tribal notification and subsequent tribal communications regarding the proposed project were initiated

in May 1999, consisting of written notification by the Superintendent of the Southeast Utah Group NPS

(certified mail; return receipt) requesting tribal consultation throughout the planning process. Follow up

phone calls, site visits, and visits by NPS to Tribes occurs to the present.

To date, over 20 tribes and tribal agencies have been notified about this project and invited to participate

in the planning process. Tribal responses in 1999 were received from the Hopi Tribe, Navajo Nation, and

Ute Tribe, with a site visit by Ute (Fort Duchesne, Utah) in June 1999, consultation at Hopi in August 1999,

and consultation with the Eight Northern Indian Pueblos Council, Inc. in March 2000. In October 2001,

UDOT and NPS held consultation meetings at Arches National Park regarding UDOT's proposed expansion of U.S. 191, and the Arches entrance road and visitor center undertaking.

Representatives from

the Ute Mountain Ute Tribe, Ute Indian Tribe, Zuni Pueblo, and Navajo Nation attended this meeting

with tours of the proposed development areas.

As a result of tribal consultation, the Southeast Utah Group has received no tribal opposition

to the proposed construction actions at Arches National Park. All tribes that have responded to date (Ute Indian Tribe, Fort Duchesne; Ute Mountain Ute; Hopi Tribe; Zuni Pueblo; and Navajo Nation) will be kept informed of the project's progress. All tribes will receive the EA for comment. Consultation would continue throughout planning and construction phases. Consultation has indicated that Ute, Hopi, Zuni, Navajo, and some Eastern Pueblos have cultural histories associated with Arches National Park, and would like to be involved in the development of exhibit space at the new visitor center so that tribes have a voice in how their respective histories are presented. Prior to migrating to the Hopi Mesas, clans of the Bow, Arrow, Greasewood, Bamboo, and Roadrunner of Third Mesa say they resided in "the place of the rainbows," which is thought to be the area of Arches National Park. In addition, Flute, Deer, Sand, Snake, Fire, Bear, Badger, and Crow clans of Hopi may have occupied the area. Navajo supports keeping the new entrance road alignment as close to U.S. 191 as possible. By keeping the alignment parallel to U.S. 191, desert bighorn sheep can continue to migrate along the base of Moab Canyon, along Moab Wash. Desert bighorn are extremely important to Navajo ceremony and history. These requests have been incorporated into the general development of Alternatives B, C, and D. All tribes would be consulted regarding exhibit designs for the new visitor center.

#### 4.2.4.4.1 Alternative A

##### 4.2.4.4.1.1 Direct, Indirect, and Cumulative Effects

Alternative A is the No Action alternative. Under this alternative there would be negligible direct, indirect, and cumulative effects on ethnographic cultural resources. Alternative A would have negligible impacts on known ethnographic resources identified in the park's enabling legislation. It would also have negligible impacts on the park's National Register properties and resources that are eligible for the National Register of Historic Places. A new visitor center would not be constructed and there would be no park entry road realignment. There would be no new ground disturbance under this alternative. There

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may be continued ground trampling, but it would not involve major degradation of any ethnographic cultural resources.

##### 4.2.4.4.1.2 Conclusion

For purposes of this document, it is the opinion of NPS that the undertaking of Alternative A in Moab

Canyon at Arches National Park would have negligible impacts to ethnographical cultural resources that

are either eligible or listed on the National Register of Historic Places. No ethnographic cultural materials

in the proposed Project Area are currently listed on the National Register of Historic Places.

Because there would be no major adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.4.4.2 Alternative B

##### 4.2.4.4.2.1 Direct, Indirect, and Cumulative Effects

Under Alternative B, the NPS preferred alternative, there would be negligible direct, indirect, and cumulative impacts to ethnographic cultural resources in the proposed Project Area. Alternative B would

have negligible impacts on known ethnographic resources identified in the park's enabling legislation. It

would also have negligible impacts to the park's National Register properties and resources that are

eligible for the National Register of Historic Places.

• Site visits with Ute and NPS representatives in 1000 and 2000 have produced adjustments to the proposed

entrance design (common in Alternative 13, C, and D) that would avoid Site 42GR2824 and would accommodate traditional plant collection practices at the site and elsewhere.

Site 42GR2824, which has been identified as eligible for the National Register (see Section 3.3.2), is a Ute

plant gathering locale with different reports on the size of the gathering area. Prior to impacts of historic and contemporary development in Moab Canyon, purple sage (*Poliomintha incana*) was probably collected throughout the canyon and vicinity. On-site meetings with Ute representatives in 1992, 1999, and 2001 confirm the site's location is fluid because collection is dependent upon plant locations. It is clear the site location must be analyzed in the planning of any federal and federally assisted undertaking, but the integrity of the relationship between the property and the gathering of purple sage is uncertain due to historic development in Moab Canyon.

To preserve the existing purple sage located at Site 42GR2824, the orientation of the new park entrance has been adjusted to avoid 42GR2824 by locating the entrance in the disturbed area occupied by the UDOT gravel stockpile. At the new entrance, a limited number of parking spaces would be provided to accommodate Native American elders wishing to continue parking at this location to access 42GR2824.

The Arches National Park archeologist, resource managers, and Ute youth would transplant any stand of purple sage found in the Project Area—relocating the plants within Moab Canyon on NPS land. These measures would help maintain the integrity of 42GR2824 and are acceptable with Ute representatives.

The site would remain National Register eligible.

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During consultation, NPS and Ute elders shared concerns about the long-term viability of purple sage throughout Moab Canyon due to future growth and development. In 1999 NPS botanists mapped purple sage occurrences in Moab Canyon (including 42GR2824) and noted few young plants. Conversely, within

Arches National Park, large stands of purple sage have been located and mapped by NPS. Access by Native American elders seeking non-recreational use of these park locations is permissible by NPS. Ute elders now visit these healthier, better-protected stands of purple sage within Arches National Park.

During construction in the Project Area, the park archeologist would monitor actions at 42GR2824. Ute

Indian Tribe would have representatives on site during to monitor ground disturbance in Moab Canyon.

#### 4.2.4.4.2 Conclusion

Alternative B, the NPS preferred alternative, would have negligible impacts on known ethnographic or tribal resources that may be identified in the park's enabling legislation. It would also have negligible

impacts to the park's National Register Properties and resources that are eligible for the National Register of Historic Places.

Because there would be no major adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.4.4.3 Alternative C

##### 4.2.4.4.3.1 Direct, Indirect, and Cumulative Effects

Under Alternative C, there would be negligible direct, indirect, and cumulative impacts to ethnographic

cultural resources in the proposed Project Area. Alternative C would have negligible impacts on known

ethnographic resources identified in the park's enabling legislation. It would also have negligible impacts

on the park's National Register properties and resources that are eligible for the National Register of Historic Places.

Site visits with Ute and NPS representatives in 1999 and 2001 have produced adjustments to the proposed

entrance design (common in Alternative B, C, and D) that would avoid Site 42GR2824 and would accommodate traditional plant collection practices at the site and elsewhere.

Site 42GR2824, which has been identified as eligible for the National Register (see Section 3.3.2), is a Ute

plant gathering locale with different reports on the size of the gathering area. Prior to impacts of historic

and contemporary development in Moab Canyon, purple sage (*Poliomintha incana*) was probably collected throughout the canyon and vicinity. On-site meetings with Ute representatives in 1992, 1999,

and 2001 confirm the site's location is fluid because collection is dependent upon plant locations. It is clear the site location must be analyzed in the planning of any federal and federally assisted undertaking, but the integrity of the relationship between the property and the gathering of purple sage is uncertain due to historic development in Moab Canyon.

To preserve the existing purple sage located at Site 42GR2824, the orientation of the new park entrance has been adjusted to avoid 42GR2824 by locating the entrance in the disturbed area occupied by the UDOT gravel stockpile. At the new entrance, a limited number of parking spaces would be provided to

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accommodate Native American elders wishing to continue parking at this location to access 42GR2824.

The Arches National Park archeologist, resource managers, and Ute youth would transplant any stand of

purple sage found in the Project Area-relocating the plants within Moab Canyon on NPS land. These

measures would help maintain the integrity of 42GR2824 and are acceptable with Ute representatives.

The site would remain National Register eligible.

During consultation, NPS and Ute elders shared concerns about the long-term viability of purple sage

throughout Moab Canyon due to future growth and development. In 1999 NPS botanists mapped purple sage occurrences in Moab Canyon (including 42GR2824) and noted few young plants. Conversely, within

Arches National Park, large stands of purple sage have been located and mapped by NPS. Access by Native American elders seeking non-recreational use of these park locations is permissible by NPS. Ute

elders now visit these healthier, better-protected stands of purple sage within Arches National Park.

During construction in the Project Area, the park archeologist would monitor actions at 42GR2824. Ute

Indian Tribe would have representatives on site during to monitor ground disturbance in Moab Canyon.

#### 4.2.4.4.3.2 Conclusion

Alternative C would have negligible impacts on known ethnographic or tribal resources that may be

identified in the park's enabling legislation. It would also have negligible impacts on the park's National

Register Properties and resources that are eligible for the National Register of Historic Places.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches

National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.4.4.4 Alternative D

##### 4.2.4.4.4.1 Direct, Indirect, and Cumulative Effects

Under Alternative D, there would negligible direct, indirect, and cumulative impacts to ethnographic

cultural resources in the proposed Project Area. Alternative D would have negligible impacts on known

ethnographic resources identified in the park's enabling legislation. It would also have negligible impacts

on the park's National Register properties and resources that are eligible for the National Register of

Historic Places.

Site visits with Ute and NPS representatives in 1999 and 2001 have produced adjustments to the proposed

entrance design (common in Alternative B, C, and D) that would avoid Site 42GR2824 and would accommodate traditional plant collection practices at the site and elsewhere.

Site 42GR2824, which has been identified as eligible for the National Register (see Section 3.3.2), is a Ute

plant gathering locale with different reports on the size of the gathering area. Prior to impacts of historic

and contemporary development in Moab Canyon, purple sage (*Poliomintha incana*) was probably collected throughout the canyon and vicinity. On-site meetings with Ute representatives in 1992,

1999, and 2001 confirm the site's location is fluid because collection is dependent upon plant locations. It is

• clear the local site location must be analyzed in the planning of any federal and federally-assisted

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undertaking, but the integrity of the relationship between the property and the gathering of purple sage is uncertain due to historic development in Moab Canyon.

is To preserve the existing purple sage located at Site 42GR2824, the orientation of the new park entrance has been adjusted to avoid 42GR2824 by locating the entrance in the disturbed area occupied by the UDOT gravel stockpile. At the new entrance, a limited number of parking spaces would be provided to accommodate Native American elders wishing to continue parking at this location to access 42GR2824.

The Arches National Park archeologist, resource managers, and Ute youth would transplant any stand of purple sage found in the Project Area-relocating the plants within Moab Canyon on NPS land. These measures would help maintain the integrity of 42GR2824 and are acceptable with Ute representatives.

The site would remain National Register eligible. During consultation, NPS and Ute elders shared concerns about the long-term viability of purple sage throughout Moab Canyon due to future growth and development. In 1999 NPS botanists mapped purple sage occurrences in Moab Canyon (including 42GR2824) and noted few young plants. Conversely, within

Arches National Park, large stands of purple sage have been located and mapped by NPS. Access by Native American elders seeking non-recreational use of these park locations is permissible by NPS. Ute elders now visit these healthier, better-protected stands of purple sage within Arches National Park.

During construction in the Project Area, the park archeologist would monitor actions at 42GR2824. Ute

Indian Tribe would have representatives on site during to monitor ground disturbance in Moab Canyon.

#### 4.2.4.4.2 Conclusion

Alternative D would have negligible impacts on known ethnographic or tribal resources that may be identified in the park's enabling legislation. It would also have negligible impacts on the park's National Register Properties and resources that are eligible for the National Register of Historic Places.

Because there would be no major adverse impact,, to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.5 Visitor Use and Experience

##### 4.2.5.1 Introduction

The proposed construction of a new visitor center and realignment of the park entry road could have significant effects on visitor use and experience.

##### 4.2.5.2 Evaluation Criteria

The criteria used to evaluate this impact topic include analysis of the effects to park visitation numbers and the potential "quality" of the experience at the new visitor center.

The intensity of disturbance to quality was used as the evaluation criterion for this impact topic. Intensity of effects is defined as follows:

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Negligible: An action that would have no effect, or no noticeable affect on visitor use or experience within the park.

Minor: An action that would have an effect on use or experience of a relatively small number of visitors within the park. The change would be limited to relatively few individuals, be very localized in area, and have barely perceptible consequences to the majority of visitors.

Moderate: An action that would cause measurable effects on the use or experience of a relatively large number of visitors within the park. The visitors would still be able to use the park and find the desired experiences within the park, but they would perceive a decline in quality.

Major: An action that would have drastic consequences on the use or experience of a relatively large number of visitors within the park. The visitors would be unable to find the desired experiences within the park, and they would perceive a decline in quality of experiences that were available.

##### 4.2.5.3 Alternative Comparison



Analysis of the effects of each alternative was completed using the evaluation criteria stated above. For a discussion of mitigation measures common to all action alternatives, see Section 2.5. Any action alternative would include these mitigation measures that are designed to ensure compliance with federal, state, and local laws and regulations and consistency with NPS management policies.

#### 4.2.53.1 Alternative A

This alternative is the No Action alternative. Under this alternative, no new visitor center facility would be constructed and the realignment of the park entry road would not occur.

##### 4.2.53.1.1 Direct, Indirect, and Cumulative Effects

There would be no new direct or indirect effects to visitor use or visitor experience under this alternative.

The current conditions at the facility and park entry road would continue.

There may be moderate long-term adverse cumulative effects under this alternative due to the present

state of overcrowding at the facility and the safety hazards present at the park entry road.

Visitors would

continue to bypass the visitor center due to the crowd and would not learn about the features of Arches

National Park or the importance of protecting park resources during their visit. Past, present, and future

foreseeable actions, as described in Section 4.i. ;. in combination with this alternative, would moderately

adversely affect visitor use and experience in the long-term. There may be an increase in visitation due to

the widening of U.S. 191, causing more crowding at the existing visitor center, thus causing further decline

in visitor experience quality from existing conditions.

##### 4.2.53.1.2 Conclusion

Under this alternative, there would not be any adverse direct or indirect effects to visitor use and

experience. However, there could be moderate long-term adverse cumulative effects to visitor use and

experience, in combination with future foreseeable actions, due to the expected increase in park visitation, the current state of overcrowding at the visitor center, and the safety hazards of

the existing

park entry road.

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Because there would be no major, adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

##### 4.2.5.3.2 Alternative B

Alternative B is the NPS preferred alternative. Under this alternative, a new visitor center facility would

be constructed adjacent to the existing building (Figure 2-1). The park entry road would be realigned, as

well as utilizing a temporary visitor center, as described in Chapter 2. Mitigation measures also described

in Chapter 2 of this EA would be implemented under this alternative.

##### 4.2.5.3.2.1 Direct, Indirect, and Cumulative Effects

Under this alternative, there would be moderate short-term adverse direct effects to visitor use and

experience, as the existing visitor center would be closed for remodeling and all visitor center functions

would move to the temporary visitor center facilities during construction for 12 to 14 months.

As

described in Section 2.1.2, these facilities would consist of three structures: one three-office trailer, one

eight-unit restroom trailer, and one 1,440 sq ft trailer for the visitor center and retail bookstore. These

temporary facilities would remain open until the new visitor center complex was constructed and open to

the public. There would be moderate adverse indirect short-term effects to visitor use and experience

under this alternative. In the temporary facility, there would be some direct disruption in the day-to-day

operations of the visitor center and its functions. Due to the small size of the temporary visitor center,

overcrowding would increase in the short term. There would not be any interpretive displays in the

temporary visitor center, and the public would only receive basic park and safety information, which may

reduce the quality of their park experience. Some park visitors may be unable to locate the temporary

visitor center of choose to bypass the it altogether due to construction activity or overcrowding. Overall, there would be moderate short-term adverse direct and indirect effects on visitor use and experience under Alternative B. Future foreseeable actions associated with the park, in combination with Alternative B, that could cumulatively affect visitor use and experience include the widening of U.S. 191, the movement of the tailings pile, and the permanent removal of the library on the park property. The activities proposed under this alternative may result in a minor beneficial cumulative effect on park visitation. The magnitude of this increase is unknown. There would be a moderate beneficial cumulative effect to visitor experience under this alternative. Construction of a new visitor center would provide for the current number of park visitors and would alleviate overcrowding. It would create adequate space and an appropriate setting for NPS functions such as visitor contact, ranger operations, resource management, interpretive displays and programs, fee collection, and maintenance services. It would allow for larger and more informative interpretive displays to enhance public knowledge of park resources and attractions. The widening of the highway, in combination with a new visitor center and park entry road realignment, would increase the safety for visitors. It would provide for safe passage into the park from U.S. 191 and would also provide for adequate queuing space for cars approaching the fee collection station. Further, by utilizing the existing visitor center for administrative functions, the NPS can educate visitors on the recycling of materials and the importance of sustainable development.

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#### • 4.2.5.3.2.2 Conclusion

Under Alternative B, there would be moderate short-term adverse direct and indirect effects to visitor use and experience. No long-term adverse direct or indirect effects are anticipated. In combination with future foreseeable actions, there would be a minor beneficial cumulative effect on visitor use and a moderate beneficial cumulative effect to visitor experience under Alternative B. Because there would be no major, adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park; (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or (3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.5.33 Alternative C

Under Alternative C, the existing visitor center would be demolished and a completely new facility would be constructed on the site (Figure 2-2). The park entry road would be realigned, as well as utilizing a temporary visitor center, as described in Chapter 2. Mitigation measures also described in Chapter 2 of this EA would be implemented under this alternative.

#### 4.2.5.3.3.1 Direct, Indirect, and Cumulative Effects

Alternative C would have similar effects to those disclosed under Alternative B, as the existing visitor center would be closed for remodeling and all visitor center functions would move to the temporary visitor center facilities during construction for 12 to 14 months. Overall, as stated in Alternative B, there would be moderate short-term adverse direct and indirect effects on visitor use and experience. As stated above, future foreseeable actions associated with the park, in combination with Alternative C, that could cumulatively affect visitor use and experience include the widening of U.S. 191, the movement of the tailings pile, and the permanent removal of the library on the park property. The activities proposed under this alternative may result in a minor beneficial cumulative effect on park visitation. The magnitude of this increase is unknown. There would be a moderate beneficial cumulative effect to visitor experience under this alternative. Construction of a new visitor center would provide for the current number of park visitors and would alleviate overcrowding. It would create adequate space and an

appropriate setting for NPS functions such as visitor contact, ranger operations, resource management, interpretive displays and programs, fee collection, and maintenance services. It would allow for larger and more informative interpretive displays to enhance public knowledge of park resources and attractions. The widening of the highway, in combination with a new visitor center and park entry road realignment, would increase the safety for visitors. It would provide for safe passage into the park from U.S. 191 and would also provide for adequate queuing space for cars approaching the fee collection station. Further, by utilizing the existing visitor center for administrative functions, the NPS can educate visitors on the recycling of materials and the importance of sustainable development.

#### 4.2.5.3.3.2 Conclusion

Under Alternative C, there would be moderate short-term adverse direct and indirect effects to visitor use and experience. No long-term adverse direct or indirect effects are anticipated. In combination with future foreseeable actions, there would be a minor beneficial cumulative effect on visitor use and a

- moderate beneficial cumulative effect to visitor experience under Alternative C.

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Because there would be no major, adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.5.3.4 Alternative D

Under Alternative D, the existing visitor center would be demolished and a completely new facility would

be constructed on the site (Figure 2-3). The park entry road would be realigned, as well as utilizing a

temporary visitor center, as described in Chapter 2. Mitigation measures also described in Chapter 2 of

this EA would be implemented under this alternative.

#### 4.2.5.3.4.1 Direct, Indirect, and Cumulative Effects

Alternative D would cause similar effects to those disclosed under Alternatives B and C, as the existing

visitor center would be closed for remodeling and all visitor center functions would move to the temporary visitor center facilities during construction for 12 to 14 months. Overall, as stated in Alternative

B, there would be moderate short-term adverse direct and indirect effects on visitor use and experience.

As stated above, future foreseeable actions associated with the park, in combination with Alternative D,

that could cumulatively affect visitor use and experience include the widening of U.S. 191, the movement

of the tailings pile, and the permanent removal of the library on the park property. The activities proposed

under this alternative may result in a minor beneficial cumulative effect on park visitation. The magnitude

of this increase is unknown. There would be a moderate beneficial cumulative effect to visitor experience

under this alternative. Construction of a new visitor center would provide for the current number of park

visitors and would alleviate overcrowding. It would create adequate space and an appropriate setting for

NPS functions such as visitor contact, ranger operations, resource management, interpretive displays and

programs, fee collection, and maintenance services. It would allow for larger and more informative

interpretive displays to enhance public knowledge of park resources and attractions. The widening of the

highway, in combination with a new visitor center and park entry road realignment, would increase the

safety for visitors. It would provide for safe passage into the park from U.S. 191 and would also provide for

adequate queuing space for cars approaching the fee collection station. Further, by utilizing the existing

visitor center for administrative functions, the NPS can educate visitors on the recycling of materials and

the importance of sustainable development.

#### 4.2.5.3.4.2 Conclusion

Under Alternative D, there would be moderate short-term adverse direct and indirect effects to visitor use

and experience. No long-term adverse direct or indirect effects are anticipated. In combination

with future foreseeable actions, there would be a minor beneficial cumulative effect on visitor use and a moderate beneficial cumulative effect to visitor experience under Alternative D. Because there would be no major, adverse impacts to a resource or value whose conservation is (i) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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#### • 4.2.6 Park Operations

##### 4.2.6.1 Introduction

Based on the Purpose and Need as stated in Section 1.2, construction of a new visitor center and realignment of the park entry road would impact park operations.

##### 4.2.6.2 Evaluation Criteria

Criteria used to evaluate the impacts to park operations include centralization and ease of administrative

operations. The intensity and duration of impacts, defined in Section 4.1.4, were used to evaluate the

effects to park operations.

##### 4.2.6.3 Alternative Comparison

Analysis of the effects of each alternative was completed using the evaluation criteria stated above in

Section 4.2.6.2. For a discussion of mitigation measures common to all action alternatives, see Section 2.6.

Any action alternative would include these mitigation measures that are designed to ensure compliance

with federal, state, and local laws and regulations and consistency with NPS management policies.

##### 4.2.6.3.1 Alternative A

This alternative is the No Action alternative. Under this alternative, no new visitor center facility would

be constructed and the realignment of the park entry road would not occur.

##### 4.2.6.3.1.1 Direct, Indirect, and Cumulative Effects

There would be minor adverse direct or indirect effects to park operations under this alternative. The

current conditions at the facility and park entry road would continue. Park employees would continue to

be spread over four buildings, covering a 0.25-acre area. There may be minor to moderate long-term

adverse cumulative effects under this alternative because of the current lack of centralization of the

administrative offices. Further, due to current overcrowding at the park and the safety hazards present at

the park entry road, maintenance would be adversely affected. This would continue to affect the park

staff, potentially decreasing efficiency of park operations. Past, present, and future foreseeable actions, as

described in Section 4.1.3, in combination with this alternative, would potentially moderately adversely

affect park operations in the long-term. There may be an increase in visitation due to the widening of U.S.

191, causing more crowding at the existing visitor center, thus potentially further decreasing the efficiency

of park operations.

##### 4.2.6.3.1.2 Conclusion

Under the No Action alternative, there would be minor adverse direct and indirect effects, and minor to

moderate adverse cumulative effects due to the lack of centralization of park operations. Past, present,

and future foreseeable actions, as described in Section 4.1.3, in combination with this alternative would

also potentially moderately adversely affect park operations in the long-term.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches

National Park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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##### 4.2.6.3.2 Alternative B

Alternative B is the NPS preferred alternative. Under this alternative, a new visitor center facility would

be constructed adjacent to the existing building (Figure 2-1). The park entry road would be

realigned and

a temporary visitor center would be used as described in Chapter 2. Mitigation measures also described in

Chapter 2 of this EA would be implemented under this alternative.

#### 4.2.6.3.2.1 Direct, Indirect, and Cumulative Effects

There would be minor adverse short-term direct and indirect effects to park operations under Alternative B. Due to the construction of the new visitor center and remodeling of the existing visitor

center, park staff currently using the existing visitor center would have to move to temporary office space

in a three-office trailer within the temporary visitor center facilities, or move to temporary spaces within

the library, fire cache, or maintenance building lunchroom. This may cause a minor short-term disruption

in operations and administrative functions. However, once the new building is constructed and the

existing visitor center is remodeled, all administrative offices would move to a central location within the

remodeled building. Therefore, all adverse direct and indirect effects would be short-term in nature,

lasting only for the duration of the construction time of 12 to 14 months.

There would be major beneficial long-term cumulative effects under Alternative B. Relocation of park

administrative offices and park operations to a central location within the remodeled existing visitor

center would promote efficient and streamlined operating procedures and improve maintenance burden.

It would allow staff to be more interactive and accessible to each other and to visitors. By locating

administrative offices within the new visitor center complex, staff would be more available to assist

visitors and provide adequate personnel and information about park resources. It would eliminate the

travel time between four buildings that currently exists. It would also provide updated facilities for park

employees with improved office conditions. Past, present, and future foreseeable actions, as described in

Section 4.1.3, in combination with this alternative, would provide further beneficial effects to park

operations. The widening of U.S. 191 would increase visitor safety and improve overall maintenance

burdens and park operations.

#### 4.2.6.3.2.2 Conclusion

There would be minor adverse short-term direct and indirect effects on park operations due to the

movement of current offices to temporary offices within the temporary visitor center facility and other

buildings. However, once construction is complete, within 12 to 14 months, all administrative functions

would move to a central location within the remodeled building. There would be major beneficial long-

term cumulative impacts under Alternative B, because of centralized park operations, reduced maintenance burden, and improved visitor safety.

Because there would be no major adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.6.3.3 Alternative C

Under Alternative C, the existing visitor center would be demolished and a completely new facility would

be constructed on the site (Figure 2-2). The park entry road would be realigned and a temporary visitor

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center would be used as described in Chapter 2. Mitigation measures also described in Chapter 2 of this

EA would be implemented under this alternative.

#### 4.2.6.3.3.1 Direct, Indirect, and Cumulative Effects

There would be minor adverse short-term direct and indirect effects to park operations under Alternative C. Due to the construction of the new visitor center, park staff currently using the

existing visitor center would have to move to temporary office space in a three-office trailer within the temporary

visitor center facilities, or move to temporary spaces within the library, fire cache, or maintenance

building lunchroom. This may cause a minor short-term disruption in operations and administrative

administrative

functions. However, once the new building is constructed, all administrative offices would move to a central location within the new visitor center. Therefore, all adverse direct and indirect effects would be short-term in nature, lasting only for the duration of the construction time of 12 to 14 months. There would be major beneficial long-term cumulative effects under Alternative C. Relocation of park administrative offices and park operations to a central location within a new visitor center would promote efficient and streamlined operating procedures and improve maintenance burden. It would allow staff to be more interactive and accessible to each other and to visitors. By locating administrative offices within the new visitor center complex, staff would be more available to assist visitors and provide adequate personnel and information about park resources. It would eliminate the travel time between four buildings that currently exists. It would also provide for updated facilities for park employees with improved office conditions, which also may improve maintenance burden. Past, present, and future foreseeable actions, as described in Section 4.1.3, in combination with this alternative would provide

- further beneficial effects to park operations. The widening of U.S. 191 would increase visitor safety and improve overall maintenance burdens and park operations.

#### 4.2.6.3.3.2 Conclusion

There would be minor adverse short-term direct and indirect effects on park operations due to the movement of current offices to temporary offices within the temporary visitor center facility and other buildings. However, once construction is complete, within 12 to 14 months, all administrative functions would move to a central location within the new visitor center. There would be major beneficial long-term cumulative impacts under Alternative C, because of centralized park operations, reduced maintenance burden, and improved visitor safety.

Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.6.3.4 Alternative D

Under Alternative D, the existing visitor center would be demolished and a completely new facility would be constructed on the site (Figure 2-3). The park entry road would be realigned, and a temporary visitor center would be used as described in Chapter 2. Mitigation measures also described in Chapter 2 of this EA would be implemented under this alternative.

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#### 4.2.6.3.4.1 Direct, Indirect, and Cumulative Effects

There would be minor adverse short-term direct and indirect effects to park operations under Alternative D. Due to the construction of the new visitor center, park staff currently using the existing visitor center would have to move to temporary office space in a three-office trailer within the temporary visitor center facilities, or move to temporary spaces within the library, fire cache, or maintenance building lunchroom. This may cause a minor short-term disruption in operations and administrative functions. However, once the new building is constructed, all administrative offices would move to a

central location within the new visitor center. Therefore, all adverse direct and indirect effects would be short-term in nature, lasting only for the duration of the construction time of 12 to 14 months. There would be major beneficial long-term cumulative effects under Alternative D. Relocation of park administrative offices and park operations to a central location within a new visitor center would promote efficient and streamlined operating procedures and improve maintenance burden. It would allow staff to be more interactive and accessible to each other and to visitors. By locating administrative offices within the new visitor center complex, staff would be more available to assist visitors and provide adequate personnel and information about park resources. It would eliminate the travel time between four buildings that currently exists. It would also provide updated facilities for park employees with improved

office conditions, which also may improve maintenance burden. Past, present, and future foreseeable actions, as described in Section 4.1.3, in combination with this alternative, would provide further beneficial effects to park operations. The widening of U.S. 191 would increase visitor safety and improve overall maintenance burdens and park operations.

#### 4.2.6.3.4.2 Conclusion

There would be minor adverse short-term direct and indirect effects on park operations due to the movement of current offices to temporary offices within the temporary visitor center facility and other buildings. However, once construction is complete, within 12 to 14 months, all administrative functions would move to a central location within the new visitor center. There would be major beneficial long-term cumulative impacts under Alternative D, because of centralized park operations, reduced maintenance burden, and improved visitor safety.

Because there would be no major adverse impact, to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park,

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

#### 4.2.7 Transportation

##### 4.2.7.1 Introduction

The park entry road realignment would redirect traffic entering the park from U.S. 191 across Bloody Mary Wash and towards the new visitor center parking lot. Therefore, the action alternatives are designed to have major impacts on transportation.

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##### • 4.2.7.2 Evaluation Criteria

Criteria used to evaluate the alternatives include visitor and vehicle safety, traffic flow, parking lot capacity, and ease of use. The intensity and duration of impacts, defined in Section 4.1.4, were used to evaluate the effects to transportation.

##### 4.2.7.3 Alternative Comparison

Analysis of the effects of each alternative was completed using the evaluation criteria stated above in Section 4.2.7.2. For a discussion of mitigation measures common to all action alternatives, see Section 2.5.

Any action alternative would include these mitigation measures that are designed to ensure compliance with federal, state, and local laws and regulations and consistency with NPS management policies.

##### 4.2.7.3.1 Alternative A

This alternative is the No Action alternative. Under this alternative, no new visitor center facility would be constructed and the realignment of the park entry road would not occur.

##### 4.2.7.3.1.1 Direct, Indirect, and Cumulative Effects

Since there would be no construction of a new visitor center, parking lot, or park entry road realignment, and no use of a temporary visitor center, there would be no new direct or indirect effects on transportation. Conditions would remain as they are today, with safety concerns at the intersection of U.S. 191 and the current park entry road.

Cumulative effects of this alternative are expected to be moderately adverse. The only future foreseeable

action that is anticipated to affect transportation would be the widening of U.S. 191, although the outcome of the NPS transportation study may illuminate other issues. Due to projected increased visitation, cars

would continue to make unsafe turns into the park, even if U.S. 191 was widened, and would be subject to

long lines at the fee collection station that may stretch back to U.S. 191. UDOT estimated the 2000 average

annual daily traffic on U.S. 191 to be 5,612 vehicles. This traffic volume is expected to continue. Widening

of the highway will not alleviate the high traffic volume, and may in fact, bring more visitors into the park,

causing further overcrowding. In addition, the existing parking lot would continue to be inadequate for

current and projected visitation levels, causing some visitors to bypass the visitor center rather than

endure the crowds.

##### 4.2.7.3.1.2 Conclusion

There are no new direct or indirect effects to transportation anticipated under this

alternative. However, in combination with future foreseeable actions, there would be moderate adverse cumulative effects to transportation due to the current unsafe conditions at the intersection of the park entry road and U.S. 191, the lines at the fee collection station, and the continued overcrowding of the visitor center parking lot.

Because there would be no major, adverse impacts to a resource or value whose conservation is (r) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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#### 4.2.7.3.2 Alternative B

Alternative B is the NPS preferred alternative. Under this alternative, a new visitor center facility would

be constructed adjacent to the existing building (Figure 2-1). The park entry road would be realigned, as

well as utilizing a temporary visitor center, as described in Chapter 2. Mitigation measures also described

in Chapter 2 of this EA would be implemented under this alternative.

##### 4.2.7.3.2.1 Direct, Indirect, and Cumulative Effects

The proposed actions under Alternative B would cause minor short-term adverse direct effects due to

construction activities. Park visitors would be required to park in the gravel parking lot at the temporary

visitor center. This parking lot would have approximately 50 parking stalls. NPS employees would continue to park along-side the service road during construction. There would be some disruption to

traffic entering and exiting the park due to the road realignment. Traffic may need to be diverted or

temporarily stopped to accommodate construction equipment and crews. Indirect effects would be minor

and short-term, possibly causing traffic congestion around the visitor center construction area or the

temporary parking area. Safety hazards would be mitigated to the fullest extent possible during construction.

The only future foreseeable action that is anticipated to affect transportation would be the widening of

U.S. 191, although the outcome of the NPS transportation study may illuminate other issues. The cumulative effects under this alternative, in combination with the widening of U.S. 191, would be moderate

to major and beneficial. The widening of the highway, and the new park entry road are expected to

reduce the safety hazard at the intersection of U.S.191 and the park entrance road. By

elongating the entry road, it would provide for a safe queuing area for cars approaching the fee collection station

and the visitor center. It would also provide a safe pullout for photo opportunities at the Arches

National Park sign on the entrance road. The new parking area for the. visitor center would provide for io8

vehicle spaces and 15 RV and bus parking stalls. There would also be a larger employee parking area,

with 21 stalls available. Traffic flows in and out of the parking area would be designed to facilitate ease of

use without compromising pedestrian safety. Traffic signs and pavement markings on park roads would be

consistent with the standards contained in the Manual on Uniform Traffic Control Devices, as supplemented

by the National Park Service Sign Manual (USDI National Park Service 1988).

##### 4.2.7.3.2.2 Conclusion

Under Alternative B, there would be minor short-term adverse direct and indirect effects on transportation due to construction activities. Visitors would be forced to use the gravel

parking lot at the temporary visitor center. Traffic diversion and some congestion may occur as a result of

construction of the visitor center, parking lot, and park entry road realignment. Any safety hazards would be

mitigated to the fullest extent possible during construction. Under Alternative B, in combination with future

foreseeable actions, there would be moderate beneficial cumulative effects on transportation

under this alternative, mostly due to increased safety and access.

Because there would be no major, adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or



(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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• 4.2.7.3.3 Alternative C

Under Alternative C, the existing visitor center would be demolished and a completely new facility would be constructed on the site (Figure 2-2). The park entry road would be realigned, as well as utilizing a

temporary visitor center, as described in Chapter 2. Mitigation measures also described in Chapter 2 of

this EA would be implemented under this alternative.

4.2.7.3.3.1 Direct, Indirect, and Cumulative Effects

The direct, indirect, and cumulative effects under this alternative are identical to those disclosed under

Alternative B, as park visitors would be required to park in the gravel parking lot at the temporary visitor

center. This parking lot would have approximately 50 parking stalls. NPS employees would continue to

park along-side the service road during construction. There would be some disruption to traffic entering

and exiting the park due to the road realignment. Traffic may need to be diverted or temporarily stopped

to accommodate construction equipment and crews. Indirect effects would be minor and short-term, possibly causing traffic congestion around the visitor center construction area or the temporary parking

area. Safety hazards would be mitigated to the fullest extent possible during construction.

Overall, there

would be minor short-term direct and indirect effects on transportation under Alternative C.

The only future foreseeable action that is anticipated to affect transportation would be the widening of

U.S. 191, although the outcome of the NPS transportation study may illuminate other issues. The cumulative effects under this alternative, in combination with the widening of U.S. 191, would be moderate

to major and beneficial. The widening of the highway and the new park entry road are expected to reduce

the safety hazard at the intersection of U.S. 191 and the park entrance road. By elongating the entry road, it

• would provide for a safe queuing area for car, approaching the fee collection station and the visitor

center. It would also provide a safe pullout for photo opportunities at the Arches National Park sign on

the entrance road. The new parking area for the visitor center would provide for 86 vehicle spaces and 8

RV and bus parking stalls. There would also be a larger employee parking area, with 21 stalls available.

Traffic flows in and out of the parking area would be designed to facilitate ease of use without compromising pedestrian safety. Traffic sign. and pavement markings on park roads would be consistent

with the standards contained in the Manual on Uniform Traffic Control Devices, as supplemented by the

National Park Service Sign Manual (USD1 National Park Service 1988).

4.2.7.3.3.2 Conclusion

The conclusion of effects under this alternative is identical to Alternative B. There would be minor short-

term adverse direct and indirect effects on transportation due to construction activities.

Visitors would

be forced to use the gravel parking lot at the temporary visitor center. Traffic diversion and some

congestion may occur as a result of construction of the visitor center, parking lot, and park entry road

realignment. Any safety hazards would be mitigated to the fullest extent possible during construction.

Under Alternative C, in combination with future foreseeable actions, there would be moderate beneficial

cumulative effects on transportation under this alternative, mostly due to increased safety and access.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of Arches

National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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4.2.7.3.4 Alternative D

Under Alternative D, the existing visitor center would be demolished and a completely new facility would

be constructed on the site (Figure 2-3). The park entry road would be realigned, as well as utilizing a temporary visitor center, as described in Chapter 2. Mitigation measures also described in Chapter 2 of

this EA would be implemented under this alternative.

#### 4.2.7.3.4.1 Direct, Indirect, and Cumulative Effects

The direct, indirect, and cumulative effects under this alternative are identical to those disclosed under

Alternative B, as park visitors would be required to park in the gravel parking lot at the temporary visitor

center. This parking lot would have approximately 50 parking stalls. NPS employees would continue to

park along-side the service road during construction. There would be some disruption to traffic entering

and exiting the park due to the road realignment. Traffic may need to be diverted or temporarily stopped

to accommodate construction equipment and crews. Indirect effects would be minor and short-term, possibly causing traffic congestion around the visitor center construction area or the temporary parking

area. Safety hazards would be mitigated to the fullest extent possible during construction.

Overall, there

would be minor short-term direct and indirect effects on transportation under Alternative D.

The only future foreseeable action that is anticipated to affect transportation would be the widening of

U.S. 191, although the outcome of the NPS transportation study may illuminate other issues. The cumulative effects under this alternative, in combination with the widening of U.S. 191, would

be moderate

to major and beneficial. The widening of the highway and the new park entry road are expected to reduce

the safety hazard at the intersection of U.S.191 and the park entrance road. By elongating the entry road, it

would provide for a safe queuing area for cars approaching the fee collection station and the visitor

center. It would also provide a safe pullout for photo opportunities at the Arches National Park sign on

the entrance road. The new parking area for the visitor center would provide for 86 vehicle spaces and 8

RV and bus parking stalls. There would also be a larger employee parking area, with 21 stalls available.

Traffic flows in and out of the parking area would be designed to facilitate ease of use without compromising pedestrian safety. Traffic signs and pavement markings on park roads would be

consistent

with the standards contained in the Manual on Uniform Traffic Control Devices, as supplemented by the

National Park Service Sign Manual (USDI National Park Service 1988).

#### 4.2.7.3.4.2 Conclusion

The conclusion of effects under this alternative is identical to Alternative B. There would be minor short-

term adverse direct and indirect effects on transportation due to construction activities.

Visitors would

be forced to use the gravel parking lot at the temporary visitor center. Traffic diversion and some

congestion may occur as a result of construction of the visitor center, parking lot, and park entry road

realignment. Any safety hazards would be mitigated to the fullest extent possible during construction.

Under Alternative D, in combination with future foreseeable actions, there would be moderate beneficial

cumulative effects on transportation under this alternative, mostly due to increased safety and access.

Because there would be no major, adverse impacts to a resource or value whose conservation is

(1) necessary to fulfill specific purposes identified in the establishing legislation of Arches National Park;

(2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

(3) identified as a goal in the GMP or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

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#### 5. CONSULTATION AND COORDINATION

The following agencies were contacted and consulted during the preparation of this EA:

U.S. Fish and Wildlife Service, Utah Field Office, Salt Lake City, Utah

The NPS contacted the USFWS with a memorandum regarding potential impacts of the project of

federally listed endangered, threatened and candidate species. A response was received on

October 9, 2001, indicating the potential endangered, threatened, or candidate species that may occur in the area of influence of the proposed action. A review of this list was completed by

the

NPS and it was determined that the action is not likely to adversely affect listed species or critical

habitat. This EA serves as written documentation of this determination and will be submitted to

the USFWS for concurrence. If the USFWS concurs, the consultation process is complete and no further action is necessary.

Utah Department of Transportation, 1345 So. 350 West, Richfield, Utah

State of Utah Historic Preservation Office

Preliminary correspondence between the National Park Service and the State Compliance Archaeologist from the Utah SHPO, dated June 16, 1999, regarding this project has identified no concerns with the park's NHPA Section 106 responsibilities as specified in 36 CFR

800 and

presented herein.

Tribal consultation information is presented below:

Table 5-1. Tribal Consultation Information

Tribe

NPS Communication

Tribal Response

Navajo Nation, Window Rock and

May 24, 1999: Letter seeking tribal

June 4, 1999: Request additional

Navajo Nation Historic

consultation regarding proposed

information.

Preservation

project.

October 2001: On-site visit with

July 1999: Subsequent phone

UDOT and NPS. Keep informed.

responses; video tape of Project

Area.

Hopi Cultural Preservation Office

May 24, 1999: Letter seeking tribal

June 21, 1999: Provide more

consultation regarding proposed

information.

project.

July 20, 1999: Please keep

August 1999: NPS consultation on

informed; contact Hopi if sub-surface

project at Hopi before CRAT (Hopi

materials are discovered.,

Cultural Resource Advisory Team).

August 1999: CRAT determines that

Ute will be tending a TCP. Keep

Hopi informed.

Ute Mountain Ute

May 24, 1999: Letter seeking tribal

October 2001: On-site visit with

consultation regarding proposed

UDOT and NPS. Keep informed.

project.

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Tribe

NPS Communication

Tribal Response

Northern Ute Indian Tribe

1992: Consultation with Northern Ute

TCP identified by Northern Ute in

(Fort Duchesne, Utah)

regarding TCP in what is now

1992.

Project Area.

June 1999 site visit with Northern

May 24, 1999: Letter seeking

Ute elders.

renewed tribal consultation regarding

TCP.

October 2001: On-site visit with

UDOT and NPS.

March 14, 2002: Discussions

regarding NPS and Ute Youths

partnering to relocate purple sage.

White Mesa Ute

May 24, 1999: Letter seeking tribal

No response at present.

consultation regarding proposed

project.

Zuni Heritage and Historic

May 24, 1999: Letter seeking tribal

October 2001: On-site visit with

Preservation Office

consultation regarding proposed

UDOT and NPS. Keep informed.

project.  
Acoma Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Isleta Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Laguna Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Santa Ana Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Santo Domingo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Cochiti Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Jemez Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Sandia Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
San Felipe Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Zia Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Nambe Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Pojoaque Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
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Tribe  
NPS Communication  
Tribal Response  
San Juan Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Tesuque Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.  
consultation regarding proposed  
project.  
Picuris Pueblo  
May 24, 1999: Letter seeking tribal  
No response at present.

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consultation regarding proposed project.

San Ildefonso Pueblo

May 24, 1999: Letter seeking tribal No response at present.

consultation regarding proposed project.

Santa Clara Pueblo

May 24, 1999: Letter seeking tribal No response at present.

consultation regarding proposed project.

Taos Pueblo

May 24, 1999: Letter seeking tribal No response at present.

consultation regarding proposed project.

Eight Northern Indian Pueblo, Inc.

May 24, 1999: Letter seeking tribal Recommend keeping each of the consultation regarding proposed E.N.I.P. tribes informed.

project.

Representative for Tesuque Pueblo did not want NPS to disturb archeological sites, and stated that March 12, 2000: NPS meeting with lands like Mesa Verde NP are Board of Governors regarding traditional Puebloan. Tesuque project.

would like to keep informed and would like to visit Southeast Utah Group NPS units.

Five Sandoval Indian Pueblo, Inc.

May 24, 1999 Letter seeking tribal Keep informed. Recommend

consultation regarding proposed apprising each pueblo.

project.

March 12, 2000 Meeting with

William Wehakee

Southern Pueblos Governors

May 24, 1999 Letter seeking tribal No response.

Council

consultation regarding proposed project

All Indian Pueblo Council

May 24, 1999 Letter seeking tribal

Send any information on Utah NPS consultation regarding proposed activities. Keep informed. AIPC will project.

contact as necessary.

Bureau of Indian Affairs, Navajo

May 24, 1999 Letter seeking tribal

Go direct with Navajo Nation Historic Area Office

consultation regarding proposed Preservation. Keep informed.

project.

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6. COMPLIANCE WITH FEDERAL AND STATE REGULATIONS

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The following laws and associated regulations provided direction for the design of project alternatives,

the analysis of impacts, and the formulation of mitigation measures.

National Environmental Policy Act of 1969 (Title 42 USC 4321-4370). The purposes of NEPA include encouraging "harmony between [humans] and their environment and promote efforts which will prevent

or eliminate damage to the environment... and stimulate the health and welfare of [humanity]."

The purposes of NEPA are accomplished by evaluating the effects of federal actions. The results of these evaluations are presented to the public, federal agencies, and public officials in document format (e.g., environmental assessments and environmental impact statements) for consideration prior to taking official action or making official decisions. Implementing regulations for NEPA are contained in 40 CFR 1500-1515. This document is prepared to comply with NEPA.

Clean Air Act (PL Chapter 360, 69 Stat 322,42 USC 7401 etseq.). The main purpose of this act is to protect and enhance the nation's air quality to promote the public health and welfare. The act establishes specific programs that provide special protection for air resources and air quality related values associated with NPS units. The EPA has been charged with implementing this act. This document addresses potential impacts of the alternatives on air quality. No additional compliance activities are anticipated relative to the Clean Air Act.

Endangered Species Act of 1973, as amended (ESA) (16 USC 1531-1544). The purposes of the ESA include providing "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." According to the ESA, "all federal departments and agencies shall seek to conserve endangered species and threatened species" and "[e]ach federal agency shall...insure that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any endangered species or threatened species." The USFWS (non-marine species) and the National Marine Fisheries Service (NMFS) (marine species, including anadromous fish and marine mammals) administer the ESA. The effects of any agency action that may affect endangered, threatened, or proposed species must be evaluated in consultation with either the USFWS or NMFS, as appropriate. Implementing regulations which describe procedures for interagency cooperation to determine the effects of actions on endangered, threatened, or proposed species are contained in 50 CFR 402. The NPS has consulted with the USFWS to be consistent with the requirement of Section 7 of the ESA. Impacts to special concern species have been evaluated in this EA.

State of Utah, Division of Wildlife Resources Policy Number W2AQ-4: State Sensitive Species. The purpose the Utah Sensitive Species list is to identify those species in the state that are the most vulnerable to population or habitat loss. This list provides land managers, wildlife managers, and concerned citizens with a brief overview of the conservation status of listed species. The list is intended to stimulate management actions, e.g., development and implementation of a conservation strategy, for listed species.

By developing and implementing timely and sufficient conservation measures for Sensitive Species, federal listing of these species under the Endangered Species Act may be precluded.

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National Historic Preservation Act of 1966, as amended (USC 470 et seq.). Congressional policy set forth in NHPA includes preserving "the historical and cultural foundations of the Nation" and preserving irreplaceable examples important to our national heritage to maintain "cultural, educational, aesthetic, inspirational, economic, and energy benefits." NHPA also established the National Register of Historic Places composed of "districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture." NHPA requires the federal agencies take into account the effects of their actions on properties eligible for or included in the National Register of Historic Places and to coordinate such actions with the SHPO. NHPA also requires federal agencies, in consultation with the SHPO, to locate, inventory, and nominate all properties that appear to qualify for the National Register of Historic Places, including National Historic Landmarks. Further, it requires federal agencies to document those properties (in the case of an adverse effect) and propose alternatives to those actions in accordance with NEPA.

Executive Orders 11988 and 11990, Floodplain Management and Wetland Protection. These executive orders direct NPS to avoid, to the extent possible, the long- and short-term adverse impacts associated with modifying or occupying floodplains and wetlands. They also require NPS to avoid direct or

indirect

support of floodplain or wetland development whenever there is a practical alternative. Due to the location of the project within a floodplain, a Statement of Findings is included as part of this EA.

Clean Water Act of 1977, Section 404 (Title 33 USC s/s 1251 et seq.) Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities in waters of the United States that are regulated under this program include fills for infrastructure development (such as roads). Part of the Bloody Mary Wash would be filled during road realignment under the proposed action alternatives. If implemented, the proposed road realignment would require a Section 404 permit. As a result, this EA includes supporting information for a Section 404 permit application to the Corps of Engineers. Executive Order 12898, Environmental Justice in Minority and Low-Income Populations. This executive order directs federal agencies to assess whether their actions have disproportionately high and adverse human health or environmental effects on minority and low-income populations. This topic was dismissed in this EA; therefore, no additional compliance activities are anticipated under this Executive Order.

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Name  
Position/Organization  
Contribution  
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Hydrologist  
Foster Wheeler Environmental  
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Transportation  
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Soils  
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Gery Wakefield  
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GIS  
National Park Service  
Southeast Utah Group  
Diane Allen  
Chief of Interpretation  
Visitor Use and Experience  
National Park Service  
Southeast Utah Group  
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Appendix A  
• Statement of Findings for the Environmental  
Assessment, Arches National Park

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Appendix A

• INTRODUCTION  
Description of the Site  
Much of Arches National Park (Arches) consists of narrow valleys confined by tall canyon walls. The National Park Service (NPS) located the current visitor center in the scenic area of Moab Canyon. The canyon is approximately 5 miles northwest of Moab, Utah, along the southern extent of Arches National

Park. This area provides easy access to the park via U.S. Highway 191. Because of the spectacular scenery and accessibility, much of the development in the park is located along the bottom of Moab Canyon.

Bloody Mary Wash, a small ephemeral stream, flows periodically along the narrow valley bottom of this canyon. The arid climate of southeastern Utah produces high intensity storms that subject the Bloody Mary Wash to periodic flash floods. The Arches visitor center, parking lot, and entrance road are currently located in the regulatory floodplain of the wash.

Description of the Proposed Action  
This statement of findings addresses the NPS proposal to construct a new visitor center, remodel the existing visitor center, and to realign the entry road at Arches. This proposal would include construction of a new visitor center, remodeling of the existing visitor center for NPS administrative functions, and realignment of the park entry road (see Figure 2-1 in EA document). The completed visitor center complex would be an integration of the new and old buildings. The current visitor center would be converted to office space and storage allowing the new building to be dedicated to visitor functions. This building would be then be linked to the new addition via a display that conceals the existing structure from view. The new visitor center would have a north/south orientation and offer unobstructed views of

the scenic cliffs leading to the interior of the park. The new visitor center complex would be 19,473 square feet (sq ft) (4,618 sq ft for the existing visitor center plus 14,855 sq ft for the new visitor center). The total capacity of the visitor center would be 120 people.

Construction of the new visitor center complex under this alternative would also include construction of a new parking lot that would be located adjacent to the new building. It would be 74,596 sq ft and would accommodate 108 public parking stalls for cars and 15 stalls for recreational vehicles (RV) (Figure 2-1). Employee parking would be located just to the east of the existing visitor center and have approximately 20 stalls.

Construction of the new visitor center would coincide with the remodeling of the existing visitor center, and would take approximately 12 to 14 months to complete. At the initiation of construction, temporary visitor center facilities would be placed adjacent to the leach field just to the east of the proposed construction site. These facilities would include one 12 ft by 60 ft three-office trailer, one 8 unit restroom trailer, and one doublewide 1,440 sq ft modular structure for the visitor center and retail bookstore. In addition, a temporary gravel parking area would be placed to accommodate 50 vehicles. Temporary utilities would be installed for water, sewer, phone, and computer. The site would encompass approximately 0.5 acre. The temporary visitor center facilities would remain open until the new visitor center complex and parking lot were constructed and open to the public. All areas impacted by the temporary visitor center would be revegetated and restored after the new visitor center is operational.

Both the new building, existing building, and the realigned park entry road would occupy the Bloody Mary Wash floodplain, as well as the temporary visitor center facility. A small fee station building would also be erected in the floodplain, slightly closer to the Bloody Mary Wash than the new facilities. Because

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"entrance, access, and internal roads to or within units of the NPS" are exempted from the requirements specified in the National Park Service Floodplain Management Guidelines (USDI National Park Service 1993), the road realignment will not be discussed further in this Statement of Findings.

Flooding Characteristics in the Area  
The Bloody Mary Wash is a small, sandy ephemeral tributary of the Colorado River. In the vicinity of the Arches visitor center, this channel is nearly always dry, and typically contains water for only a few hours during the year. It lies between two roads, U.S. 191 on the south and the existing park entrance road on the north. Segments of Bloody Mary Wash have been straightened and stabilized in this area (Reed

1990).

The active floodplain further west near the proposed relocations occupies a wide expanse between the highway berm and the sandstone cliff on the north side of the canyon.

The small watershed of the Bloody Mary Wash consists of bare rock, thin soils, and sparse desert vegetation. These characteristics result in rapid runoff after heavy rains, resulting in periodic flash

flooding. High intensity rainstorms commonly occur in the arid climate of this region, frequently causing

large flood events during summer months. Nevertheless, the potential for flooding exists all year.

Accordingly, the regulatory floodplain as defined in the NPS Floodplain Management Guidelines (USDI

National Park Service 1993) is the maximum floodplain.

The visitor center relocations would continue to be located within the probable maximum flood (PMF)

floodplain. This floodplain represents the area around the Bloody Mary Wash that would be inundated

only during the largest, rarest flood events. Floodwaters have been predicted to be about 2 feet (ft) deep

and travel at about 6 ft per second in the vicinity of the visitor center during a PMF. The visitor center

would be relocated to the same elevation as the current visitor center location under all of the proposed

alternatives. This elevation is above the predicted 500-year flood elevation.

The temporary visitor center would be located in the 100-year floodplain. Mitigation for flood hazard

would be implementation of the Evacuation Plan. No physical flood mitigation measures would be implemented for the temporary visitor center.

In addition, this proposal would include construction of a fee station in the 100-year floodplain.

Justification for Use of the Floodplain

Because the facilities are needed and most of the developable land in Arches falls within narrow valley

floodplains, the NPS has determined that the only practicable alternative for development is to use the

area in the PMF floodplain. The accessibility of the area would minimize the impact of the relocation on

the park's resources.

Mitigation to Minimize Risk to Life or Harm to Floodplain Values

The visitor center would occupy the PMF floodplain and would be constructed to safely withstand the

forces predicted for maximum floods. The location of the visitor center is outside the 500-year floodplain

so the probability of flooding in any given year is very low. The fee station would be located in the 100-

year floodplain. The fee collection station would be constructed to withstand the hydraulic forces

associated with frequently recurring flood events but may be damaged or lost during a very large flood

event. To the extent possible, the structure would be designed to withstand the 100-year flood.

The small

structure would be rebuilt if it were damaged or removed by high waters.

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Appendix A

- NPS will develop and implement an Evacuation Plan, to be located inside the new visitor center building,

which will instruct park employees to gather visitors in the designated shelter areas in the new visitor

center in the event of a very large flood. These areas would be designed specifically to provide refuge to all

park visitors and employees during extreme flooding. An Evacuation Plan will also be placed in the

administrative building instructing park employees to evacuate to the main visitor center building in the

event of the most extreme flood. The entrance road would be closed during a maximum flood event, and

park visitors on the park entry road would be immediately advised to return to U.S. 191. The Evacuation

Plan would also require flash flood warning signs and directions for fee collection station attendants to

seek shelter within the visitor center. The park would emphasize public education and awareness of flood

hazards. The Evacuation Plan would include the temporary visitor center during its use. These measures

would minimize potentially hazardous conditions to people.

The natural and beneficial values of floodplains (moderation of floodwaters, maintenance of water quality, and groundwater recharge) would not be affected by the proposed relocations. Minimal effects

on groundwater recharge would result from the impervious structures and paved surface.

Summary

NPS has determined that there is no practicable alternative to relocating the proposed Arches visitor center within the PMF floodplain. This determination was based on the accessibility of the location and the extremely low potential for disturbance to park resources. These facilities are not within areas subject to frequent flooding, and the proposed Evacuation Plan would minimize any potential risk to life posed by flood hazards.

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Arches National Park  
A-3 April 2002

Appendix A  
Recommended:

Park Superintendent Date

Concurred:

Water Resources Division Date

Approved:

Regional Director Date

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Arches National Park  
A-4 April 2002

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As the nation's principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.