



National Park Service
U.S. Department of Interior
Montezuma Castle National Monument
Camp Verde, AZ

Interdivisional Maintenance Facility Construction

Environmental Assessment

July 2010



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Montezuma Castle National Monument's Interdivisional Maintenance Facility Environmental Assessment

SUMMARY

Since 1984, Montezuma Castle and Tuzigoot National Monuments have been leasing through the General Services Administration (GSA) a building located at the Cliff Castle Casino. This leased building is where the Maintenance Division is located, which services both monuments. This lease will end in 2012, and renewing the lease would require substantial investment and extensive upgrades by the lessor: the electrical system is currently not-to-code; the information technology infrastructure is out of date; the HVAC system does not function efficiently; the roof needs repair; doors and windows need to be sealed and repaired; the worn and stained carpet needs to be replaced; vehicle and equipment storage areas have had security issues, and outside covered storage areas are not available.

This environmental assessment evaluates five alternatives: a no-action alternative and four action alternatives. In all of the alternatives, the interdivisional maintenance facility will service Montezuma Castle (including the Montezuma Well Unit) and Tuzigoot National Monuments. The no-action alternative describes the current condition if no maintenance facility was constructed and the existing lease was continued through 2012. Three of the action alternatives address constructing a new interdivisional maintenance facility within Montezuma Castle National Monument, and one action alternative addresses leasing a different Camp Verde facility outside of the monument.

The preferred alternative (Alternative B) proposes to build a new 4000 sq. ft. interdisciplinary maintenance facility as part of the Park Operations development zone at Montezuma Castle National Monument. As part of this project, a historic maintenance garage/shop would be restored by removing non-historic alterations, stabilizing, and rehabilitating the structure. In order to access the new maintenance facility, the dirt entry road would be upgraded, paved, and widened.

This environmental assessment has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet objectives of the proposal, 2) evaluates potential issues and impacts to monument resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics included in this document as the resultant impacts may be greater-than-minor include soils, vegetation, water resources, species of special concern, historic structures, and park operations. All other resource topics were dismissed because the project would result in negligible or minor effects to those resources. No major effects are anticipated as a result of this project. No unacceptable impacts or impairment of park resources would occur through implementation of any alternative. Public scoping was conducted to assist with document development; two comments were received.

PUBLIC COMMENT

If you wish to comment on the environmental assessment, you may post comments online at <http://parkplanning.nps.gov/moca> or mail comments to: Superintendent; Montezuma Castle and Tuzigoot National Monuments, P.O. Box 219, Camp Verde, AZ 86322.

This environmental assessment will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. Although you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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1.0 PURPOSE AND NEED

1.1 Introduction

Montezuma Castle National Monument, located in the town of Camp Verde, Arizona, was established in 1906 under the authority of the Antiquities Act. Since then, Congress passed legislation in 1937, 1959, 1978, and 2003 expanding the boundary of the monument to better protect the natural and cultural resources adjacent to the cliff dwellings. Montezuma Castle is managed to interpret a five-story, 20 room dwelling built by the Sinagua in the 13th century. The park also incorporates a number of other archeological sites including the remains of a six-story, 45 room pueblo, cavate sites, and other artifacts of the Sinaguan occupation. The monument, located along Beaver Creek, was set aside to maintain archeological sites and natural landscapes, and to protect and manage the ecological processes related to its mix of desert and riparian habitats. The Montezuma Castle Unit includes portions of sections 8, 9, 16, and 17 of T. 14N., R. 5E. of Gila and Salt River Meridian, in Camp Verde, Arizona. This unit has an area of approximately 730 acres.

Montezuma Castle National Monument also has a separate Montezuma Well Unit with an additional 277 acres located in Rimrock, Arizona. Montezuma Well was added as a detached unit of Montezuma Castle National Monument by an Act of Congress in 1943. Congress expanded the boundary of the Well site in 1959 to protect resources adjacent to the Well and for administrative purposes.

Additionally, Tuzigoot National Monument is also managed jointly with Montezuma Castle under a single National Park Service (NPS) administration. Tuzigoot National Monument in Clarkdale, Arizona was established by presidential proclamation on July 25, 1939, to protect the prehistoric structures built by the Sinagua starting in the 11th century. The boundary was expanded by an Act of Congress in 1965 and again in 1978. Additional lands were conveyed through a land exchange in 2005.

The purpose of this environmental assessment is to examine the environmental impacts associated with the proposal to construct a new interdisciplinary maintenance facility at Montezuma Castle National Monument, or relocate the maintenance facility to serve Montezuma Castle (including Montezuma Well) and Tuzigoot National Monuments. This environmental assessment evaluates five alternatives: a no-action alternative and four action alternatives. For the three alternatives related to constructing a new maintenance building, the facility would be constructed within the “Park Operations Zone” (defined by draft 2010 General Management Plan) where the administrative area and residences for Montezuma Castle National Monument are located and would replace the current soon-to-expire lease of the Cliff Castle Casino maintenance area.

This environmental assessment was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and the National Park Service Director’s Order (DO)-12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making).

Within this document, the terms “National Park Service,” “NPS,” “monument,” and “park” will be used interchangeably. The Maintenance Division for Montezuma Castle and Tuzigoot National Monuments is a single division servicing both monuments.

1.2 Background

1.2.1 Current Lease Situation

Through the General Services Administration (GSA), Montezuma Castle and Tuzigoot National Monuments have been leasing since 1984 a building for the monuments’ Maintenance Division located at the Cliff Castle Casino. This lease officially expired in 2009, but the park has negotiated to extend the lease into 2012 with the option to vacate earlier. Renewing the lease would require substantial investment and extensive upgrades by the lessor: the electrical system is currently not-to-code; the information technology infrastructure is out of date; the HVAC system does not function properly; the roof needs repair; doors and windows need to be sealed and repaired; the worn and stained carpet needs to be replaced; vehicle and equipment storage areas have had security issues, and outside covered storage areas are not available.

Secure storage for National Park Service supplies, tools, equipment, and vehicles is currently lacking at the leased casino building. Storage space is located near the public-use casino, resulting in known vandalism cases for park equipment. A lack of adequate storage space and leaky storage sheds are also responsible for damage to park equipment. Furthermore, park vehicles and equipment are currently scattered across various boneyards throughout the leased casino area as well as monument areas.

1.2.2 At Montezuma Castle National Monument

Of the three geographically separated sites (Montezuma Castle, Montezuma Well, and Tuzigoot), Montezuma Castle National Monument has the greatest visitation. In 2009, over 504,000 people visited Montezuma Castle National Monument (NPS Park Use Statistics). The Ranger Division’s administrative offices are located at the monument.

At Montezuma Castle National Monument, storage for park divisions and the cooperating association, which runs the visitor center bookstore, is currently located in a historic maintenance shop/garage as well as in several additions to the building. The historic maintenance shop was built in October 1934 as a maintenance garage and equipment shed for storage (Protas 2002). A wooden addition consisting of three separate vehicle storage ports was added to the southeast side of the garage in 1963. Additions and alterations to the wooden structure were completed in 1994 and 1998. Most notably, the structure (the three vehicle storage ports) was enclosed in 1994. The 1994 enclosure will be referred throughout this document as a “non-historic alteration.”

A 1994 determination of eligibility lists the 1934 garage as locally significant and eligible for the National Register of Historic Places for its association with the National Park Service Rustic Style popular from 1916-1942 (NPS 2005). A National Register of Historic Places Nomination is currently being completed for the creation of a Montezuma Castle Historic District to include all Public Works Administration/Works Progress Administration (1934-1938) and Mission 66 (1956-1966) structures within the monument boundary.

The original historic maintenance shop/garage has undergone much deterioration since it was originally built in 1934. It is currently mouse-infested with cracked windows, deteriorating plaster, cracking exterior masonry, and structural instability caused by foundation settling. The historic maintenance shop/garage lacks plumbing and heating/cooling systems, although a substandard electrical system exists.

In addition to storage issues, Montezuma Castle National Monument currently lacks an area outside of public view to administer first aid treatment. This has caused rangers and other emergency services staff to treat visitors for first aid in public spaces without any privacy.

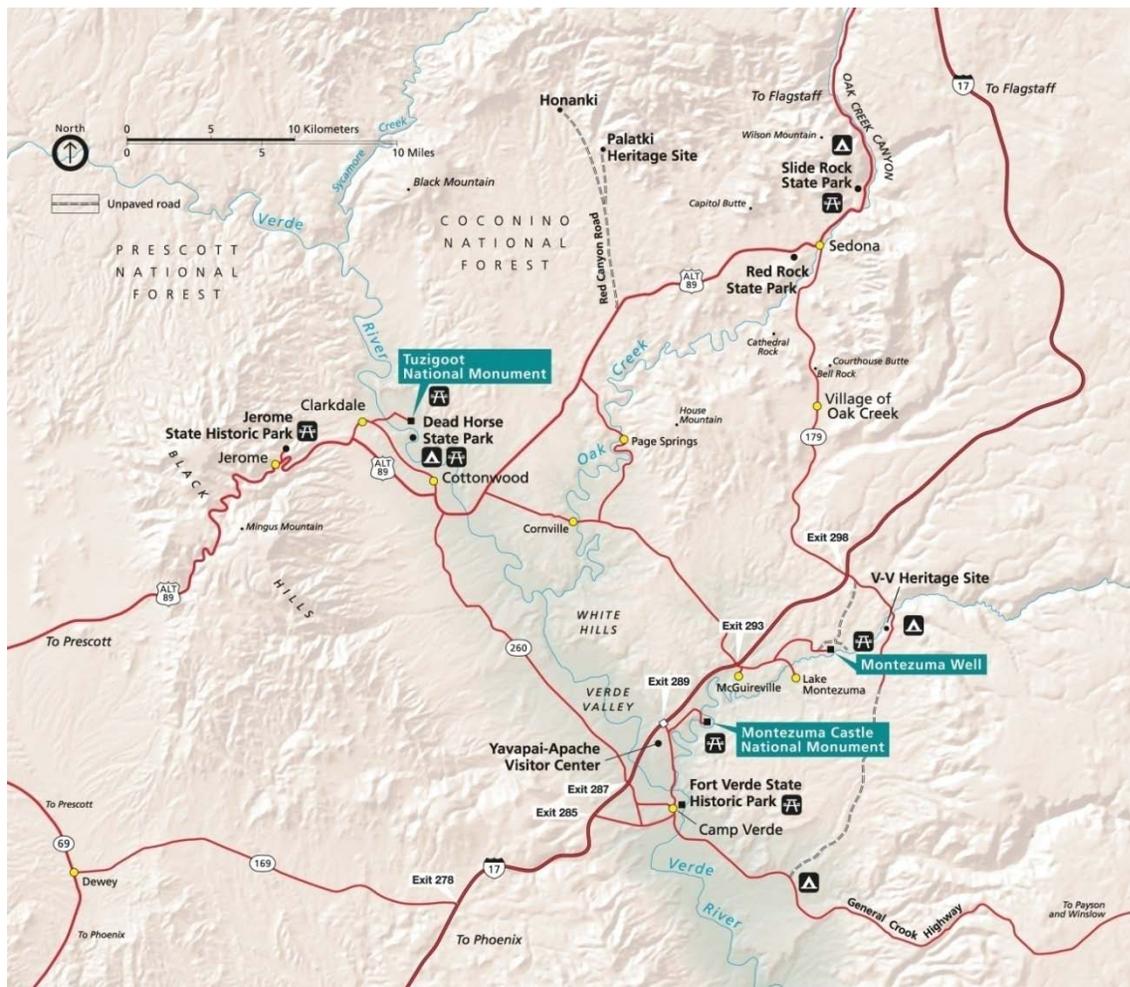


Figure 1. Location of the three monument areas: Montezuma Castle National Monument, Montezuma Well Unit, and Tuzigoot National Monument.

1.2.3 At Montezuma Well Unit and Tuzigoot National Monument

Of the three sites, Montezuma Well is the only site that does not have an entrance fee, and currently has an annual visitation of over 191,000 visitors (2009 NPS Park Use Statistics). For maintenance and storage buildings, Montezuma Well has an 1100 sq. ft. maintenance shop/garage. There are no administrative offices located at the Well, although there is a small contact station for visitor information as well as two park residences/houses.

Located 30-45 minutes across the Verde Valley from Montezuma Castle and Montezuma Well, Tuzigoot National Monument has an annual visitation of 106,250 visitors (2009 NPS Park Use Statistics). Tuzigoot houses a visitor center, the Division of Resource Management administrative offices, and two park residences/apartments. Interdivisional storage is located in a two-vehicle carport structure attached to the Resource Management offices and in a detached 300 sq. ft. shed/garage.

1.3 Purpose and Need

The purpose of the project is to provide a safe, healthy, functional, and efficient environment for monument staff, provide a suitable area for first aid treatment, and restore historic integrity to the historic maintenance shop/garage. The project is needed to accomplish the following objectives:

1. Provide a permanent professional maintenance operations facility that meets current health and safety standards for maintenance staff.
2. Provide an efficient location for maintenance staff to be stationed that facilitates monument-wide operations and has close proximity to Montezuma Castle National Monument, the monument site with the highest visitation and greatest maintenance needs.
3. Provide a professional first aid space for the public away from public view.
4. Provide adequate information technology infrastructure and phone lines.
5. Provide a safe place to park NPS vehicles and equipment.
6. Provide secure and weatherproof interdivisional and cooperating association storage.
7. Provide a safe working environment with adequate HVAC, fire detection/suppression, and ADA accessibility.
8. Separate the maintenance operation functions from the existing residential area to avoid increased traffic and safety hazards in residential area.
9. Stabilize the historic maintenance garage/shop and remove non-historic additions.

1.4 Relationship to Other Plans and Policies

Current plans and policy that pertain to this proposal include the draft 2010 General Management Plan/Environmental Assessment for Montezuma Castle and Tuzigoot National Monuments and the 2006 National Park Service Management Policies (NPS 2006). Following is more information on how this proposal meets the goals and objectives of these plans and policies:

- This project is consistent with the draft 2010 General Management Plan/Environmental Assessment for Montezuma Castle and Tuzigoot National Monuments, which proposes the development of a permanent operations facility. The draft 2010 General Management Plan went out for a 60-day public review from March 26 through May 24, 2010. No negative comments were received, and a Finding of No Significant Impact (FONSI) is expected to be released in September 2010. The General Management Plan identifies the

actions, impacts, and mitigating measures necessary to resolve issues facing the monument. The preferred alternative of the General Management Plan states that the facility building would be located in the “Park Operations Zone” at Montezuma Castle National Monument: “The new facility would replace workspace and storage space lost with the expiration of the GSA lease with the Yavapai Apache reservation in Camp Verde, supporting the functions of all three sites, particularly the Castle.”

- The proposal is consistent with the goals and objectives of the 2006 National Park Service Management Policies (NPS 2006) that state that major park facilities within park boundaries should be located so as to minimize impacts to park resources. The proposed site of the new maintenance facility was identified to minimize harm to all park resources, is located near other administrative and residence buildings, and has been sited on partially disturbed lands.

1.5 Appropriate Use

Sections 1.4 and 1.5 of 2006 National Park Service Management Policies (NPS 2006) direct that the National Park Service must ensure that the park uses that are allowed would not cause impairment of, or unacceptable impacts on, park resources and values. A new form of park use may be allowed within a park only after a determination has been made in the professional judgment of the park manager that it will not result in unacceptable impacts.

Section 8.1.2 of 2006 National Park Service Management Policies, “Process for Determining Appropriate Uses,” provides evaluation factors for determining appropriate uses. All proposals for park uses are evaluated for:

- Consistency with applicable laws, executive orders, regulations, and policies;
- Consistency with existing plans for public use and resource management;
- Actual and potential effects on park resources and values;
- Total costs to the service; and
- Whether the public interest will be served.

Park managers must continually monitor all park uses to prevent unanticipated and unacceptable impacts. If unanticipated and unacceptable impacts emerge, the park manager must engage in a thoughtful, deliberate process to further manage or constrain the use, or discontinue it. More information on the definition of unacceptable impacts as cited in Section 1.4.7.1 of 2006 National Park Service Management Policies can be found in Section 4.0, Environmental Consequences, of this document.

A maintenance operations facility is a common and vital structure in most park units. Proper location, sizing, as well as construction materials and methods would ensure that unacceptable impacts to park resources and values would not occur. The proposed interdivisional maintenance facility is consistent with the park’s general management plan and other related park plans. With this in mind, the NPS finds that the use and/or construction of an interdivisional maintenance facility building are appropriate uses at Montezuma Castle National Monument.

1.6 Public Scoping

Scoping is a process to identify the resources that may be affected by a project proposal, and to explore possible alternative ways of achieving the proposal while minimizing adverse impacts. Montezuma Castle National Monument conducted both internal scoping with National Park Service staff and external scoping with the public and interested/affected groups and agencies.

Internal scoping was conducted by an interdisciplinary team of professionals from Montezuma Castle and Tuzigoot National Monuments and National Park Service Intermountain Regional Office. Interdisciplinary team members met on June 2009, April 2010, and May 2010, to discuss the purpose and need for the project; various alternatives; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and possible mitigation measures. Over the course of the project, team members also conducted a site visit to view and evaluate the proposed sites for the new maintenance facility.

External scoping was initiated with the distribution of a scoping letter to inform the public of the proposal to construct a new maintenance facility, and to generate input on the preparation of this environmental assessment. The scoping letter dated October 27, 2009 was emailed to over 80 individuals, including local landowners. In addition, the scoping letter was mailed to various federal and state agencies, affiliated Native American tribes, local governments, and local news organizations. Scoping information was also posted on the monument's website.

During the 30-day scoping period, one public response was received to ask if the future proposed building site would be on floodplains or wetlands; both topics were dismissed in this analysis (see Section 2.2.2). One Native American tribe responded with no objection to the proposed project and a request to be kept informed of any archeological sites that would be affected as well as any cultural features or deposits encountered during project activities. More information regarding scoping can be found in Comments and Coordination.

2.0 IMPACT TOPICS

Impact topics for this project have been identified on the basis of federal laws, regulations, and Executive Orders; 2006 National Park Service Management Policies; and park staff knowledge of resources at Montezuma Castle National Monument.

Impact topics carried forward for further analysis in this environmental assessment are

- Soils
- Vegetation
- Water Resources
- Species of Special Concern
- Historic Structures
- Park Operations

Impact topics dismissed from further analysis are:

- Air Quality
- Wetlands and Floodplains
- General Wildlife
- Archeological Resources
- Paleontological Resources
- Ethnographic Resources
- Cultural Landscapes
- Museum Collections
- Visitor Use and Experience
- Soundscape Management
- Public Health and Safety
- Socioeconomic Environment
- Prime and Unique Farmlands
- Indian Trust Resources
- Environmental Justice
- Wilderness

2.1 Impact Topics Retained for Further Analysis

Impact topics that are carried forward for further analysis in this environmental assessment are listed below along with the reasons why the impact topic is further analyzed. For each of these topics, the following text also describes the existing setting or baseline conditions (i.e. affected environment) within the project area. This information will be used to analyze impacts against the current conditions of the project area in Section 4.0, Environmental Consequences.

2.1.1 Soils

According to the 2006 National Park Service Management Policies, the National Park Service will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue (NPS 2006). These policies also state that the National Park Service will strive to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources. Building a new facility has the potential to have a measurable impact the soil resource; therefore this topic will be analyzed further.

2.1.2 Vegetation

According to the 2006 National Park Service Management Policies, the National Park Service strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants (NPS 2006). Building a new facility has the potential to have a measurable impact on vegetation; therefore this topic will be analyzed further.

2.1.3 Water Resources

NPS policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act of 1963 is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To enact this goal, the U.S. Army Corps of Engineers has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions, which affect waters of the United States. Beaver Creek meanders through the eastern and southern portions of the monument, and is located south of the monument's "Park Operations Zone" (as defined in the 2010 General Management Plan). Constructing a new maintenance facility could impact water quality in the monument and downstream; therefore, the topic of water quality will be analyzed further.

According to the 2006 National Park Service Management Policies, the National Park Service will withdraw park waters for consumptive use only when absolutely necessary for the use and management of the park. All park water withdrawn for administrative uses will be returned to the park watershed system once it has been treated to a degree that ensures that there will be no impairment of park resources. Adding a new maintenance facility would increase water consumption and could affect water quality; therefore, the topic of water quantity will be analyzed further.

2.1.4 Species of Special Concern

The Endangered Species Act of 1973 requires examination of impacts on all federally-listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service (or designated representative) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the 2006 National Park Service Management Policies and Director's Order 77 Natural Resources Management Guidelines require the National Park Service to examine the impacts on federal

candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species (NPS 2006). There are a number of special status species in Montezuma Castle National Monument. We have concluded that this proposal may affect these species or their habitats; therefore, this topic is carried forward for further analysis.

2.1.5 Historic Structures

The term “historic structures” refers to both historic and prehistoric structures, which are defined as constructions that shelter any form of human habitation or activity. The project area contains a historic structure eligible for the National Register of Historic Places. For the purpose of this environmental assessment, only structures containing standing architecture will be discussed in this section while ephemeral prehistoric sites will be addressed below under archeological resources. Proposed alternatives address actions directly related to historic structures; therefore this topic will be analyzed further.

2.1.6 Park Operations

Currently, the Maintenance Division for Montezuma Castle (including Montezuma Well) and Tuzigoot National Monuments is located off-site from parklands at a leased building on Cliff Castle Casino lands. Proposed alternatives of this project will have measurable effects on monument staff’s time, work, and efficiencies. Providing a suitable area for administering first aid to the public away from public use areas will also have a measurable effect on visitor services. Storage for all of the monument divisions as well as the cooperating association, Western National Parks Association, is also provided by this project. Therefore, this topic will be analyzed further.

2.2 Impact Topics Dismissed from Further Analysis

2.2.1 Air Quality

The Clean Air Act of 1963 (42 U.S.C. 7401 et seq.) was established to promote the public health and welfare by protecting and enhancing the nation’s air quality. The act establishes specific programs that provide special protection for air resources and air quality related values associated with National Park Service units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards. Montezuma Castle and Tuzigoot National Monuments are designated as Class II air quality areas under the Clean Air Act. A Class II designation indicates the maximum allowable increase in concentrations of pollutants over baseline concentrations of sulfur dioxide and particulate matter as specified in Section 163 of the Clean Air Act. Furthermore, the Clean Air Act provides that the federal land manager has an affirmative responsibility to protect air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts.

Because ground disturbance is involved, there is a possibility of raising fugitive dust during the project. Application of mulch and gravel on the site after work is completed would provide long-term dust control. Mulch and gravel would stabilize the soil surface and reduce wind speed/shear against the ground surface. Trenching and other minor onsite work would increase dust and combustion-related emissions. Dust raised during ground disturbance would be limited by

project size and equipment used. Clearly marking project boundaries would avoid unnecessary soil disturbance and consequent dust generation. Water sprinkling can control fugitive dust emissions from light traffic in the project area.

Construction equipment can adversely affect air quality by exhaust emissions. Minimizing the extent to which construction equipment idles would help reduce this effect. Indirect air quality impacts from routine daily vehicle emissions from visitors, employees, and official business would be unchanged.

Therefore, local air quality may be temporarily degraded by dust generated by construction activities and emissions from construction equipment. This degradation would result in an overall negligible impact to air quality, and would be temporary, lasting only as long as construction activities. Impacts to overall park or regional air quality are not expected. Therefore, air quality was dismissed from further analysis.

2.2.2 Wetlands and Floodplains

For regulatory purposes under the Clean Water Act (also known as Federal Water Pollution Control Act, 33 U.S.C. 1251-1387), the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Executive Order 11990 Protection of Wetlands requires federal agencies to avoid, where possible, adversely impacting wetlands. Further, Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge of dredged or fill material or excavation within waters of the United States. National Park Service policies for wetlands as stated in 2006 National Park Service Management Policies and Director's Order (DO) 77-1 Wetlands Protection, strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1 Wetlands Protection, proposed actions that have the potential to adversely impact wetlands must be addressed in a Statement of Findings for wetlands. There will be no adverse impacts to wetlands as described in DO 77-1 and no Statement of Findings has been prepared.

Executive Order 11988 Floodplain Management requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The National Park Service under 2006 National Park Service Management Policies and Director's Order 77-2 Floodplain Management will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to DO 77-2 Floodplain Management, certain construction within a 100-year floodplain requires preparation of a Statement of Findings for floodplains. There will be no net loss of floodplains and no construction in these areas. Therefore a Statement of Findings for floodplains will not be prepared.

Because the project area for this maintenance facility proposal does not occur in a wetland or floodplain, these topics have been dismissed.

2.2.3 General Wildlife

According to 2006 National Park Service Management Policies, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals. The location of the proposed maintenance facility is in a partially disturbed area within the “Park Operations Zone” for the monument. The alternative that would allow construction on the greatest amount of currently undisturbed lands has no surface water, and is generally flat with no major geologic features and minimal vegetation. The current presence of humans, human-related activities, and structures have removed or displaced much of the native wildlife habitat in the project area, which has limited the number and variety of wildlife occurrences in the area. Elk and deer do occur in the project area on occasion; however, it is not considered primary habitat due to limited vegetation, and availability of similar habitat nearby. Some smaller wildlife such as rodents and reptiles and their habitat would be displaced or eliminated during building construction. Disturbed areas would be revegetated and rehabilitated following construction, resulting in minor adverse impacts to wildlife and wildlife habitat in the immediate area of construction.

During construction, noise would increase, which may disturb wildlife in the general area. Construction-related noise would be temporary, and existing sound conditions would resume following construction activities. Therefore, temporary construction noise would have a minor short-term adverse effect on wildlife. Because these effects on general wildlife would be minor in degree and largely temporary, this topic was dismissed from further analysis.

2.2.4 Archeological Resources

The National Park Service, as steward of many of America's most important cultural resources, is charged to preserve cultural resources for the enjoyment of present and future generations. Management decisions and activities throughout the National Park System must reflect awareness of the irreplaceable nature of these resources. The National Park Service will protect and manage cultural resources in its custody through effective research, planning, and stewardship and in accordance with the policies and principles contained in the 2006 National Park Service Management Policies and the appropriate Director’s Orders.

Section 106 of the National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.); the National Park Service’s Director’s Order 28 Cultural Resource Management Guideline; and 2006 National Park Service Management Policies require the consideration of impacts on historic properties that are listed on or eligible to be listed in the National Register of Historic Places. The National Register is the nation’s inventory of historic places and the national repository of documentation on property types and their significance. The above-mentioned policies and regulations require federal agencies to coordinate consultation with State Historic Preservation Officers regarding the potential effects to properties listed on or eligible for the National Register of Historic Places.

In addition to the National Historic Preservation Act and the 2006 National Park Service Management Policies, the National Park Service’s Director’s Order 28A Archeology affirms a long-term commitment to the appropriate investigation, documentation, preservation, interpretation, and protection of archeological resources inside units of the National Park System. As one of the principal stewards of America's heritage, the National Park Service is charged with the preservation of the commemorative, educational, scientific, and traditional cultural values of

archeological resources for the benefit and enjoyment of present and future generations. Archeological resources are nonrenewable and irreplaceable, so it is important that all management decisions and activities throughout the National Park System reflect a commitment to the conservation of archeological resources as elements of our national heritage.

The proposed location for the maintenance facility building was surveyed by National Park Service archeologists in 1988, and no archeological sites were identified in the immediate project area (Wells and Anderson 1988). An additional clearance survey was performed within the project area in 2009 and no archeological sites were noted (Guebard and Kleinman 2009). Therefore, the proposed project area is not expected to contain archeological deposits; however, appropriate steps would be taken to protect any archeological resources that are inadvertently discovered during construction (see Section 3.3, Mitigation Measures). Because the project will not disturb any known archeological sites, the effect of the project on archeological resources is expected to be negligible. Furthermore, since negligible impacts would not result in any unacceptable impacts, the proposed actions are consistent with §1.4.7.1 of 2006 National Park Service Management Policies. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

2.2.5 Paleontological Resources

According to 2006 National Park Service Management Policies, paleontological resources (fossils), including both organic and mineralized remains in body or trace form, will be protected, preserved, and managed for public education, interpretation, and scientific research (NPS 2006). No paleontological resources have been found in or near the project site. Therefore, there are no impacts to paleontological resources as a result of this proposal and they will be dismissed from further assessment.

2.2.6 Ethnographic Resources

Per the National Park Service's Director's Order 28 Cultural Resource Management Guideline, ethnographic resources are defined 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. According to Director's Order 28 and Executive Order 13007 on sacred sites, the National Park Service should try to preserve and protect ethnographic resources.

Ethnographic resources are not known to exist in the proposed project area based on the lack of cultural materials present. In addition, Native American tribes traditionally associated with the monument were apprised of the proposed project in a letter dated October 27, 2009. The Hopi Tribe at that time posed no objection to the proposed project; no other tribes responded. Although no formal ethnographic survey has been conducted in the park, informal consultation with the tribes suggests there are no ethnographic resources in the project area. Therefore, this topic has been dismissed from further consideration.

2.2.7 Cultural Landscapes

According to the National Park Service's Director's Order 28 Cultural Resource Management Guideline, 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. Although a formal cultural landscape inventory has not been conducted for the monument, all activities will be conducted in such a manner as to avoid impacting currently unknown cultural landscapes. Therefore, this topic has been dismissed from further consideration.

2.2.8 Museum Collections

According to Director's Order 24 Museum Collections, the National Park Service requires the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material), and provides further policy guidance, standards, and requirements for preserving, protecting, documenting, and providing access to, and use of, National Park Service museum collections. Museum collections would not be impacted by this proposal and the topic of museum collections has been dismissed from further consideration.

2.2.9 Visitor Use and Experience

According to 2006 National Park Service Management Policies, the enjoyment of park resources and values by people is part of the fundamental purpose of all park units (NPS 2006). The National Park Service is committed to providing appropriate, high quality opportunities for visitors to enjoy the parks, and will maintain within the parks an atmosphere that is open, inviting, and accessible to every segment of society. Further, the National Park Service will provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the parks. The 2006 National Park Service Management Policies also state that scenic views and visual resources are considered highly valued associated characteristics that the National Park Service should strive to protect (NPS 2006). The proposed locations of the maintenance facility are all within the "Park Operations Zone," the developed administrative area for Montezuma Castle National Monument where visitors are formally not allowed (first aid services would be an exception after this project). The use of the first aid area is discussed in Section 2.1.6, Park Operations. Therefore, visitor use and experience (outside of first aid-related topics) was dismissed from further analysis.

2.2.10 Soundscape Management

The proposed maintenance facility location falls within the "Park Operations Zone," an area developed for administrative use. Construction activities would generate some noise in the development zone above ambient conditions. Noise sources include vehicles, equipment, and additional people in the area conducting work. Noise impacts from this project would only last the duration of construction. Minimizing idling of construction vehicles and equipment would help reduce noise impacts. All construction would occur during daylight hours when noise from roads and associated traffic already affect the project area. Any additional traffic would only be temporary and would negligibly affect the areas in the short-term. Furthermore, tour bus traffic frequently occurs in the Montezuma Castle Visitor Center parking area and can be heard in the developed area. Therefore, this project would have no considerable effects on soundscape. Similarly, effects of past, present, and foreseeable future actions on soundscape would be short-term and would not considerably affect soundscape. Therefore, soundscape was dismissed from further analysis.

2.2.11 Public Health and Safety

The health and safety of visitors and park staff are of the utmost importance to Montezuma Castle and the NPS. The 2006 National Park Service Management Policies state that the “Service and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees.” With over 504,000 annual visitors (2009 statistics) coming to Montezuma Castle and temperatures ranging from 18 to 115 degrees F, visitors occasionally have temperature-related illnesses during their visits. Other injuries such as tripping and bee stings have also occurred at the monument. While some alternatives do include building a first aid area in order to treat visitors away from public view, this project is not expected to cause an appreciable change in the numbers of incidents. Because of this, public health and safety was dismissed from further analyses.

2.2.12 Socioeconomic Environment

The proposed action would neither change local and regional land use nor appreciably impact local businesses or other agencies. Implementation of the proposed action could provide a negligible impact to the economy of nearby Lake Montezuma, Rimrock, Camp Verde, Clarkdale and Cottonwood, Arizona. There could be minimal increases in employment opportunities and revenue generated from this project. Any increase in workforce and revenue would be temporary and negligible. Because the impacts to the socioeconomic environment would be negligible, this topic has been dismissed.

2.2.13 Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects to prime and unique farmlands that would result in the conversion of these lands to non-agricultural uses. Prime or unique farmland is classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. There are no prime and unique farmlands designated in Montezuma Castle National Monument and this topic has been dismissed.

2.2.14 Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by the Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources at Montezuma Castle National Monument. The lands comprising the monument are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Because there are no Indian trust resources, this topic is dismissed from further analysis in this document.

2.2.15 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. Because the new maintenance facility would be available for use by all park staff regardless of race or income, and the construction workforces would not be hired based on their race or income, the proposed action would not have disproportionate health or environmental effects on minorities or low-income populations or communities. Because there would be no disproportionate effects, this topic is dismissed from further analysis in this document.

2.2.16 Wilderness

The 2006 National Park Service Management Policies applies “wilderness” to the categories of eligible, study, proposed, recommended, and designated wilderness. There are no such lands designated under any of those categories at Montezuma Castle National Monument, therefore this topic is dismissed from further analysis in this document.

2.3 Maps and Photos of Project Area

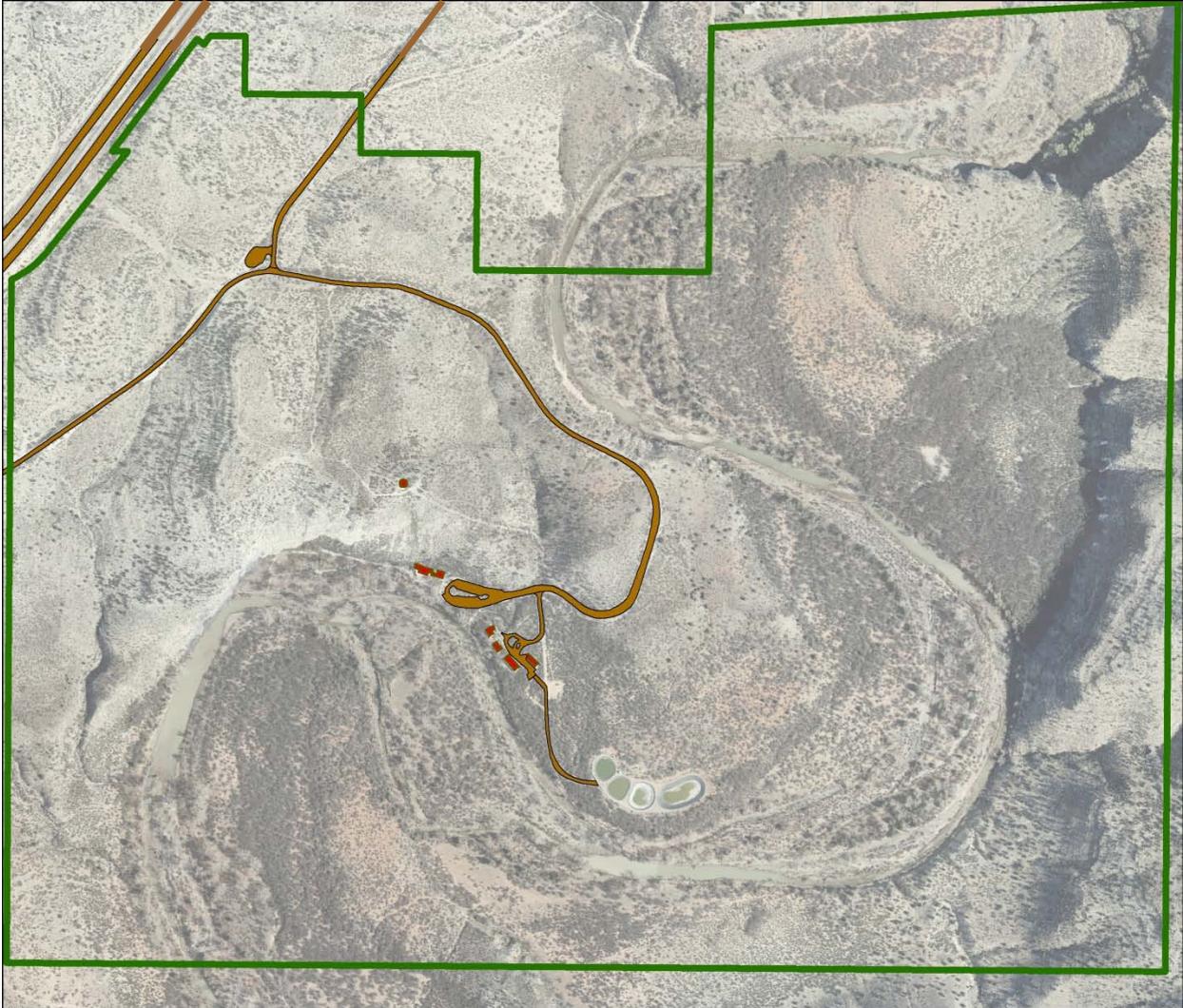


Figure 2. Map of Montezuma Castle National Monument. The roads are in brown and the buildings are in red. Buildings are identified in Figure 3.



Figure 3. Aerial view of project area—red oval indicates project area for alternatives B, C, and D. Unlabeled building within the oval is a historic maintenance shop/garage which also had non-historic sheds added onto the southern side.



Figure 4. Panoramic view of project area. Project area is in red (does not include apartments).



Figure 5. Historic maintenance shop/garage (building with stone sides) with 1963 and non-historic alterations attached on right side; this is the unlabeled building located in project area circle in Figure 3.



Figure 6. Non-historic alterations to the maintenance shop/garage, most notably enclosed carports.



Figure 7. Two interior views of historic maintenance shop/garage.

3.0 ALTERNATIVES CONSIDERED

During meetings on June 2009, April 2010, and May 2010, an interdisciplinary team of Montezuma Castle National Monument and NPS Intermountain employees met for the purpose of developing project alternatives. These meetings resulted in the definition of project objectives as described in the Purpose and Need (Section 1.3). A total of eight alternatives were considered. Five alternatives were carried forward for analyses and three alternatives were rejected.

3.1 Alternatives Carried Forward

3.1.1 Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Since 1984, Montezuma Castle and Tuzigoot National Monuments have been leasing a building for the monuments' Maintenance Division located at the Cliff Castle Casino. This lease, administered by the General Services Administration (GSA) officially expired in 2009, but the park has negotiated to extend the lease into 2012 with the option to vacate earlier. The leased maintenance building is approximately 2720 sq. ft. with one office (320 sq. ft.), one multidesk room (440 sq. ft.), one storage area (800 sq. ft.), and one shop/storage area (560 sq. ft.). The parking area is not designated, and is part of the equipment storage area. The leased building is located approximately 2.25 miles from the Montezuma Castle National Monument's buildings.

Renewing the lease would require substantial investment and extensive upgrades by the lessor: the electrical system is currently not-to-code; the information technology infrastructure is out of date; the HVAC system does not function properly; the roof needs repair; doors and windows need to be sealed and repaired; the worn and stained carpet needs to be replaced; vehicle and equipment storage areas have had security issues, and outside covered storage areas are not available.

The building has additional problems, including an improperly settled concrete slab foundation which is causing the slab to crack in many areas, causing the leased building to warp, and buckling some of the interior walls. The building is not water-tight, and during steady rainfall (such as annual monsoons), water seeps into the building through the base of the exterior walls. Furthermore, the doors and windows are not fully sealed, contributing further to the inadequate cooling and heating system. The cracks and openings in the building also have led to insect and rodent infestation of the building.

In the parking/equipment lot, the asphalt surface of the property is severely deteriorated. The areas currently used as parking block access to garage doors and the hazardous materials storage area. The parking/equipment lot also receives debris and vandalism from people throwing glass bottles and garbage from the casino public areas. Heavy rains also cause mud to flow off the adjacent hillside and onto the property into equipment/parking area.

It is currently unclear whether the lessor would be able to make the substantial and expensive upgrades. In previous discussions, the lessor has mentioned that they had plans (currently on hold) to build an annex to the casino where the current maintenance building stands.

3.1.2 Alternative B: Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop (*Preferred Alternative*)

Under this alternative, a new 4000 sq. ft. interdisciplinary maintenance facility would be constructed at a location approximately 200 ft. southeast of the existing 780 sq. ft. historic maintenance shop. The proposed building site area has already been partially disturbed and has been the site of rock and gravel storage/placement (see Figure 8 below). The new building site including parking areas would cover approximately 0.55 acres and a total of 1.30 acres is likely to be disturbed by construction activities (including road building activities). This maintenance facility and site area would provide all of the necessary interior space for the park at Montezuma Castle, as well as all of the exterior space such as vehicle storage and parking. This alternative provides the needed storage for all of the monument's divisions and cooperating association within the newly built 4000 sq. ft. maintenance facility.

Non-historic alterations would be removed from the historic maintenance shop/garage. The historic maintenance building would be stabilized as part of the facility construction. In a different project, the historic maintenance shop/garage would be restored and rehabilitated to its original historic function as a maintenance garage and vehicle storage area.

In order to access this new facility and provide adequate transportation means for the various maintenance and delivery vehicles, the access road would be upgraded, paved, and widened to 22 ft. wide from the current dirt road. The existing driveway between historic maintenance building area and new building would also be widened to 22 ft. from the current dirt road.

3.1.3 Alternative C: Construct 3188 sq. ft. maintenance facility and restore 780 sq. ft. historic maintenance shop as storage area

Under Alternative C, a new 3188 sq. ft. interdisciplinary maintenance facility would be constructed at a location approximately 200 ft. southeast of the existing 780 sq. ft. historic maintenance shop. The new building site, including parking areas, would cover approximately 0.50 acres and construction activities (including road building) would likely disturb a total of 1.25 acres. Part of the proposed building site has already been disturbed and has been the site of rock and gravel storage/placement (see Figure 8 below). This maintenance facility and site area would provide some of the interior space needs for the park at Montezuma Castle, as well as all of the exterior space such as vehicle storage and parking.

Non-historic additions to the garage as well as the metal carport which currently functions as a storage area would be removed from the historic maintenance building. This historic maintenance building would be rehabilitated to provide 780 sq. ft. of needed storage.

In order to access this new facility and provide adequate transportation means for the various maintenance and delivery vehicles, the access road would be upgraded, paved, and widened to 22 ft. wide from the current dirt road. The existing driveway between historic maintenance building area and new building would also be widened to 22 ft. from the current dirt road.

3.1.4 **Alternative D:** As addition to 780 sq. ft. historic maintenance shop, build 3188 sq. ft. maintenance facility

Under Alternative D, the 3188 sq. ft. interdisciplinary maintenance facility would be constructed as an addition to the existing 780 sq. ft. historic maintenance shop on the southeast side to create a 3968 sq. ft. building. This add-on building site would be approximately 0.5 acres and construction activities (including road building) would likely disturb a total of 1.44 acres. The historic building would be a stand-alone building connected to the new facility through a breezeway or exterior connection. The historic maintenance shop area would be used as additional storage. The new building site provides all exterior spaces such as vehicle storage and parking.

Non-historic alterations to the garage, including a metal carport which currently functions as a storage area would be removed from historic maintenance building. This historic maintenance building would be rehabilitated to provide 780 sq. ft. of needed storage.

In order to access this new facility and provide adequate transportation means for the various maintenance and delivery vehicles, the access road would be upgraded, paved, and widened to 22 ft. wide from the current dirt road. The existing driveway between historic maintenance building area and new building would also be widened to 22 ft. from the current dirt road. This alternative would require that the sewage road be rerouted to avoid the newly built building and parking areas.



Figure 8. Site of proposed construction site for Alternatives B and C. Ground has been partially disturbed in part of the site.



Figure 9. View of historic maintenance shop/garage on right and proposed construction site for Alternatives B and C on left (note the green tractor and blue trash dumpster seen in Figure 8). Alternative D would affect area behind the historic maintenance shop/garage on right.

3.1.5 Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona

Under Alternative E, the National Park Service would lease a local building in Camp Verde as the maintenance facility similar to Alternative A/No Action Alternative. The primary areas of commercial and industrial buildings for the town of Camp Verde are shown in Figure 10. One of the specific objectives for this project is to locate the new maintenance facility close to Montezuma Castle National Monument in order to improve park efficiencies and decrease fuel consumption. Under this alternative, the building leased in Camp Verde would need to provide an efficient location for maintenance staff to service Montezuma Castle National Monument, provide adequate information technology infrastructure and phonelines, provide a safe place to park NPS vehicles and equipment, or provide safe working environment with adequate HVAC, fire detection/suppression, and ADA accessibility.

Under this alternative, storage for Montezuma Castle National Monument would continue to be in the non-historic structures attached to the historic maintenance shop/garage. Because the location of the maintenance building would be away from the monument, interdisciplinary storage would not be part of the leased building. Restoring the historic maintenance shop/garage back to its original function as a garage or as a storage area would not be an option in this alternative because there would be no temporary or permanent location at the monument that could store the volume of the park and cooperating association's items currently in storage.

A private first aid area for visitors requiring medical care would not be an option in this alternative.

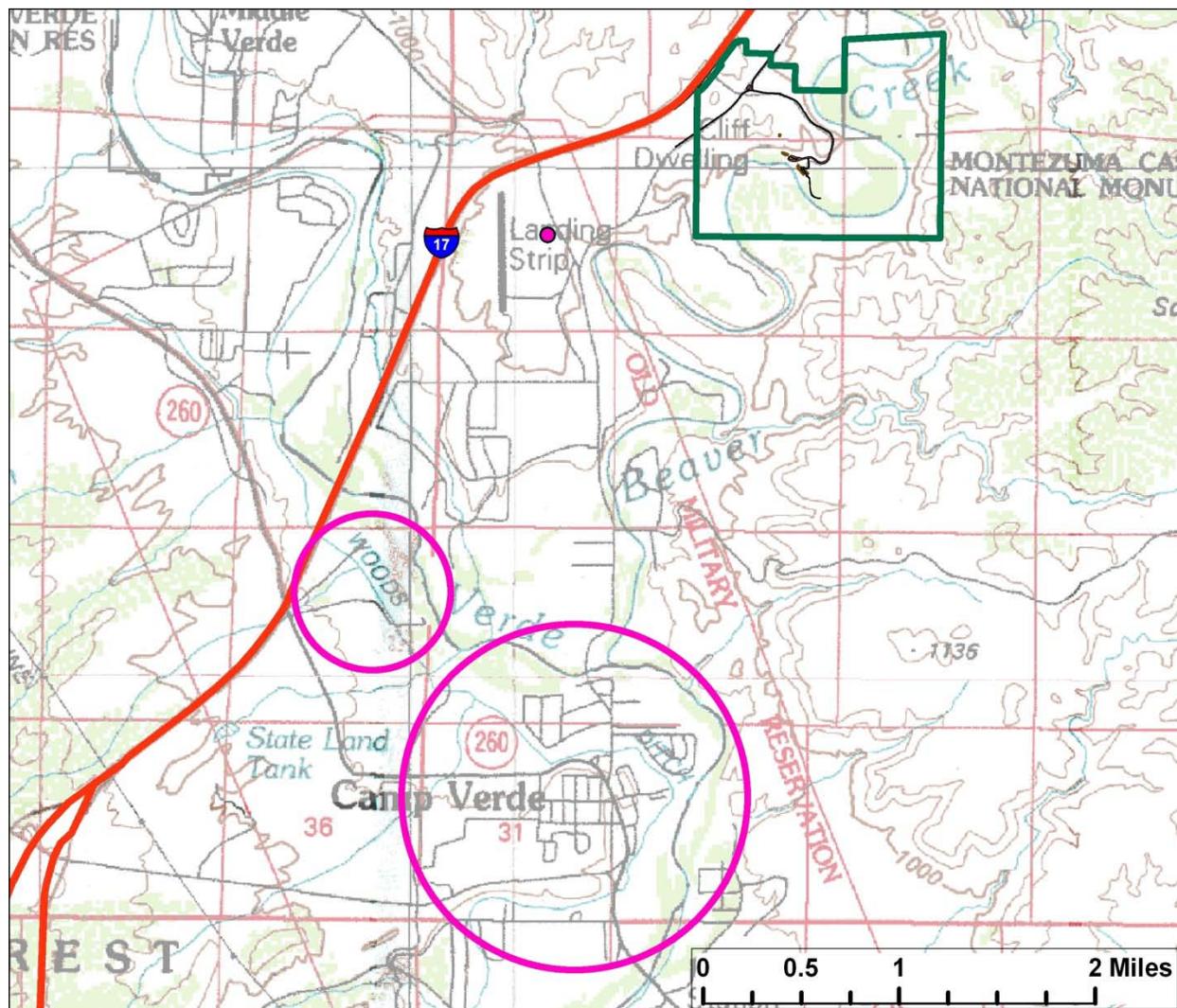


Figure 10. Map of town of Camp Verde area. Pink dot is current location of Maintenance Building at casino. The two pink circles with hollow centers indicate areas with commercial and industrial buildings, likely areas where a GSA lease would occur under Alternative E.

3.2 Alternatives Considered and Dismissed

3.2.1 Convert an Existing Park Building for the Maintenance Facility

Park staff considered whether the various existing park buildings at Montezuma Castle, Montezuma Well, and Tuzigoot could be modified and converted into an interdisciplinary maintenance facility. None of the existing buildings would be suitable for the interdisciplinary maintenance building due to lack of additional space from existing needed park uses, and the need for greater square footage for the maintenance division. Furthermore, there are currently no unused buildings in the three monument areas. Alternatives C and D both address using an existing park building as part of the maintenance facility.

3.2.2 GSA Custom-build Maintenance Facility for Park to Lease

GSA has communicated clearly to NPS that they will not custom-build a maintenance facility for the park to rent in Camp Verde, Arizona where Montezuma Castle National Monument resides. Montezuma Castle National Monument has the highest visitation (over 504,000 visitors in 2009) and highest maintenance needs of the three park areas. One of the specific objectives for this project is to locate the new maintenance facility close to Montezuma Castle National Monument in order to improve park efficiencies and decrease fuel consumption. Because this is not a feasible option for GSA, this alternative was dismissed.

3.2.3 GSA Lease Outside of Camp Verde, Arizona

The National Park Service has closely considered whether leasing a maintenance facility in towns outside of Camp Verde such as Cottonwood or Rimrock would be an effective option. This alternative was dismissed due to the higher fuel consumption, greater carbon footprint, and loss of employee time due to additional driving that would be required in order to service the greater maintenance needs for Montezuma Castle National Monument (which has the highest visitation numbers, compared to the other two sites of Tuzigoot National Monument and Montezuma Well). Storing equipment and vehicles at this off-site maintenance facility would further compound the fuel consumption, carbon footprint, and employee time used annually to provide maintenance services to Montezuma Castle. Any new maintenance facility lease would also require that the owner modify the building for National Park Service use. Because this alternative fails to address the objective of providing an efficient location for maintenance staff to service Montezuma Castle National Monument, this alternative was dismissed.

3.3 Mitigation Measures

The following mitigation measures have been developed to minimize the degree and/or severity of adverse effects, and would be implemented during construction for Alternatives B, C, and D, as needed:

- To minimize the amount of ground disturbance, staging and stockpiling areas would be located in previously disturbed sites, away from visitor use areas to the extent possible. All staging and stockpiling areas would be returned to pre-construction conditions following construction.
- Construction zones would be identified and fenced with construction tape, snow fencing, or some similar material prior to any construction activity. The fencing would define the construction zone and confine activity to the minimum area required for construction. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone as defined by the construction zone fencing.
- Revegetation and recontouring of disturbed areas would take place following construction, and would be designed to minimize the visual intrusion of the structure and enhance native species composition. Revegetation efforts would use native species and materials. All disturbed areas would be rehabilitated to reduce soil exposure. Weed control methods would be implemented to minimize the introduction of noxious weeds.

- Because disturbed soils are susceptible to erosion until revegetation takes place, standard erosion control measures such as silt fences and/or sand bags would be used to minimize any potential soil erosion.
- Fugitive dust generated by construction would be controlled by spraying water on the construction site, if necessary.
- To reduce noise and emissions, construction equipment would not be permitted to idle for long periods of time.
- To minimize possible petrochemical leaks from construction equipment, the contractor would regularly monitor and check construction equipment to identify and repair any leaks.
- Construction workers and supervisors would be informed about special status species. Contract provisions would require the cessation of construction activities if a species were discovered in the project area, until park staff re-evaluates the project. This would allow modification of the contract for any protection measures determined necessary to protect the discovery.
- All ground disturbance will be monitored by the park archeologist and/or archeological technicians. Should construction unearth previously undiscovered cultural resources, work would be stopped in the area of any discovery and the monument would consult with the Arizona State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation, as necessary, according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.
- The National Park Service would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors would also be instructed on procedures to follow in case previously unknown paleontological or archeological resources are uncovered during construction.
- Construction workers and supervisors would be informed about the special sensitivity of monument's values, regulations, and appropriate housekeeping.
- 2006 National Park Service Management Policies emphasize constructing facilities with sustainable designs and systems to minimize potential environmental impacts. Development would not compete with or dominate monument's features, or interfere with natural processes, such as the seasonal migration of wildlife or hydrologic activity associated with wetlands. To the extent possible, the design and management of facilities would emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, and recycling. The National Park Service also reduces energy costs, eliminates waste, and conserves energy resources by using energy-efficient and

cost-effective technology. Energy efficiency is incorporated into the decision-making process during the design and acquisition of buildings, facilities, and transportation systems that emphasize the use of renewable energy sources.

- Construction activities generating high levels of noise would be avoided during the sensitive breeding season of May-August as much as possible.
- Activities generating potential soil runoff events would be avoided during the heavy monsoon periods of July.

3.4 Alternatives Summary

Table 1 summarizes the major components of Alternatives A, B, C, D, and E; and compares the ability of these alternatives to meet the project objectives (the objectives for this project are identified in Section 1.0 Purpose and Need). As shown in the following table, Alternatives B and C meet each of the objectives identified for this project, while Alternatives A, D, and E do not address all of the objectives.

Table 1 – Alternatives Summary and Project Objectives

OBJECTIVES	Alternative A: Remain in Cliff Castle Casino in existing condition of building -No action-	Alternative B: Construct 4000 sq. ft. maintenance facility & stabilize historic maintenance shop -PREFERRED-	Alternative C: Construct 3188 sq. ft. maintenance facility & restore 780 sq. ft. historic maintenance shop as storage area	Alternative D: Build 3188 sq. ft. maintenance facility as an addition to 780 sq. ft. historic maintenance shop	Alternative E: Lease maintenance facility in Camp Verde
Provide permanent professional maintenance operations facility for park maintenance staff meeting current health and safety standards.	No	Yes	Yes	Yes	Health and safety standards must be met before lease accepted
Provide efficient location for maintenance staff to facilitate monument-wide operations and has close proximity to Montezuma Castle National Monument	Yes	Yes	Yes	Yes	Maybe —likely 3 to 5 miles from monument.
Provide professional first aid space for public outside of public view	No	Yes	Yes	Yes	No
Provide adequate information technology infrastructure and phone lines	No	Yes	Yes	Yes	Required before lease accepted.
Provide safe place to park NPS vehicles and equipment	No	Yes	Yes	Yes	Required before lease accepted.
Provide secure and weatherproof interdivisional storage and cooperating association	No	Yes--All storage would be at a single location. This would improve efficiency when retrieving storage items.	Yes--Storage would be located in two different buildings located in different areas.	Yes--All storage in two different buildings located in one area	No
Provide safe working environment with adequate HVAC, fire detection/suppression, and ADA accessibility	No	Yes	Yes	Yes	Required before lease accepted.
Separate maintenance operation functions from existing residential area to avoid increased business traffic and safety hazards	Yes	Yes—maintenance operations are located away from residential area.	Yes—maintenance operations are located away from residential area.	No —maintenance operations are located in residential area.	Yes
Stabilize historic maintenance shop and remove non-historic additions	No —no facility to place storage items.	Yes	Yes	Yes	No —no facility to place storage items.

Table 2 – Environmental Impact Summary by Alternatives

IMPACT TOPICS	Alternative A: Remain in Cliff Castle Casino in existing condition of building -No action-	Alternative B: Construct 4000 sq. ft. maintenance facility & stabilize historic maintenance shop -PREFERRED-	Alternative C: Construct 3188 sq. ft. maintenance facility & restore 780 sq. ft. historic maintenance shop as storage area	Alternative D: Build 3188 sq. ft. maintenance facility as an addition to 780 sq. ft. historic maintenance shop	Alternative E: Lease maintenance facility in Camp Verde
Soils	No effect	1.30 acres disturbed; larger building footprint in both disturbed and undisturbed soils resulting in long-term minor adverse effects.	1.25 acres disturbed; smaller building footprint in both disturbed and undisturbed soils resulting in long-term minor adverse effects.	1.44 acres disturbed; rerouting of sewage lagoon road plus building footprint resulting in long-term minor adverse effects.	No effect
Vegetation	No effect	Larger building footprint in areas with mature plants and mesquite trees resulting in long-term negligible effects.	Smaller building footprint in areas with mature plants and mesquite trees resulting in long-term negligible effects.	Smaller building footprint in mesquite trees and mature plants; rerouting of sewage road in disturbed and undisturbed areas resulting in long-term negligible effects.	No effect
Water Resources	No effect	Water quality could be impacted short-term during construction activities resulting in an adverse minor impact. Long-term water quantity impacts would be similar to water consumption of large house/building resulting in a long-term minor adverse impact.	Same as Altern. B	Same as Altern. B	No effect
Species of Special Concern	No effect	Construction activities may affect Threatened, Endangered, and sensitive species with negligible, adverse short-term effects.	Same as Altern. B	Same as Altern. B	No effect

(Table continued on next page.)

IMPACT TOPICS (Con't)	<u>Alternative A:</u> Remain in Cliff Castle Casino in existing condition of building -No action-	<u>Alternative B:</u> Construct 4000 sq. ft. maintenance facility & stabilize historic maintenance shop -PREFERRED-	<u>Alternative C:</u> Construct 3188 sq. ft. maintenance facility & restore 780 sq. ft. historic maintenance shop as storage area	<u>Alternative D:</u> Build 3188 sq. ft. maintenance facility as an addition to 780 sq. ft. historic maintenance shop	<u>Alternative E:</u> Lease maintenance facility in Camp Verde
Historic Structures	Historic maintenance shop would be maintained as part of the cultural resource program for a negligible beneficial effect, but not be rehabilitated or restored due to lack of storage area for park and cooperating association items.	Stabilize historic maintenance shop and remove non-historic alterations as part of facility construction. Rehabilitate and restore historic maintenance shop and return to original use as a garage. Both steps would result in a minor long-term beneficial effect.	Rehabilitate historic maintenance shop, remove non-historic alterations, and use historic building for storage as part of facility construction would result in a minor long-term beneficial effect.	Rehabilitate historic maintenance shop and use for storage as part of facility construction; addition to building may increase rehabilitation needs (insulation, etc.) but would results in a minor long-term beneficial effect.	Same as Altern. A.
Park Operations	Maintenance Division would have commuting distance to work at Montezuma Castle. Would require extra trips, time, and gas. Would increase carbon footprint resulting in minor, long-term negative effect.	Single location for interdivisional storage for Montezuma Castle; increased efficiency resulting in minor positive long-term effects.	Two locations for interdivisional storage for Montezuma Castle; diffuse storage areas resulting in minor positive long-term impacts (somewhat less effective than Alternative B).	Same as Altern. B	Same as Altern. A.

3.5 Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s §101:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
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, wherever 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; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Through internal scoping, the Environmentally Preferred Alternative is determined to be Alternative B, the Preferred Alternative. This alternative best meets the purpose and need for action and best addresses overall NPS objectives and evaluation factors while minimizing impacts to park resources. As a permanent facility, the new maintenance facility would be used by future generations Criteria 1 and 2. By having the interdivisional storage in a single location and stabilizing the historic maintenance shop (later restoring the building to its original function as a garage/shop), this will both increase the efficiency of NPS as well as preserving the historic aspect identified in Criteria 4. By separating the housing area from the new maintenance area, the Preferred Alternative promotes safe, healthful, productive, and esthetically pleasing surroundings identified in Criteria 2 and 3. Building design for each action alternative would include environmentally sustainable features identified in Criteria 6. Finally, the Preferred Alternative best achieves a balance between population and resources use identified in Criteria 5.

No new information came forward from public scoping or consultation with other agencies to necessitate the development of any new alternatives, other than those described and evaluated in this document. Because it meets the purpose and need for the project, the project objectives, and is the environmentally preferred alternative, Alternative B is also recommended as the National Park Service preferred alternative. For the remainder of the document, Alternative B will be referred to as the preferred alternative.

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential environmental consequences, or impacts, that would occur as a result of implementing the proposed project. Direct, indirect, and cumulative effects, as well as impairment are analyzed for each resource topic carried forward. Potential impacts are described in terms of type, context, duration, and intensity. General definitions are defined as follows, while more specific impact thresholds are given for each resource at the beginning of each resource section. The impact topics analyzed:

- Soils
- Vegetation
- Water Resources
- Species of Special Concern
- Historic Structures
- Park Operations

The environmental effects, or changes from present baseline condition, described in this chapter reflect these impact topics and include intensity and duration of the action. Direct, indirect, and cumulative effects, as well as impairment are analyzed for each of the resource topic carried forward (listed above). Potential impacts are described in terms of type, context, duration, and intensity. General definitions are defined as follows, while more specific impact thresholds are given for each resource at the beginning of each resource section.

- **TYPE:** Describes the classification of the impact as either beneficial or adverse, direct or indirect:
 - ***Beneficial:*** A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
 - ***Adverse:*** A change that moves the resource away from a desired condition or detracts from its appearance or condition.
 - ***Direct:*** An effect that is caused by an action and occurs in the same time and place.
 - ***Indirect:*** An effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.
- **CONTEXT:** Describes the area or location in which the impact will occur. Are the effects site-specific, local, regional, or even broader?
- **DURATION:** Describes the length of time an effect will occur, either short-term or long-term:
 - Short-term impacts generally last only during construction, and the resources resume their pre-construction conditions following construction.
 - Long-term impacts last beyond the construction period, and the resources may not resume their pre-construction conditions for a longer period of time following construction.

- **INTENSITY**: Describes the degree, level, or strength of an impact. For this analysis, intensity has been categorized into negligible, minor, moderate, and major. Because definitions of intensity vary by resource topic, intensity definitions are provided separately for each impact topic analyzed in this environmental assessment.

4.1 Cumulative Effects

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), requires assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for all action alternatives.

Cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Montezuma Castle National Monument and, if applicable, the surrounding region. The geographic scope for this analysis includes elements mostly within the monument's boundaries, while the temporal scope includes projects within a range of approximately ten years. Given this, the following projects were identified for the purpose of conducting the cumulative effects analysis, listed from past to future:

Invasive Plant Management Plan at Montezuma Castle and Tuzigoot National Monuments, 2007

Since 2007, Montezuma Castle and Tuzigoot National Monuments have had an active invasive exotic plant management program. In fiscal year 2009, 29 acres of invasive plants in the three monument areas were treated. This program is continuing to expand with additional staff and volunteer efforts at both monuments.

Montezuma Well Operations Shop, 2009

The maintenance shop at Montezuma Well was built in 2009 in order to facilitate interdivisional work at Montezuma Well. This 1100 sq. ft. shop hosts a garage bay, two shop tables, several cabinets, and storage. A parking area is also attached to the shop for government vehicles and equipment. No offices, phone lines, or information technology-related lines exist for this shop. This shop primarily serves Montezuma Well operations, and is frequently used by the all of divisions in the monument.

Improvements to Monument Parking Lot and Entrance and Administrative Roads, 2009

Asphalt was applied to these areas through Federal Highways Funds to improve existing roads.

Determination of Eligibility for the National Register for the Montezuma Castle Historic District, 2010-2011

This project will identify and evaluate the National Register eligibility of historic structures located at Montezuma Castle National Monument. Research will synthesize the history of eight historic structures located within Montezuma Castle National Monument. Four structures within

the Montezuma Castle boundary include Public Works Administration and Works Progress Administration era buildings and features constructed between 1934-1939. Although four of the eight buildings were determined eligible for the Register as part of the List of Classified Structures in 1995, specific character defining elements of the properties are not clearly defined or understood. Additionally, four of the eight buildings were not determined eligible and are not included on the Park's List of Classified Structures. This project will result in the completion of a draft National Register nomination for historic sites located in the Montezuma Castle boundary. The draft will include a National Register Nomination form for historic Public Works Administration, Works Progress Administration and Mission 66 era buildings located within the proposed historic district.

Rehabilitate Historic House Unit #5, 2010-2012

Historic House Unit #5 at Montezuma Castle National Monument was built in 1939 with Works Progress Administration funding. This building will require removal and replacement of roofing system, damaged roof decking, damaged exterior plaster/stucco, damaged wood lintels above doors and windows, and damaged adobe masonry. The rehabilitation project will also include repair of interior concrete slab and foundation, windows, entry roof structure, and square portal posts. Interior improvements will include renovations to the kitchen such as removing kitchen sink plumbing vent pipe located on exterior of building, and replacing existing through wall exhaust fan above window. The architectural and engineering services for this project are currently underway and planned renovations are funded for FY2011 and 2012.

Integrated Pest Management Plan/Environmental Assessment for Montezuma Castle and Tuzigoot (2010-future)

The primary focus for this Integrated Pest Management (IPM) plan and environmental assessment will be the management of vertebrate and invertebrate pest species at Montezuma Castle and Tuzigoot National Monuments. The objectives of this plan and environmental assessment will be to help preserve stored artifacts, museum resources and prehistoric structures, as well as assist with the protection of the health and safety of staff and visitors in developed areas, public and administrative buildings, and park housing.

Rehabilitate Montezuma Castle Visitor Center Bookstore Addition (future)

The Montezuma Castle Visitor Center was originally built in 1960 as part of the Mission 66 program for the National Park Service (Protas 2002). During the mid-1990's, the park added an expansion to the Visitor Center to create extra space for a gift shop run at that time by the Southwest Parks and Monuments Association (now renamed Western National Parks Association). This bookstore addition was constructed on a concrete slab without footings.

Over the years, the foundation has settled to the point where the entire structure has broken away from the visitor center exterior, creating large gaps at the joints where the two structures meet. Settling has also deformed the structure causing gaps to open up between the exterior wall and window frame on the west side of the building. The damage extends to the membrane roof which is pulling away, tearing and causing leaks into the bookstore damaging its inventory. Rotting roots from an adjacent tree stump and past water leaks have added to the settling problem by undermining and eroding the soil beneath the building. In order to correct all the problems, the entire bookstore addition, its foundation, and adjacent walkway need to be demolished and

removed. The soil needs to be compacted to proper structural grade and an adequate foundation needs to be constructed to support the structure.

Upgrade Montezuma Castle Visitor Center Toilets (future)

A future project would provide better ADA accessibility and renovate the Visitor Center's bathrooms. A budget for this project has not yet been formulated, but is expected to occur in the next decade. Unresolved issues include how to expand the existing bathroom facilities to provide ADA accessibility, especially as the current bathrooms are located against a hill next to a historic walkway.

4.2 Impairment

2006 National Park Service Management Policies require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006). The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, 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, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

Although Congress has given the National Park Service 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. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

1. Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
2. Key to the natural or cultural integrity of the park; or
3. Identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. A determination on impairment is made in the Conclusion section for each of the resource topics carried forward in this chapter.

4.3 Unacceptable Impacts

The impact threshold at which impairment occurs is not always readily apparent. Therefore, the Park Service applies a standard that offers greater assurance that impairment will not occur by avoiding unacceptable impacts. These are impacts that fall short of impairment, but are still not

acceptable within a particular park's environment. Park managers must not allow uses that would cause unacceptable impacts; they must evaluate existing or proposed uses and determine whether the associated impacts on park resources and values are acceptable.

Virtually every form of human activity that takes place within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or that a particular use must be disallowed. Therefore, for the purposes of these policies, unacceptable impacts are impacts that, individually or cumulatively, would

- Be inconsistent with a park's purpose or values, or
- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- Create an unsafe or unhealthful environment for visitors or employees, or
- Diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
- Unreasonably interfere with
 - park programs or activities, or
 - an appropriate use, or
 - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park.
 - NPS concessioner or contractor operations or services. (NPS 2006)

In accordance with the 2006 National Park Service Management Policies, park managers must not allow uses that would cause unacceptable impacts to park resources. To determine if unacceptable impact could occur to the resources and values of Montezuma Castle National Monument, the impacts of proposed actions in this environmental assessment were evaluated based on the above criteria. A determination on unacceptable impacts is made in the Conclusion section for each of the resource topics carried forward in this chapter.

4.4 Soils

4.4.1 Affected Environment and Intensity Level Definitions

Lindsay (2000) described the soils of Montezuma Castle National Monument as having developed in the Verde Formation of young lacustrine sediment with limestone, classic, and evaporitic facies. Lindsay (2000) also described the project area's soils (encompassing all the alternatives) as Swisshelm fine sandy loam with the land form described as stream terraces with no flooding. The soil properties were described as very deep, well-drained mixed alluvium.

Some of the project area soils have already been disturbed (see Figure 8), while other undisturbed soils in the project area have patches of cryptobiotic soils.

Negligible Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight and erosion would not be noticeable.

Minor The effects to soils would be detectable. Effects to soil area, including soil disturbance and erosion, would be small and localized. Minimal soil loss would

occur. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.

Moderate The effect on soils would be readily apparent and result in a change to the soil character over a relatively wide area, soil disturbance over a wide area, or erosion that extends beyond the project site and/or results in some soil loss. Mitigation measures would be necessary to offset adverse effects and likely be successful.

Major The effect on soils would be readily apparent and substantially change the character of soils over a large area, and substantial erosion would occur resulting in a large soil loss. Mitigation measures to offset adverse effects would be needed, would be extensive, and their success could not be guaranteed.

4.4.2 Impacts of Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Under Alternative A, the National Park Service would be leasing a maintenance facility outside of monument boundaries and there would be no effect to soils resources in Montezuma Castle National Monument.

Cumulative Effects: There would no addition to cumulative effects under this alternative to soils resources in Montezuma Castle National Monument.

Conclusion: Alternative A would result in no effect to monument soils resources.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.4.3 Impacts of Alternative B (Preferred Alternative): Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop

Implementing Alternative B will construct a maintenance facility and parking area in an area with previously disturbed and undisturbed soils. Construction activities are expected to disturb a total of 1.3 acres. This implementation would result in an adverse, direct impact on the currently undisturbed soils including areas with cryptobiotic soils that would be site-specific for the long-term. Effects on the soil from building erection and construction activities would clearly be detectable. Cryptobiotic soils are known to be slow-growing and would likely take years to regenerate. Upgrading the dirt access roads to paved roads would occur in previously disturbed soils.

Cumulative Effects: All other past, present, and future actions related to rehabilitation/ construction activities within the monument have the potential to disturb soils in already disturbed areas. Alternative B is the only project that is planned to construct on undisturbed soils, although it is still within the "Park Operations Zone" of Montezuma Castle National

Monument as defined by the draft 2010 General Management Plan. Invasive plant management may involve walking on some undisturbed areas, although the effects on soil are typically much less than construction activities. Cumulatively, Alternative B would result in minor adverse long-term effects when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative B would result in adverse, direct, long-term minor impacts to site-specific soils from construction of a 4000 sq. ft. maintenance facility and parking area in partially undisturbed soils. Cumulative impacts would be minor, 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.4.4 Impacts of Alternative C: Construct 3188 sq. ft. maintenance facility and restore historic maintenance shop for storage

Implementing Alternative C would construct a maintenance facility and parking area in an area with previously disturbed and undisturbed soils. Construction activities are expected to disturb a total of 1.25 acres (less area than Alternative B). Effects on the soil from building erection and construction activities would clearly be detectable. This implementation would result in an adverse, direct impact on the currently undisturbed soils including areas with cryptobiotic soils that would be site-specific for the long-term. Cryptobiotic soils are known to be slow-growing and would likely take years to regenerate. Upgrading the dirt access roads to paved roads would occur in previously disturbed soils.

Cumulative Effects: All other past, present, and future actions related to rehabilitation/construction activities within the monument have the potential to disturb soils in already disturbed areas. Alternative C is the only project that is planned to construct on undisturbed soils, although it is still within the "Park Operations Zone" of Montezuma Castle National Monument as defined by the draft 2010 General Management Plan. Invasive plant management may involve walking on some undisturbed areas, although the effects on soil are typically much less than construction activities. Cumulatively, Alternative C would result in minor adverse long-term effects (albeit it likely affecting less than Alternative B) when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative C would result in adverse, direct, long-term minor impacts to site-specific soils from construction of a 3188 sq. ft. maintenance facility and parking area in partially undisturbed soils. Cumulative impacts would be minor, 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other

relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.4.5 Impacts of Alternative D: Build 3188 sq. ft. maintenance facility as addition to 780 sq. ft. historic maintenance shop

Implementing Alternative D would construct a maintenance facility as an addition to the historic maintenance shop/garage, as well as a parking area in an area with previously disturbed and undisturbed soils. Construction activities (including re-routing the sewage treatment plant road to avoid the new maintenance facility addition) are expected to disturb a total of 1.44 acres (more area than Alternative B or C). Effects on the soil from building erection and construction activities would clearly be detectable. This implementation would result in an adverse, direct impact on the currently undisturbed soils including areas with cryptobiotic soils that would be site-specific for the long-term. Cryptobiotic soils are known to be slow-growing and would likely take years to regenerate. Upgrading the dirt access roads to paved roads would occur in previously disturbed soils, but rerouting the sewage treatment road would occur in some undisturbed soils.

Cumulative Effects: All other past, present, and future actions related to rehabilitation/construction activities within the monument have the potential to disturb soils in already disturbed areas. Alternative D occurs on mostly disturbed soils, although a small area of undisturbed soils could be impacted, and is within the "Park Operations Zone" of Montezuma Castle National Monument as defined by the draft 2010 General Management Plan. Invasive plant management may involve walking on some undisturbed areas, although the effects on soil are typically much less than construction activities. Cumulatively, Alternative D would result in minor adverse long-term effects when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative D would result in adverse, direct, long-term minor impacts to site-specific soils from construction of a 3188 sq. ft. maintenance facility as an addition to the historic maintenance shop/garage, a parking area, and rerouting a sewage treatment road in partially undisturbed soils. Cumulative impacts would be minor, 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.4.6 Impacts of Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona

Same as Alternative A.

Cumulative Effects: There would no addition to cumulative effects under this alternative to soils resources in Montezuma Castle National Monument.

Conclusion: Alternative E would result in no effect to monument soils resources.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.5 Vegetation

4.5.1 Affected Environment and Intensity Level Definitions

Plant communities at Montezuma Castle National Monument consists of scattered juniper at higher elevations and mesquite-acacia-creosote in associations at lower elevations, with riparian areas supporting gallery forests of cottonwood, sycamore, and willow. In and around the project areas, Lindsay (2000) described the present vegetation composed of velvet mesquite, catclaw acacia, sideoats grama, tobosa, bottlebrush squirreltail, bush muhly, western wheat grass, and fourwing saltbush.

- Negligible** No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native plant species' populations. The effects would be on a small scale.
- Minor** The alternative would affect some individual plants and would also affect a relatively limited portion of that species' population. Mitigation to offset adverse effects could be required and would be effective.
- Moderate** The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population over a relatively large area within the park. Mitigation to offset adverse effects could be extensive, but would likely be successful.
- Major** The alternative would have a considerable effect on individual native plants and affect a sizeable segment of the species' populations over a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

4.5.2 Impacts of Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Under Alternative A, the National Park Service would be leasing a maintenance facility outside of monument boundaries and there would be no effect to vegetation resources in Montezuma Castle National Monument.

Cumulative Effects: There would no addition to cumulative effects under this alternative to vegetation resources in Montezuma Castle National Monument.

Conclusion: Alternative A would result in no effect to monument vegetation resources.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.5.3 Impacts of Alternative B (Preferred Alternative): Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop

Implementing Alternative B would construct a maintenance facility and parking area in an area both previously disturbed and undisturbed (see Figure 8). The undisturbed area has mesquite trees, catclaw acacia trees, small shrubs, and grasses that would be permanently removed. These plant communities, however, extend well beyond the project area and are commonly found throughout the upland areas of the monument. The construction site is expected to extend 1.3 acres across, although the actual building site is expected to be approximately 0.55 acres. Areas disturbed during construction activities outside of the developed site would be revegetated with native plants. Upgrading the paved roads would occur in previously disturbed soils. Because the plant species found in the project area are widespread throughout the monument as well as the Verde Valley region, no plant species would be affected on a population level.

Cumulative Effects: The other past, present, and future actions related to rehabilitation/construction are in already-disturbed developed zones with little expected impacts to vegetation. Implementing the Invasive Plant Management Plan is expected to be a positive benefit for the native vegetation. Cumulatively, Alternative B would result in negligible long-term effects on native vegetation when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative B would result in adverse, direct, long-term negligible impacts to local site-specific vegetation from construction of a 4000 sq. ft. maintenance facility and parking area in a partially disturbed and undisturbed area. Cumulative impacts would be negligible adverse 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.5.4 Impacts of Alternative C: Construct 3188 sq. ft. maintenance facility and restore historic maintenance shop for storage

Implementing Alternative C would construct a maintenance facility and parking area in an area both previously disturbed and undisturbed (see Figure 8). The undisturbed area has mesquite trees, catclaw acacia trees, small shrubs, and grasses that would be permanently removed. These plant communities, however, extend well beyond the project area and are commonly found throughout the upland areas of the monument. The construction site is expected to extend 1.25 acres across, although the actual building site is expected to be approximately 0.5 acres (less disturbance than Alternative B). Areas disturbed during construction activities outside of the developed site would be revegetated with native plants. Upgrading the paved roads would occur in previously disturbed soils. Because the plant species found in the project area are widespread throughout the monument as well as the Verde Valley region, no plant species would be affected on a population level.

Cumulative Effects: The other past, present, and future actions related to rehabilitation/construction are in already-disturbed developed zones with little expected impacts to vegetation. Implementing the Invasive Plant Management Plan is expected to be a positive benefit for the native vegetation. Cumulatively, Alternative C would result in negligible long-term effects on native vegetation when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative C would result in adverse, direct, long-term negligible impacts to local site-specific vegetation from construction of a 3188 sq. ft. maintenance facility and parking area in a partially disturbed and undisturbed area. Cumulative impacts would be negligible adverse 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.5.5 Impacts of Alternative D: Build 3188 sq. ft. maintenance facility as addition to 780 sq. ft. historic maintenance shop

Implementing Alternative D would construct a maintenance facility as an addition to the historic maintenance shop/garage, a parking area, and reroute an existing sewage treatment road. These construction activities would occur in an area both previously disturbed and undisturbed (see Figure 8 and 9). The undisturbed area has mesquite trees, catclaw acacia trees, small shrubs, and grasses that would be permanently removed. These plant communities, however, extend well beyond the project area and are commonly found throughout the upland areas of the monument. The construction site is expected to extend 1.44 acres across (including rerouting the sewage treatment road around the new building addition), although the actual building site is expected to be approximately 0.5 acres. Areas disturbed during construction activities outside of the developed site would be revegetated with native plants. Because the plant species found in the project area are widespread throughout the monument as well as the Verde Valley region, no plant species would be affected on a population level.

Cumulative Effects: The other past, present, and future actions related to rehabilitation/ construction are in already-disturbed developed zones with little expected impacts to vegetation. Implementing the Invasive Plant Management Plan is expected to be a positive benefit for the native vegetation. Cumulatively, Alternative D would result in negligible long-term effects on native vegetation when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative D would result in adverse, direct, long-term negligible impacts to local site-specific vegetation from construction of a 3188 sq. ft. maintenance facility as an addition to the historic maintenance shop/garage, a parking area, and rerouting a sewage treatment road in an area with undisturbed vegetation. Cumulative impacts would be negligible adverse 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.5.6 Impacts of Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona

Same as Alternative A.

Cumulative Effects: There would no addition to cumulative effects under this alternative to vegetation resources in Montezuma Castle National Monument.

Conclusion: Alternative E would result in no effect to monument vegetation resources.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.6 Water Resources

4.6.1 Affected Environment and Intensity Level Definitions

Beaver Creek runs through Montezuma Castle National Monument and is located on the eastern and southern portions of the monument (see Figure 2). The Arizona Department of Water Quality (ADEQ 2002) has assessed the water quality of Beaver Creek and this reach was assessed as 'impaired' due to turbidity. (It was added to the Planning List for future sampling due to missing core parameters.) There are also concerns over non-point source pollution from urban development and agricultural and livestock runoff (Sprouse et al. 2002).

The primary water quantity concern is the high rates of withdrawal of surface water for irrigation and ground water for irrigation and domestic use around the monument.

- Negligible** There would be no observable or measurable impacts to water quantity or quality. Impacts would be well within natural fluctuations.
- Minor** Impacts would be detectable and/or localized, but they would not be expected to be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
- Moderate** The impact to water quality or quantity would be readily apparent and result in a change over a relatively wide area. Mitigation measures would be necessary to offset adverse effects and likely be successful.
- Major** The impact to water quality or quantity would be readily apparent and substantially change over a wide area. Mitigation measures to offset adverse effects would be necessary, extensive, and their success could not be guaranteed.

4.6.2 Impacts of Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Under Alternative A, the National Park Service would be leasing a maintenance facility outside of monument boundaries and there would be no effect to water resources in Montezuma Castle National Monument.

Cumulative Effects: There would no addition to cumulative effects under this alternative to water resources in Montezuma Castle National Monument.

Conclusion: Alternative A would result in no effect to monument water resources.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.6.3 Impacts of Alternative B (Preferred Alternative): Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop to garage

Implementing Alternative B would construct a maintenance facility and parking area in an area with previously disturbed and undisturbed soils. If heavy rain occurred during construction, soil run-off could occur, which could temporarily affect water quality. Avoiding construction during the heavy monsoon period typically in July may mitigate heavy soil run-off events. This effect is expected to be a short-term effect directly related to flooding during construction activities and would not continue after construction ended. Upgrading the dirt roads to a paved surface during heavy rain events could also affect run-off from road construction. Effects could occur both within and downstream of the park.

Increased use of the monument's well water would result from the construction of a new building to house employee offices permanently that could affect water quantity. It is expected that up to 10 people would use the new facility on a consistent basis. The maintenance facility building would likely have one rest-room with a shower and a small kitchen. However, the current well water use covers 580,425 annual visitors at Montezuma Castle's visitor center (2009 statistics), up to 20 staff in the ranger offices, and up to 7 employees residing at the single house and three apartments. Adding water consumption from up to 10 people is not expected to increase the water consumption beyond the normal range of variability but may be detectable.

Cumulative Effects: Water quality can be affected by renovation/construction activities from other projects. However, this proposed project is expected to have the greatest amount of earth movement compared to the other listed projects. Few of the other listed projects would affect water quantity, although fire suppression units may need to be installed for future renovations of historic buildings. Cumulatively, Alternative B would result in minor short-term (water quality) and long-term (water quantity) effects when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative B would have different levels of effect on water quality and water quantity. For water quality, there would be an adverse, direct and indirect minor short-term impacts at the site and downstream from the site due to construction activities for the 4000 sq. ft. maintenance facility and parking area. For water quantity, there would be adverse, direct, long-term minor site-specific impacts. Cumulative impacts would be minor short-term (water quality) and minor long-term (water quantity).

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.6.4 Impacts of Alternative C: Construct 3188 sq. ft. maintenance facility and restore historic maintenance shop for storage

Same as Alternative B.

Cumulative Effects: Water quality can be affected by renovation/construction activities from other projects. However, this proposed project is expected to have the greatest amount of earth movement compared to the other listed projects. Few of the other listed projects would affect water quantity, although fire suppression units may need to be installed for future renovations of historic buildings. Cumulatively, Alternative C would result in minor short-term (water quality) and long-term (water quantity) effects when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Alternative C would have different levels of effect on water quality and water quantity. For water quality, there would be an adverse, direct and indirect minor short-term impacts at the site and downstream from the site due to construction activities for the 3188 sq. ft.

maintenance facility and parking area. For water quantity, there would be adverse, direct, long-term minor site-specific impacts. Cumulative impacts would be minor short-term (water quality) and minor long-term (water quantity).

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.6.5 Impacts of Alternative D: Build 3188 sq. ft. maintenance facility as addition to 780 sq. ft. historic maintenance shop

Same as Alternatives B and C.

Cumulative Effects: Water quality can be affected by construction activities from other projects. However, this proposed project is expected to have the greatest amount of earth movement compared to the other listed projects. Few of the other listed projects would affect water quantity, although fire suppression units may need to be installed for future renovations of historic buildings. Cumulatively, Alternative D would result in minor short-term (water quality) and long-term (water quantity) effects when considered with other past, present, and reasonably foreseeable future actions. The construction area is part of the administrative use as defined by the draft General Management Plan.

Conclusion: Alternative D would have different levels of effect on water quality and water quantity. For water quality, there would be an adverse, direct and indirect minor short-term impacts at the site and downstream from the site from construction of a 3188 sq. ft. maintenance facility as an addition to the historic maintenance shop/garage, a parking area, and rerouting a sewage treatment road in an area with undisturbed vegetation. For water quantity, there would be adverse, direct, long-term minor site-specific impacts. Cumulative impacts would be minor short-term (water quality) and minor long-term (water quantity).

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.6.6 Impacts of Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona

Same as Alternative A.

Cumulative Effects: There would no addition to cumulative effects under this alternative to water resources in Montezuma Castle National Monument.

Conclusion: Alternative E would result in no effect to monument water resources.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.7 Species of Special Concern

4.7.1 Affected Environment and Intensity Level Definitions

4.7.1.1 Species Protect Under the Endangered Species Act

Under the Endangered Species Act, there are three species federally-listed as Endangered, one Threatened species, and two Candidate species that are known to occur at or near Montezuma Castle National Monument. The federally-listed Threatened, Endangered, and Candidate species to be evaluated for constructing Montezuma Castle National Monument's interdivisional maintenance facility are shown in the Table 3 below. When asked about a species list related to the proposed project area, the U.S. Fish and Wildlife Service (USFWS) responded in a letter dated June 22, 2010, that "there were no listed species that occur within or immediately adjacent to the proposed construction site" (Appendix A). However, due to the possibility of indirect effects to the listed species, project effects were analyzed below.

All of the federally-listed and species of concern are either aquatic species or species closely dependent on riparian habitats. All of these species listed in the table below have the potential of being found in Montezuma Castle National Monument or are located downstream from the monument and potentially affected by park project activities.

Table 3: Federally-listed Threatened and Endangered Species for Montezuma Castle National Monument

Species	Status
Razorback sucker (<i>Xyrauchen texanus</i>)	Federally-listed Endangered
Gila chub (<i>Gila intermedia</i>)	Federally-listed Endangered
Roundtail chub (<i>Gila robusta</i>)	Federally-listed Candidate
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	Federally-listed Endangered
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Federally-listed Threatened
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Federally-listed Candidate

Razorback sucker (*Xyrauchen texanus*)

The razorback sucker is federally-listed as endangered (56 FR 54957, October 23, 1991) with critical habitat (59 FR 13379, March 21, 1994). The razorback sucker is found in backwaters, flooded bottomlands, pools, side channels, and other slower moving habitats under 6,000 ft. elevation. Historically it was found in areas near strong currents, and the Verde River is critical habitat for the sucker. Arizona Game and Fish has stocked experimental populations in the Verde River.

Gila chub (*Gila intermedia*)

The Gila chub is federally-listed endangered with critical habitat (70 FR 66664, November 2, 2005). Adult males average about 6 inches in total length; females can exceed 8 inches. Gila chub commonly inhabit pools in smaller streams, cienegas, and artificial impoundments ranging in elevation from 2,000 to 3,500 ft. Common riparian plants associated with these populations include willow, tamarisk, cottonwoods, seep-willow, and ash species. Typical aquatic vegetation includes watercress, horsetail, rushes, and speedwell. Gila chub are highly secretive, preferring quiet deeper waters, especially pools, or remaining near cover including terrestrial vegetation, boulders, and fallen logs. Adults are often found in deep pools and eddies below areas with swift currents. Young-of-the-year inhabit shallow water among plants or debris, while older juveniles use higher velocity stream areas. The Gila chub has critical habitat designated on Wet Beaver Creek immediately upstream from Montezuma Well (upstream from Montezuma Castle) but has the potential to occur in Montezuma Castle National Monument.

Roundtail chub (*Gila robusta*)

The roundtail chub was listed as a candidate species by USFWS in 2009 (50 CFR 17). This chub is characterized by a robust body and tail trunk. It is an olive gray color with silvery sides and a white belly. The roundtail chub matures at about 3 years of age with an unknown life expectancy. Breeding males develop red or orange coloration on the lower half of the cheek and the bases of paired fins. Individuals may reach 19 inches but usually average 10-12 inches. Spawning occurs in the late spring; females broadcast about 2,000 tiny sticky eggs over gravel/cobble bottom. The roundtail chub occurs in cool to warm water, mid-elevation rivers and streams throughout the Colorado River basin, often occupying open areas of the deepest pools and eddies of middle-sized to larger streams. They occasionally concentrate in relatively swift, turbulent waters below rapids, moving into less turbulent chutes in small groups. Roundtail chubs are often associated with cover in the form of boulders, overhanging cliffs, undercut banks, or vegetation. Roundtail chubs are known to inhabit the Verde River.

Southwestern willow flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher was listed as endangered in 1995 (60 FR 10694) with critical habitat designated in 2005 (50 CFR 60886). The southwestern willow flycatcher occurs in dense riparian habitats along streams, rivers and other wetlands where cottonwood, willow, boxelder, tamarisk, Russian olive, buttonbush and arrowweed are present. Nests are found in thickets of trees and shrubs primarily 13-23 ft. in height, among dense homogenous foliage. Habitat occurs below 8500 ft. Southwestern willow flycatchers arrive on breeding grounds from late April to early June, and nesting activities occur from mid May to mid August (USFWS 2002). The

riparian corridor of Beaver Creek within Montezuma Castle National Monument is not designated critical habitat; however, flycatchers are known to nest approximately one mile south of the monument on the Verde River. No flycatchers have been known to nest within the monument boundaries, but the riparian corridor may be used for migration and feeding.

Bald Eagle (*Haliaeetus leucocephalus*)

In May 2008, the Sonoran Desert Bald Eagle Distinct Population Segment was listed as threatened under the Endangered Species Act (73 FR 23966, May 1, 2008) without critical habitat. Bald eagles feed primarily on fish, but waterfowl, small mammals, and carrion constitute a portion of the diet. Nesting sites are usually isolated high in trees, on cliffs, or on pinnacles, with a commanding view of the area and in close proximity to water. No nesting sites have been found in the monument, and bald eagles have been documented as “incidental” in the monument (Schmidt et al. 2005).

Yellow-billed cuckoo (*Coccyzus americanus*)

The yellow-billed cuckoo was listed as a candidate species by USFWS in 2001 (66 CFR 38611). The yellow-billed cuckoo is found in large blocks of riparian gallery forests dominated by large cottonwood and willows, and feeds exclusively on insects. Cuckoos migrate north in late June and early July, and breeding commences in early July and continues through August. Holmes et al. (2008) detected yellow-billed cuckoos at Montezuma Castle National Monument in 2004, although no breeding pairs were confirmed.

4.7.1.2 Species of Concern

According to Section 4.4.2.3 in 2006 National Park Service Management Policies, the NPS will inventory other species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance. The State of Arizona does not have any official state-listed species. Species of Concern were defined by the Arizona Game and Fish Department’s Species of Concern list through the Arizona Heritage Data Management System (HDMS) (Arizona Game and Fish Department 2010) and inventories done for vascular plant and vertebrates by U.S. Geological Survey (2006) were compared for the project site. Species of Concern that had potential to be affected by the project are listed below in Table 4; Species of Concern were not listed in the table if they were already listed in Table 3 as a federally-listed species.

Table 4: Potentially Affected Species of Concern for Montezuma Castle National Monument

Species	Status
Snowy egret (<i>Egretta thula</i>)	Arizona Species of Concern
Osprey (<i>Pandion haliaetus</i>)	Arizona Species of Concern
Northern goshawk (<i>Accipiter gentilis</i>)	Arizona Species of Concern
Common black-hawk (<i>Buteogallus anthracinus</i>)	Arizona Species of Concern
Ferruginous hawk (<i>Buteo regalis</i>)	Arizona Species of Concern
Peregrine falcon (<i>Falco peregrines</i>)	Arizona Species of Concern
Belted kingfisher (<i>Ceryle alcyon</i>)	Arizona Species of Concern

Spotted bat (<i>Euderma maculatum</i>)	Arizona Species of Concern
Western red bat (<i>Lasiurus blossevillii</i>)	Arizona Species of Concern
Southwestern river otter (<i>Lontra canadensis</i>)	Arizona Species of Concern
Velvet mesquite (<i>Prosopis velutina</i>)	Arizona Species of Concern

Negligible No special-status species would be affected or some individuals could be affected as a result of the alternative, but there would be no effect on special-status species' populations. Impacts would be well within natural fluctuations.

Minor The alternative would affect some special-status individuals and would also affect a limited portion of that species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate The alternative would affect some special-status individuals and would also affect a sizeable segment of the species' population over a relatively large area within the park. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.

Major The alternative would have a considerable effect on special-status individuals and affect a sizeable segment of the species' population over a relatively large area in and out of the park. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

4.7.2 Impacts of Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Under Alternative A, the National Park Service would be leasing a maintenance facility outside of monument boundaries and there would be no effect to Species of Special Concern located in or nearby Montezuma Castle National Monument.

Cumulative Effects: There would no addition to cumulative effects under this alternative to Species of Special Concern located in or nearby Montezuma Castle National Monument.

Conclusion: Alternative A would result in no effect to Species of Special Concern located in or nearby Montezuma Castle National Monument.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.7.3 Impacts of Alternative B (Preferred Alternative): Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop

Implementing Alternative B would construct a maintenance facility and parking area in an area with previously disturbed and undisturbed soils. Upgrading the paved roads would occur in previously disturbed soils. If heavy rain occurred during construction, soil run-off could occur, which could temporarily affect water quality within the park as well as downstream of the park. This is expected to be a short-term effect directly related to flooding during construction activities and would not continue after construction ended. These short-term run-off events affecting water quality could impact the federally-listed and sensitive fish downstream. Avoiding construction during the heavy monsoon period typically in July may mitigate heavy soil run-off events. While specific individuals for the listed or sensitive fish may be affected, none of the populations of any of the listed or sensitive fish are likely to be affected.

Because the project area does not occur in riparian areas, the primary effects to the federally-listed endangered southwestern willow flycatchers and candidate species yellow-billed cuckoo relate directly to noise levels during construction and potential disturbance during nesting periods. Although no nesting pairs of either species have been found in Montezuma Castle National Monument, both species likely use the riparian corridor areas for feeding and migration routes. In order to mitigate for effects on potential breeding activity for both bird species, construction would occur outside of the May-August breeding season as much as possible. Populations of either species would not be affected by this project.

Montezuma Castle National Monument is located in the geographic area for the Sonoran Desert Bald Eagle Distinct Population Segment. However, bald eagles are considered incidental to the monument and no nesting pairs have been documented.

For the avian and bat Arizona State Species of Concern (snowy egret, osprey, northern goshawk, common black-hawk, ferruginous hawk, peregrine falcon, belted kingfisher, spotted bat, and western red bat), potential effects would primarily relate directly to noise levels during construction and potential disturbance during nesting periods. Similar to the federally-listed species, construction would occur outside of the May-August breeding season as much as possible to mitigate for potential effects on breeding activity for both bird species. Most of the Species of Concern are closely tied to riparian areas, and the project area does not include constructing on riparian areas.

For the southwestern river otter and snowy egret, the potential effects from the construction activities would be similar to the federally-listed fish species. If heavy rain occurred during construction, soil run-off could occur, which could temporarily affect water quality within the park as well as downstream of the park. This is expected to be a short-term effect directly related to flooding during construction activities and would not continue after construction ended. These short-term run-off events affecting water quality could impact the federally-listed and sensitive fish downstream and could affect the river otter and snowy egret's prey base.

The construction activities would affect and remove a small number of individual velvet mesquite trees. However, velvet mesquite trees are common throughout the monument as well as the Verde Valley area. Construction activities would not affect the velvet mesquite population in the monument.

Cumulative Effects: Cumulatively, Alternative B would result in potential negligible short-term effects to listed or sensitive species only during specific construction events. This project would

not negatively affect any of the listed or sensitive species' habitats long-term when considered with other past, present, and reasonably foreseeable future actions. The construction area is part of the "Park Operations Zone" for administrative use as defined by the draft General Management Plan (NPS 2010).

Conclusion: Alternative B would result in potential negligible adverse short-term direct and indirect impacts to razorback sucker, Gila chub, roundtail chub, southwestern willowflycatcher, and yellow-billed cuckoo; as well as to snowy egret, osprey, northern goshawk, common black-hawk, ferruginous hawk, peregrine falcon, belted kingfisher, spotted bat, western red bat, and southwestern river otter. No effects are expected for the bald eagle due to this alternative.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.7.4 Impacts of Alternative C: Construct 3188 sq. ft. maintenance facility and restore historic maintenance shop for storage

Impacts are the same as Alternative B.

Cumulative Effects: Cumulatively, Alternative C would result in potential negligible short-term effects to listed or sensitive species only during specific construction events. This project would not negatively affect any of the listed or sensitive species' habitats long-term when considered with other past, present, and reasonably foreseeable future actions. The construction area is part of the "Park Operations Zone" for administrative use as defined by the draft General Management Plan (NPS 2010).

Conclusion: Alternative C would result in potential negligible adverse short-term direct and indirect impacts to razorback sucker, Gila chub, roundtail chub, southwestern willowflycatcher, and yellow-billed cuckoo; as well as to snowy egret, osprey, northern goshawk, common black-hawk, ferruginous hawk, peregrine falcon, belted kingfisher, spotted bat, western red bat, and southwestern river otter. No effects are expected for the bald eagle due to this alternative.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.7.5 Impacts of Alternative D: Build 3188 sq. ft. maintenance facility as addition to 780 sq. ft. historic maintenance shop

Impacts are the same as Alternatives B and C.

Cumulative Effects: Cumulatively, Alternative D would result in potential negligible short-term effects to listed or sensitive species only during specific construction events. This project would not negatively affect any of the listed or sensitive species' habitats long-term when considered with other past, present, and reasonably foreseeable future actions. The construction area is part of the "Park Operations Zone" for administrative use as defined by the draft General Management Plan (NPS 2010).

Conclusion: Alternative D would result in potential negligible adverse short-term direct and indirect impacts to razorback sucker, Gila chub, roundtail chub, southwestern willowflycatcher, and yellow-billed cuckoo; as well as to snowy egret, osprey, northern goshawk, common black-hawk, ferruginous hawk, peregrine falcon, belted kingfisher, spotted bat, western red bat, and southwestern river otter. No effects are expected for the bald eagle due to this alternative.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.7.6 Impacts of Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona
Same as Alternative A.

Cumulative Effects: There would no addition to cumulative effects under this alternative to Species of Special Concern located in or nearby Montezuma Castle National Monument.

Conclusion: Alternative E would result in no effect to Species of Special Concern located in or nearby Montezuma Castle National Monument.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.8 Historic Structures

4.8.1 Affected Environment and Intensity Level Definitions

The historic maintenance shop/garage (see Figures 5-8) is the primary historic structure that would be affected by this project. From June to October 1934, a work crew sponsored by the Public Works Administration (PWA) constructed various facilities at Montezuma Castle National Monument including this garage (Protas 2002). Built with locally available river

cobbles, the garage is designed to match the surrounding environment and is a typical example of the National Park Service Rustic Style.

Additions and alterations to the building were completed in 1961, 1963, 1994 and 1998 (NPS 2005). These alterations included, most notably, the construction of a small wooden addition along the southwest elevation in 1963 and the enclosure of the wooden structure in 1994. The 1934 maintenance garage was determined eligible for the National Register of Historic Places in 1994 under Criterion C, as a locally significant representation of the National Park Service Rustic style popular from 1916-1942 (NPS 2005).

The original 1934 garage and equipment shed (referred also as the maintenance shop/garage) has deteriorated (see Figure 7) and is no longer weatherproof. The 1963 addition is relatively weatherproof compared to the historic building, and much of the monument's storage is located in those additions. The park is currently using the maintenance shop/garage and additions as storage at Montezuma Castle, including Western National Parks Association publications, housing supplies, public bathroom supplies, etc.

The original historic maintenance shop/garage has deteriorated markedly since it was originally built in 1934. It is currently mouse-infested with cracked windows, has deteriorating interior plaster, cracking exterior masonry, and structural problems resulting from foundation settling. The historic maintenance shop/garage lacks plumbing and heating/cooling systems, although a substandard electrical system exists.

- Negligible** Any effects would be below or at the lower levels of detection. Any detectable effects would be slight.
- Minor** *Adverse:* The impact is measurable and perceptible, but is slight and affects a limited area of a structure or group of structures. The impact does not affect the character defining features of a National Register of Historic Places eligible or listed structure and would not have a permanent effect on the integrity of the structure.
- Beneficial:* Stabilization/preservation of features is in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (1992).
- Moderate** *Adverse:* The effects would be detectable and readily apparent. The impact changes one or more character defining feature(s) of a historic structure, but does not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized. The effect could be site-specific or monument-wide.
- Beneficial:* Rehabilitation of a structure is in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (1992).
- Major** *Adverse:* The impact is substantial, noticeable and permanent. For National Register eligible or listed historic structures, the impact changes one or more character defining features(s) of the historic resource, diminishing the integrity of

the resource to the extent that it is no longer eligible for listing on the National Register.

Beneficial: The impact is of exceptional benefit and the restoration of a structure is in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (1992).

4.8.2 Impacts of Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Under Alternative A, the National Park Service would not have a location to move the storage items currently located in the non-historic additions of the maintenance shop/garage. Because of the need for storage space for essential items for all monument divisions and the cooperating association, the National Park Service would not remove the non-historic additions of the maintenance shop/garage. Stabilization work would occur as part of routine cultural resource management activities.

Cumulative Effects: Cumulatively, Alternative A would result in negligible, long-term, beneficial effects when considered with other past, present, and reasonably foreseeable future actions. The continued use of the historic garage and non-historic addition for storage would ensure that each structure is included in the Park's list of maintained and operating assets.

Conclusion: Alternative A would result in negligible beneficial impacts for the historic maintenance shop/garage by ensuring that it is continually maintained as a Park asset.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.8.3 Impacts of Alternative B (Preferred Alternative): Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop to garage

Under Alternative B, the new 4000 sq. ft. interdisciplinary maintenance facility would be constructed at a location approximately 200 feet southeast of the existing 780 sq. ft. historic maintenance shop. Non-historic alterations to the 1963 addition and metal carport would be removed from the historic maintenance garage/shop as part of the facility construction. As part of this alternative, both the interior and exterior of the historic building would be stabilized as part of the construction activities. In a future project, the Public Works Administration section of the historic building would be rehabilitated to its original historic function as a garage.

Under this alternative, the purpose and use of the garage would be vehicle storage. Because the historic maintenance shop/garage would keep its original function as a vehicle garage, no insulation or HVAC would be necessary for the interior. Smaller vehicles such as the park utility vehicle and electric cart would be parked within this garage. Park utility vehicles are currently

parked in the metal shade-structure adjacent to the historic maintenance shop/garage. This metal shade-structure would be relocated away from the historic garage as part of this alternative.

Cumulative Effects: Cumulatively, Alternative B would result in minor long-term beneficial effects when considered with other past, present, and reasonably foreseeable future actions. When the rehabilitation of the garage's character defining features and removal of the non-historic alterations are considered along with the other past, present, and reasonably foreseeable future actions; these projects would contribute toward rehabilitating and managing historic structures within the "Park Operation Zone" of the draft General Management Plan for Montezuma Castle (NPS 2010).

Conclusion: Alternative B would result in minor beneficial long-term impacts to the historic maintenance shop/garage by removing non-historic alterations. Additionally, rehabilitation work following the Secretary of the Interior's Standards for the Treatment of Historic Properties (1992) and zoned reuse would ensure that the structure and its character defining features are preserved. Cumulative impacts across all of the projects would be minor beneficial 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.8.4 Impacts of Alternative C: Construct 3188 sq. ft. maintenance facility & restore historic maintenance shop for storage

Under Alternative C, the new 3188 sq. ft. interdisciplinary maintenance facility would be constructed at a location approximately 200 feet southeast of the existing 780 sq. ft. historic maintenance shop. The non-historic shade structure and 1994 alterations would be removed from the historic maintenance garage/shop. As part of this alternative, both the interior and exterior of the historic building would be rehabilitated.

Under this alternative, the purpose and use of the historic maintenance shop/garage would be as a storage area. Insulation and/or an HVAC system could be necessary for the interior, or storage items could be restricted to non-temperature sensitive items (exterior temperatures range from freezing to over 110 degrees F).

Cumulative Effects: Cumulatively, Alternative C would result in minor long-term beneficial effects when considered with other past, present, and reasonably foreseeable future actions. When removing the non-historic alterations to the historic shop and rehabilitating the building's character defining features are considered along with the other past, present, and reasonably foreseeable future actions; these projects would contribute toward restoring the historic structures within the "Park Operations Zone" as described in the monument's draft General Management Plan (NPS 2010).

Conclusion: Alternative C would result in minor beneficial long-term impacts to the historic maintenance shop/garage by removing non-historic alterations. Additionally, rehabilitation work following the Secretary of the Interior's Standards and zoned reuse would ensure that the structure's character defining features are preserved. Cumulative impacts across all of the projects would be minor beneficial 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.8.5 Impacts of Alternative D: Build 3188 sq. ft. maintenance facility as addition to 780 sq. ft. historic maintenance shop

Under Alternative D, the 3188 sq. ft. interdisciplinary maintenance facility would be constructed as an addition to the existing 780 sq. ft. historic maintenance shop on the southeast side to create a 3968 sq. ft. building. This add-on building site would be approximately 0.5 acres and construction activities (including road building) would likely disturb a total of 1.44 acres. The historic building would be a stand-alone building connected to the new facility through a breezeway or exterior connection. As part of this alternative, both the interior and exterior of the historic building would be rehabilitated.

Under this alternative, the purpose and use of the historic maintenance shop/garage would be as a 780 sq. ft. storage area. Insulation and/or an HVAC system could be necessary for the interior, or storage items could be restricted to non-temperature sensitive items (exterior temperatures range from freezing to over 110 degrees F). Non-historic alterations to the shop including a metal carport and 1994 enclosures would be demolished and removed from the historic maintenance garage/shop.

Cumulative Effects: Cumulatively, Alternative D would result in minor long-term beneficial effects when considered with other past, present, and reasonably foreseeable future actions. When removing the non-historic alterations and rehabilitating the historic garage are considered along with the other past, present, and reasonably foreseeable future actions; these projects would contribute toward restoring and managing historic structures within the "Park Operations Zone" as described in the monument's draft General Management Plan (NPS 2010).

Conclusion: Alternative D would result in minor beneficial long-term impacts to the historic maintenance shop/garage by removing non-historic alterations. Additionally, rehabilitation work and zoned reuse would ensure that the structure and its character defining features are preserved. Cumulative impacts across all of the projects would be minor beneficial 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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other

relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.8.6 Impacts of Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona

Same as Alternative A.

Cumulative Effects: Cumulatively, Alternative E would result in negligible, long-term, beneficial effects when considered with other past, present, and reasonably foreseeable future actions. The continued use of the historic garage and non-historic addition for storage would ensure that each structure is included in the Park's list of maintained and operating assets.

Conclusion: Alternative E would result in negligible beneficial impacts for the historic maintenance shop/garage by ensuring that it is continually maintained as Park asset.

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 or proclamation of Montezuma Castle National Monument; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant National Park Service planning documents, there would be no impairment of the monument's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with Section 1.4.7.1 of 2006 NPS Management Policies.

4.9 Park Operations

4.9.1 Affected Environment and Intensity Level Definitions

Park operations refer to adequacy of staffing levels and quality and effectiveness of park infrastructure in protecting and preserving vital resources and providing for effective visitor experience. Infrastructure facilities include roads providing access to and in the park, housing for staff required to work and live in the park, visitor orientation facilities, administrative buildings, management support facilities, and utilities such as phones, sewer, water, and electric.

The park superintendent is ultimately responsible for the monument's operations management. In 2009, the park employed 25 full-time equivalent staff to manage operations including visitor services, resource management and preservation, planning and environmental compliance, law enforcement, facilities management and maintenance, and administrative duties. Implementation of any of the alternatives would not affect staffing levels; however, each alternative would impact daily working conditions for approximately 10 monument staff in the Maintenance Division. Each action alternative would have varying facility design, construction, and maintenance costs.

Visitor services, including first aid treatment are included under this topic. Currently, because the park does not have a private area for first aid treatment, an injured visitor must be treated in public view in high traffic areas such as the Visitor Center. Furthermore, when emergency services vehicles arrive, they typically cause severe traffic congestions in order to access the

injured visitor. Because the parking lot at the Visitor Center is a small U-shaped parking lot, an emergency vehicle can cause delays for visitors entering and exiting the monument parking area.

- Negligible** A localized change in operations, barely perceptible or measurable. No measurable difference in operating costs from existing levels and no change in financial balance between revenue sources and operating costs. Park operations not affected or effect at or below lower levels of detection; no appreciable effect on park operations
- Minor** A slight and localized change in operations with few measurable consequences to existing park facilities. Slight additions or reductions in operating costs from existing levels. Slight change in current staffing arrangements or operations required to reach a balance with funding
- Moderate** An apparent change with measurable consequences to in-park facilities. Requires additions or reductions in operating costs from existing levels. Changes required in park operations or result in a financial imbalance between available funding and annual operating costs
- Major** A readily apparent change with measurable consequences in and outside the park. Substantial additions or reductions in operating costs from existing levels. Changes require new administrative structures and/or result in a significant financial imbalance between available funding and annual operating costs

4.9.2 Impacts of Alternative A (No Action Alternative): Continue GSA lease of existing maintenance facility building at Cliff Castle Casino

Under Alternative A, the National Park Service would continue leasing the current facility building at the Cliff Castle Casino. The currently leased building is located approximately 2.25 miles from the Montezuma Castle National Monument's buildings, where the visitation is the highest and the maintenance needs are the greatest. Providing maintenance services to the Montezuma Castle National Monument requires commuting at least once from the off-site maintenance facility and directly impacts maintenance operations.

The current building has been plagued with issues: the electrical system is currently not-to-code; the information technology infrastructure is out of date; the HVAC system does not function properly; the roof needs repair; doors and windows need to be sealed and repaired; the worn and stained carpet needs to be replaced; vehicle and equipment storage areas have had security issues, and outside covered storage areas are not available; the building is not water-tight; the doors and windows are not fully sealed, contributing further to the inadequate cooling and heating system; and there are insect and rodent infestation of the building. These issues have directly affected the park employees working in the building and have led to decreased efficiency for park operations.

Storage for all the monument divisions and the cooperating association would continue to be in the non-historic additions and in the historic maintenance shop/garage. There would not be an area for first aid administration away from public view under this alternative, and the current situation of treating injured visitors in public areas in open view would continue. Emergency

services vehicles would continue to cause severe traffic congestions in order to access the injured visitor.

Cumulative Effects: With the number of future Montezuma Castle National Monument projects located within the “Park Operations Zone,” the cumulative effects resulting from a Maintenance Division located 2.25 miles off site would likely increase over time. All of the rehabilitation projects will require close supervision, if not work crew participation, and much of the daily activities of the division would be located in both the off-site maintenance facility and the monument. The present and future projects would require the Maintenance Division to be at Montezuma Castle at an extended basis and drive from the off-site location.

Conclusion: Alternative A, continuing to lease the off-site maintenance facility at the Cliff Castle Casino would result in minor negative long-term direct and indirect impacts to park operations. Cumulative impacts would be minor negative long-term.

4.9.3 Impacts of Alternative B (Preferred Alternative): Construct 4000 sq. ft. maintenance facility and stabilize historic maintenance shop to garage

Implementing Alternative B would construct a maintenance facility and parking area in Montezuma Castle National Monument which has the highest visitation of the three monument units (over 504,000 visitors in 2009, over 2.5 times greater than Tuzigoot and Montezuma Well combined) and requires the greatest maintenance activities. Currently, the Maintenance Division is located off-site and must drive to all of the monument units, including Montezuma Castle. This costs both gas mileage as well as duty time for the monument. Hosting the primary location for the Maintenance Division on-site at the monument area with the highest maintenance needs would facilitate park operations. The Ranger Division administrative offices are also located within the “Park Operations Zone” and would be within close walking distance of the maintenance facility which could also facilitate interdivisional communication.

Alternative B co-locates all of the storage needs at Montezuma Castle across all divisions in a single interdivisional facility (the historic maintenance/shop garage would be initially stabilized and then restored in the future as a vehicle garage in this alternative). This is expected to facilitate retrieval of storage items for all of the divisions, as well as preventing rodent infestations of storage items. Alternative B also removes much of the monument business traffic (maintenance deliveries, storage deliveries and pickups, etc.) away from the residences. This would be safer traffic flows for employees than having this business traffic directly across from the residences.

Having a first aid area where injured visitors could be treated away from public view would greatly facilitate the rangers and emergency service providers. Currently, injured visitors requiring first aid are typically treated in high traffic areas such as the Visitor Center during high visitation. This alternative would provide a space away from public view, as well as a location away from the general public use areas of the Visitor Center and parking areas. Emergency services vehicles could also park in the “Park Operations Zone” outside of the visitor use areas, and not cause traffic congestions during emergency treatment.

Cumulative Effects: Cumulatively, Alternative B would result in minor positive long-term effects when considered with other past, present, and reasonably foreseeable future actions.

Because there are a number of present and future projects that will be based out of Montezuma Castle, having the Maintenance Division housed on-site would be beneficial.

Conclusion: Alternative B would result in minor positive long-term impacts to park operations from construction of a 4000 sq. ft. maintenance facility and parking area in partially undisturbed soils. Cumulative impacts would be minor positive long-term.

4.9.4 Impacts of Alternative C: Construct 3188 sq. ft. maintenance facility and restore historic maintenance shop for storage

Implementing Alternative C would construct a maintenance facility and parking area in Montezuma Castle National Monument which has the highest visitation of the three monument units (over 504,000 visitors in 2009, over 2.5 times greater than Tuzigoot and Montezuma Well combined) and requires the greatest maintenance activities. Currently, the Maintenance Division is located off-site and must drive to all of the monument units, including Montezuma Castle. This costs both gas mileage as well as duty time for the monument. Hosting the primary location for the maintenance division on-site at the monument area with the highest maintenance needs would facilitate park operations. The Ranger Division administrative offices are also located within the “Park Operations Zone” and would be within close walking distance of the maintenance facility which could also facilitate interdivisional communication.

Alternative C divides the storage needs at Montezuma Castle across all divisions between the interdivisional maintenance facility and the historic maintenance shop/garage. The maintenance shop/garage would need to be rodent-proofed, weather-proofed, and may need to be climate-controlled which would increase the maintenance for the restored building as a storage facility. Alternative C keeps some of the monument business traffic (storage deliveries and retrievals) across from the residences. This would likely be a less safer situation for employees living in the monument residences than Alternative B.

Having a first aid area where injured visitors could be treated away from public view would greatly facilitate the rangers and emergency service providers. Currently, injured visitors requiring first aid are typically treated in high traffic areas such as the Visitor Center during high visitation. This alternative would provide a space away from public view, as well as a location away from the general public use areas of the Visitor Center and parking areas. Emergency services vehicles could also park in the “Park Operations Zone” outside of the visitor use areas, and not cause traffic congestions during emergency treatment.

Cumulative Effects: Cumulatively, Alternative C would result in minor positive long-term effects when considered with other past, present, and reasonably foreseeable future actions. Because there are a number of present and future projects that will be based out of Montezuma Castle, having the Maintenance Division housed on-site would be beneficial.

Conclusion: Alternative C would result in minor positive long-term impacts to park operations from construction of a 3188 sq. ft. maintenance facility and parking area in partially undisturbed soils. Cumulative impacts would be minor positive long-term.

4.9.5 Impacts of Alternative D: Build 3188 sq. ft. maintenance facility as addition to 780 sq. ft. historic maintenance shop

Implementing Alternative D would construct a maintenance facility as an addition to the historic maintenance shop/garage and construct parking area in Montezuma Castle National Monument which has the highest visitation of the three monument units (over 504,000 visitors in 2009, over 2.5 times greater than Tuzigoot and Montezuma Well combined) and requires the greatest maintenance activities. Currently, the Maintenance Division is located off-site and must drive to all of the monument units, including Montezuma Castle. This costs both gas mileage as well as duty time for the monument. Hosting the primary location for the Maintenance Division on-site at the monument area with the highest maintenance needs would facilitate park operations. The Ranger Division administrative offices are also located within the “Park Operations Zone” and would be within close walking distance of the maintenance facility which could also facilitate interdivisional communication.

Alternative D co-locates all of the storage needs at Montezuma Castle across all divisions in a single interdivisional facility (the historic maintenance/shop garage plus the new maintenance facility addition). This is expected to facilitate retrieval of storage items for all of the divisions, as well as preventing rodent infestations of storage items. Alternative C may keep some of the monument business traffic (storage deliveries and retrievals) across from the residences. This would likely be a less safe situation for employees living in the monument residences than Alternative B.

Having a first aid area where injured visitors could be treated away from public view would greatly facilitate the rangers and emergency service providers. Currently, injured visitors requiring first aid are typically treated in high traffic areas such as the Visitor Center during high visitation. This alternative would provide a space away from public view, as well as a location away from the general public use areas of the Visitor Center and parking areas. Emergency services vehicles could also park in the “Park Operations Zone” outside of the visitor use areas, and not cause traffic congestions during emergency treatment.

Cumulative Effects: Cumulatively, Alternative C would result in minor positive long-term effects when considered with other past, present, and reasonably foreseeable future actions. Because there are a number of present and future projects that will be based out of Montezuma Castle, having the Maintenance Division housed on-site would be beneficial.

Conclusion: Alternative D, building the maintenance facility as an addition to the historic maintenance shop/garage would result in minor positive long-term impacts to park operations. Cumulative impacts would be minor positive long-term.

4.9.6 Impacts of Alternative E: Lease off-site maintenance facility in Camp Verde, Arizona

Under Alternative E, the National Park Service would be leasing a maintenance facility outside of monument boundaries, likely located three to five miles away from the monument. The location would likely be farther away than the current building at the Cliff Castle Casino, as the casino area is one of the closest commercial buildings located near the monument boundaries. Because of this increased distance, maintenance operations would be less efficient than current operations on the off-site casino area. Providing maintenance services to the Montezuma Castle National Monument would require commuting at least once from the future off-site maintenance facility and would directly impact maintenance operations.

Carbon footprint of the maintenance operation would be greater than the current off-site situation at the casino (Alternative A). The Maintenance Division's employee time commuting would also increase and an indirect effect would be essentially causing the employee's actual work hours to be shorter due to the extra commuting time.

Storage for all the monument divisions and the cooperating association would continue to be in the non-historic additions and in the historic maintenance shop/garage. There would not be an area for first aid administration away from public view under this alternative, and the current situation of treating injured visitors in public areas in open view would continue. Emergency services vehicles would continue to cause severe traffic congestions in order to access the injured visitor.

Cumulative Effects: With the number of future Montezuma Castle National Monument projects located within the "Park Operations Zone," the cumulative effects resulting from a Maintenance Division located three to five miles off site would likely negatively increase over time. All of the rehabilitation projects will require close supervision, if not work crew participation, and much of the daily activities of the division would be located in both the off-site maintenance facility and the monument.

Conclusion: Alternative E, leasing an off-site maintenance facility in Camp Verde, would result in minor negative long-term direct and indirect impacts to park operations. Cumulative impacts would be minor negative long-term.

5.0 CONSULTATION AND COORDINATION

5.1 Internal Scoping

Internal scoping was conducted by an interdisciplinary team of NPS professionals from Montezuma Castle/Tuzigoot National Monuments and the Intermountain Regional Office. Interdisciplinary team members met on June 2009, April 2010, and May 2010 to discuss the purpose and need for the project; various alternatives; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and possible mitigation measures. The team also gathered background information and discussed public outreach for the project. Over the course of the project, team members have conducted individual site visits to view and evaluate the proposed construction site.

5.2 External Scoping

External (public) scoping was conducted to inform various agencies and the public about the proposal to construct a new interdivisional maintenance facility at Montezuma Castle National Monument and to generate input on the preparation of this environmental assessment. This effort was initiated with the distribution of a scoping letter, which was bulk emailed to over 80 addresses, primarily in the Verde Valley. In addition, the scoping letter was sent to local news organizations. With this press release, the public was given 30 days to comment on the project beginning October 28, 2009.

In addition to the aforementioned public entities, the following agencies and Native American tribes were sent scoping information and were contacted for information regarding the project:

Federal Agencies

U.S. Department of the Interior – Fish and Wildlife Service
U.S. Forest Service

State Agencies

Office of the State Historic Preservation Officer
Arizona State Parks

Affiliated Native American Groups

Ak-Chin Indian Community	Tohono O'odham Nation
Gila River Pima-Maricopa Indian Community	Zuni Tribe
Hopi Tribe	Yavapai-Apache Nation
Salt River Pima-Maricopa Indian Community	Yavapai-Prescott Indian Tribe

5.3 Scoping Letter Response

During the 30-day scoping period, one public response was received asking if the future proposed building site would be on floodplains or wetlands; both these topics were dismissed in the analyses.

One Native American Nation, the Hopi Tribe had no objection to the proposed project, and requested to be kept informed of the project's progress, including immediate notification if Native American materials are discovered during construction.

At NPS request, the Arizona State Historic Preservation Office (SHPO) staff also visited the site on April 20, 2010 to discuss the project related to National Register eligible historic buildings in the project area. The SHPO staff indicated that they best supported alternatives which included the adaptive reuse of existing historic buildings.

The U.S. Fish and Wildlife Service sent the park a letter (Appendix A) indicating that they did not have any concerns for federally-listed threatened and endangered species or habitat in the proposed project area for construction (Alternatives B,C, and D).

5.4 Environmental Assessment Review and List of Recipients

This environmental assessment has been released for public review in July 2010. To inform the public of EA availability, the NPS will publish and distribute a press release to various agencies, tribes, and members of the public on the park's mailing list. Copies of the environmental assessment will be provided to interested individuals upon request. Copies of the document will also be available on the internet at <http://parkplanning.nps.gov/moca>.

This EA is subject to a 30-day public comment period. During this time, the public is encouraged to submit their written comments to the National Park Service address provided at the beginning of this document. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. The National Park Service will issue responses to substantive comments received during the public comment period, and will make appropriate changes to the environmental assessment as needed.

5.5 List of Preparers

Preparers (developed EA content)

Sharon Kim	Chief of Natural Resources, North Central Arizona Monuments (Montezuma Castle, Tuzigoot, Sunset Crater Volcano, Walnut Canyon, and Wupatki National Monuments)
Matt Guebard	Archeologist, Montezuma Castle and Tuzigoot National Monuments

Consultants (provided information)

Kathy M. Davis	Superintendent, Montezuma Castle and Tuzigoot National Monuments
Bill Osterhaus	Chief of Maintenance, Montezuma Castle and Tuzigoot National Monuments
Mark Matheny	Project Manager, Intermountain Regional Office
Mark Mortier	Architect, Intermountain Regional Office
Ed Cummins	Chief Ranger, Montezuma Castle and Tuzigoot National Monuments

Lisa Leap Chief of Cultural Resources, North Central Arizona Monuments

Josh Kleinman Archeology Technician, Montezuma Castle and Tuzigoot National
Monuments

6.0 REFERENCES

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<http://inside.nps.gov/index.cfm?handler=classifiedstructures&alphacode=moca>
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- Protas, Josh. 2002. A Past Preserved in Stone: a History of Montezuma Castle National Monument. Western National Parks Association. Tucson, Arizona. 256 pp.
- Schmidt, C.A., C.A Drost, and W.L. Halvorson. 2006. Vascular Plant and Vertebrate Inventory of Montezuma Castle National Monument. USGS Open-File Report 2006-1163. U.S. Geological Survey, Biological Science Center, Sonoran Desert Research Station and School of Natural Resources. University of Arizona, Tucson.
- Sprouse, T., R. Emanuel, and B. Tellman. 2002. Surface water quality monitoring overview and assessment. Unpublished report to the National Park Service, Sonoran Desert Network Inventory and Monitoring Program, Tucson, AZ.
- U.S. Fish and Wildlife Service. 2002. Southwestern Willow Flycatcher Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, NM.

6.1 REFERENCES FOR EXECUTIVE ORDERS AND DIRECTOR'S ORDERS

- Executive Order No. 11988 (Floodplain Management). May 24, 1977, 42 FR 26951, as amended by Executive Order 12148, July 20, 1979, 44 FR 43239 [42 USC 4321].

Executive Order No. 11990 (Protection of Wetlands). May 24, 1977, 42 FR 26951, as amended by Executive Order 12608, September 9, 1987, 52 FR 34617 [42 USC 4321].

Executive Order No. 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations). February 11, 1994, 59 FR 7629, as amended by

Executive Order 12948, January 30, 1995, 60 FR 6381 [42 USC 4321].

Executive Order No. 13007 (Indian Sacred Sites). May 24, 1996, 61 FR 26771 [42 USC 1996].

Director's Order 12. Conservation Planning, Environmental Impact Analysis, and Decision-Making. Approved January 8, 2001.

Director's Order 28. Cultural Resources Management. Sunset on June 11, 2002 (currently being updated).

Director's Order 28A. Archeology. Approved October 12, 2004.

Director's Order 77-1. Wetland Protection. Reissued on October 30, 2002.

Director's Order 77-2. Floodplain Management. Approved September 8, 2003

APPENDIX A—U.S. FISH & WILDLIFE CONSULTATION**United States Department of the Interior**

U.S. Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513



In Reply refer to:

AESO/SE
22410-2010-TA-0412

June 22, 2010

Memorandum

To: Superintendent, Montezuma Castle and Tuzigoot National Monuments,
Camp Verde, Arizona

From: Field Supervisor

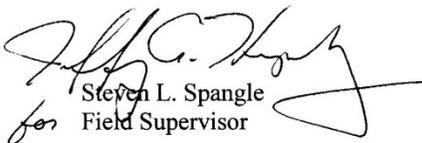
Subject: Interdivisional Operations Facility Construction Environmental Assessment

Thank you for your May 14, 2010, request for our review of the proposed construction of an interdivisional operations facility at Montezuma Castle National Monument, Yavapai County, Arizona. We received your request for comments and a species list on May 25, 2010. The proposed action is to build a maintenance facility at Montezuma Castle National Monument, near where the residential area, old maintenance shop, storage units, and other existing structures are located.

Since there will be not activities in the riparian area or in Wet Beaver Creek, we have no concerns regarding impacts to wildlife or habitat from the proposed action. Based upon our understanding of the project, there are no listed species that occur within or immediately adjacent to the proposed construction site.

We appreciate your coordination on this and other projects. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department. If you have any questions in regard to our review of the project, please contact Shaula Hedwall at (928) 226-0614 (x103) or Brenda Smith (x101) of our Flagstaff Suboffice.

Sincerely,


Steven L. Spangle
for Field Supervisor