



National Park Service  
U.S. Department of the Interior  
Organ Pipe Cactus National Monument  
Ajo, Arizona

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# **Provide Infrastructure to Support Visitor Safety and Resource Protection**

## **Environmental Assessment and General Management Plan Amendment**

**May 2010**



# Provide Infrastructure to Support Visitor Safety and Resource Protection

## General Management Plan Amendment and Environmental Assessment

### Summary

Organ Pipe Cactus National Monument (monument) proposes to construct facilities within the developed zone of the monument to support visitor safety and resource protection operations. The proposed action would provide adequate office space for park operations and provide the necessary infrastructure to support visitor safety and resource protection operations. The monument is considering constructing two new office buildings, a new sewage treatment system, plant nursery, and associated infrastructure. One new building would provide office space for the Visitor and Resource Protection Division. The second building would provide office space for the Resource Management Division.

The proposed action would be an amendment to the existing 1997 *Final General Management Plan/ Development Concept Plans/ Environmental Impact Statement (GMP)*. Although the *GMP* recognized the need for additional office space to accommodate an increase in staff, it did not foresee the level and complexity of illegal activity in the monument, and did not fully consider the effects this would have on staffing and infrastructure needs. Therefore, an amendment to the *GMP* is needed to respond to the change in conditions and to address the critical need for adequate facilities to ensure safe and effective park operations in support of visitor and staff safety and resource protection.

This environmental assessment evaluates two alternatives: a no-action alternative and an action alternative. The no-action alternative describes the current conditions and consequences if no buildings and sewage treatment system are constructed and staff is not relocated. The action alternative addresses the construction of two buildings, sewage treatment system, plant nursery, and associated infrastructure.

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 because the resultant impacts may be greater-than-minor include visitor use and experience, park operations, and water resources. All other resource topics were dismissed because the project would result in negligible or minor effects to those resources. No major effects are anticipated. Public scoping was conducted to assist with the development of this document. One comment was received in general support of the proposed project.

### Public Comment

If you wish to comment on the environmental assessment, you may post comments online at <http://parkplanning.nps.gov/orpi> or mail comments to: Superintendent; Organ Pipe Cactus National Monument, 10 Organ Pipe Drive, Ajo, Arizona 85321.

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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# PURPOSE AND NEED

## Introduction

Organ Pipe Cactus National Monument (Organ Pipe Cactus NM or monument) is in southwestern Arizona, near the U.S./Mexico border and south of the town of Ajo. The monument was established on April 13, 1937, to preserve more than 330,000 acres and protect a representative part of the Sonoran Desert that contains organ pipe cactus (*Stenocereus thurberi*), a large cactus rarely found in the United States. The monument is also home to many animals that have adapted to extreme temperatures, intense sunlight, and little rainfall. In 1976, Organ Pipe Cactus NM was designated an international biosphere reserve by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) under the direction of the Man and the Biosphere Program. Approximately 95% of the monument (about 312,600 acres) was designated as wilderness on November 10, 1978 (Public Law 95-625). The monument shares 30 miles of international border with Mexico.

The purpose of this general management plan amendment/environmental assessment is to examine the environmental impacts associated with the proposal to construct two new office buildings with associated facilities and utilities, a new sewage treatment facility, a plant nursery, and other appurtenances at Organ Pipe Cactus NM. 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*).

## Need for an Amendment to the GMP

In 1997, the *Final General Management Plan/ Development Concept Plans/ Environmental Impact Statement (GMP)* was completed for Organ Pipe Cactus NM, to address the issues and changes affecting the monument, to provide direction and guidance in decision-making, and to fulfill the legal requirements of the NPS to develop, make public, and execute a programmatic plan to guide management of the monument over the next 10-15 years. Although the *GMP* recognized the need for additional office space to accommodate an increase in staff, it did not foresee the level and complexity of illegal activity in the monument, and did not fully consider the effects this would have on staffing and infrastructure needs. Therefore, an amendment to the *GMP* is needed to respond to the change in conditions and to address the critical need for adequate facilities to ensure safe and effective park operations in support of visitor and staff safety and resource protection.

Since the 1990s, the monument has experienced an exponential increase in illegal border crossings by drug smugglers and undocumented aliens. The Department of Homeland Security has increased their presence by increasing the number of Border Patrol agents at their Ajo and Yuma Stations. Tens of thousands of acres are impacted in Organ Pipe Cactus NM annually both by criminal activities and US Border Patrol's response to them. Since the 1990s, the monument's law enforcement staff has increased from three to 20 and resource management staff has increased from two to seven. There has been no corresponding expansion of park facilities to accommodate this increased staffing level, resulting in gross inefficiencies.

The proposed project is consistent with the general concepts in the 1997 *GMP* in providing adequate office and residential space, maintaining existing structures, and converting existing offices back to employee housing units. Consistent with the *GMP*, the proposed actions would occur within the developed area of the monument. The proposed action differs from the 1997 *GMP* in that it considers 1) a larger facility for law enforcement operations, 2) a new facility to

house resource management operations in a location near the maintenance facility rather than converting the existing visitor facility into a Science, Education, and Resources Management Center, and, 3) the location of the plant nursery would be near the proposed Resource Management facility rather than the visitor facility. The need for a new sewage treatment facility was not foreseen at the time of the *GMP*, and is considered in this document. An amendment to the *GMP* has been prepared to address these changes.

## Project Location and Background

The developed zone at Organ Pipe Cactus National Monument is located along Arizona State Route 85 (Highway 85), approximately five miles north of the U.S./Mexico border (Figure 1). The developed zone includes a visitor center, 13 residences, three office buildings (converted residential units), maintenance facility, small campground for volunteers, a large campground for visitors, amphitheater, wells, water tanks, sewage system drainfield, and utilities. Office space for NPS staff is spread throughout the developed zone.

The visitor center currently houses the visitor contact area and a small shop as well as the offices of the Interpretation and Education Division and the Visitor and Resource Protection Division (Protection Division or Law Enforcement). The maintenance facility is located about 0.5 miles away from the visitor center. Most of the residences and other office buildings are located as much as one mile distant from the visitor center. The current administrative office building occupies one converted residence and the Resource Management Division (RM Division) occupies another two converted residences.

With the exception of two duplex residences that were built in the 1990s, most of the infrastructure in the monument was the product of a ten-year construction program ending in 1966 that upgraded NPS infrastructure. The Mission 66 program resulted in enough office space, campground space, residential units, and related facilities to accommodate the entire staff and visiting public, at that time.

More than 50 years later, the infrastructure is no longer sufficient. The residential, employee and visitor populations have grown, resulting in a shortage of office space and residences and a strain on the aging sewage system. The visitor's center now houses only the Protection Division and Interpretation and Education Division. The Superintendent, Administration Division, and RM Division moved out of the visitor center into three former residences that were converted to office space. Converting three residences into office space decreased available in-park housing. Only about one-third of the permanent staff now lives in NPS housing. The remainder live in the small towns of Why or Ajo, located 25-35 miles north of headquarters.

In addition to insufficient space, time and wear on Mission 66 structures have resulted in structural deficiencies including an overloaded electrical wiring system, limited computer networking capabilities, non-compliance with Americans with Disabilities Act access requirements, and inadequate heating and cooling systems.

Available space for the Protection Division totals 1,222 square feet which includes four small rooms for 20 staff members. Not only is desk space limited, storage facilities for gear and evidence security are critically limited. The lack of space for holding and processing undocumented aliens, other criminals, and contraband sometimes results in unintended contact between criminals, contraband, and the visiting public. There is no physical or tactical training facility available, even though training is a mandatory program for the employees of this division. Emergency equipment must be stored in another building well away from the ranger office, increasing the time it takes for emergency responses. The combined influence of all of these factors is that public and staff safety are often compromised.

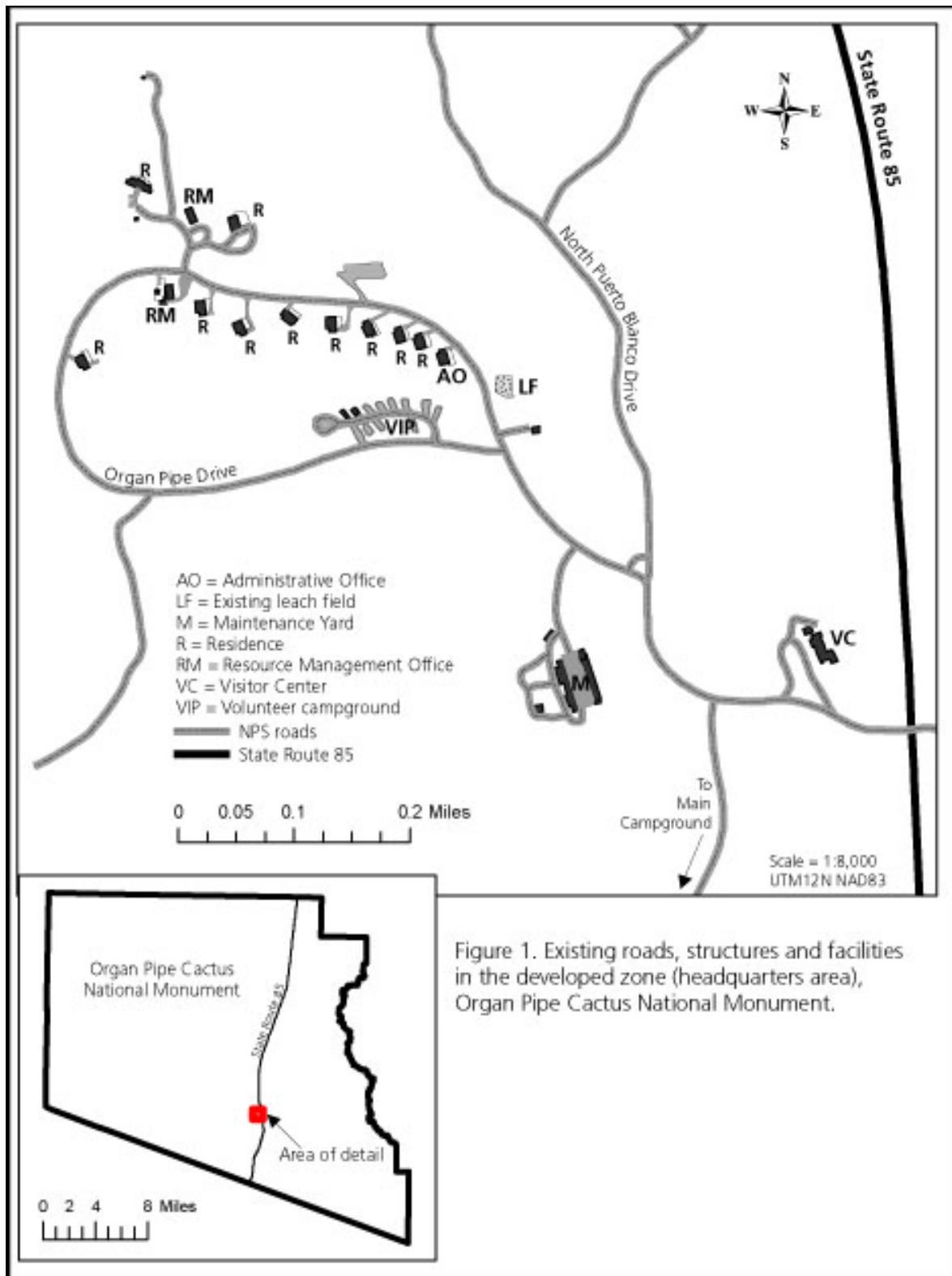


Figure 1. Existing roads, structures and facilities in the developed zone (headquarters area), Organ Pipe Cactus National Monument.

Produced by ORPI Resource Management Division, Dec 2009

Existing facilities for the RM Division provide inadequate office and laboratory space and are poorly suited to running a complex resource management program. Existing lab space doubles as a kitchen. A large meeting room also serves as seasonal office space, as well as a library and fieldwork staging area. The museum facilities have no workspace and do not meet NPS standards for collections storage and maintenance. This has resulted in inadequate protection and storage of sensitive equipment and collections. The plant nursery facility is deteriorating at a time when restoration program needs are increasing. At times, limited space has curtailed the size of the resource management program.

The existing sewage system for the residence area is in deteriorated condition and could be in imminent danger of failure, according to a U.S. Public Health Service report dated May 2002. The system, constructed in 1964, was designed to manage waste from 16 single-family residences. Since then, 11 mobile home sites, a community building, and a laundry and shower facility have been added and several of the single-family residences have been re-purposed as dorms or office space. These changes have overburdened the aging wastewater system, which does not comply with Arizona State regulations.

## Purpose and Need

The purpose of the proposal is to provide a safe, healthy, functional, and efficient working environment for monument staff in compliance with the goals and objectives of current plans and policies. The project is needed to accomplish the following objectives:

1. Provide permanent facilities that meet current health and safety standards, structural requirements, and sewage disposal regulations.
2. Facilitate the monument's operations by providing modern, adequate work space and related facilities as well as a consolidated, convenient location for monument staff to work.
3. Minimize visitor exposure to law enforcement operations.
4. Identify a location that minimizes impacts to park resources and will not result in impairment or unacceptable impacts to these resources.

## Relationship to Other Plans and Policies

Current plans and policy that pertain to this proposal include the 1997 *GMP* (NPS 1997), the 2006 *NPS Management Policies* (NPS 2006), and NPS Director's Orders. Following is more information on how this proposal meets the goals and objectives of these plans and policies:

- This project is consistent with the general concepts of the 1997 *GMP*, but differs for the reasons identified in the *Purpose and Need- Background* section in Chapter 1, and as indicated in the *Alternatives Considered and Dismissed* section in Chapter 2. The *GMP* identified the need for additional office space and housing for a growing staff, the need to properly maintain existing structures, and also identified the actions, impacts, and mitigating measures necessary to resolve issues facing the monument. The 1997 *GMP* did not anticipate the escalation of border-related issues and the subsequent need for additional staffing and infrastructure to support visitor safety and resource protection operations. It also did not address the need for a new septic system and other associated infrastructure.
- The proposal is consistent with the goals and objectives of the 2006 *NPS 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 buildings, sewer system and drainfield is within the developed zone of the monument, and was identified to minimize harm to park resources.



- The project proposal is consistent with NPS Director's Order-83: Public Health, that states that NPS unit managers will reduce the risk of waterborne diseases and provide safe wastewater disposal by ensuring wastewater systems are properly operated, maintained, monitored, and deficiencies promptly corrected. The proposed new sewer system would alleviate the deficiencies associated with the existing failing system.

## Appropriate Use

Section 1.5 of *NPS Management Policies* (2006), "Appropriate Use of the Parks," directs that the National Park Service must ensure that 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 *NPS Management Policies* (2006), 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.

From Section 8.2 of *NPS Management Policies*: "To provide for enjoyment of the parks, the National Park Service will encourage visitor use activities that

- are appropriate to the purpose for which the park was established, and
- are inspirational, educational, or healthful, and otherwise appropriate to the park environment; and
- will foster an understanding of and appreciation for park resources and values, or will promote enjoyment through a direct association with, interaction with, or relation to park resources; and
- can be sustained without causing unacceptable impacts to park resources and values."

Adequate office space is a common and vital need 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. Constructing a new sewer system would address the health, safety, and environmental issues associated with the current deteriorating sewer system, and would comply with AZ State regulations. With this in mind, the NPS finds that amending the existing *GMP* to provide for adequate infrastructure to support visitor safety and resource protection is an acceptable use at Organ Pipe Cactus National Monument.

The next question is whether such use, and the associated necessary and appropriate impacts, can be sustained without causing unacceptable impacts to park resources and values. That analysis is found in the *Environmental Consequences* chapter.

## 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 to park resources and values. Organ Pipe Cactus National Monument conducted internal scoping with appropriate National Park Service staff, consultants, and other resource specialists, to identify feasible alternatives and help determine potential impacts associated with the proposed action. The monument also conducted external scoping with the public and interested/affected groups, and Native American consultation.

External scoping was initiated with the distribution of a scoping letter to inform the public of the proposal to construct park infrastructure within the developed zone, and to generate input on the preparation of this EA. Fifty copies of the scoping letter, dated November 25, 2009, were mailed to residents, various federal and state agencies, affiliated Native American tribes, and local governments. During the 30-day scoping period, one response was received from the Hopi Tribe concurring with the proposed project. More information regarding external scoping and Native American consultation can be found in the *Consultation and Coordination* section of the EA.

## Impact Topics Retained For Further Analysis

In this section and the following section on *Impact Topics Dismissed from Further Analysis*, the NPS takes a “hard look” at all potential impacts by considering the direct, indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. Impacts are described in terms of context and duration. The context or extent of the impact is described as localized or widespread. The duration of impacts is described as short-term, ranging from days to three years in duration, or long-term, extending up to 20 years or longer. The intensity and type of impact is described as negligible, minor, moderate, or major, and as beneficial or adverse. The NPS equates “major” effects as “significant” effects. The identification of “major” effects would trigger the need for an EIS. Where the intensity of an impact could be described quantitatively, the numerical data is presented; however, most impact analyses are qualitative and use best professional judgment in making the assessment.

The NPS defines “measurable” impacts as moderate or greater effects. It equates “no measurable effects” as minor or less effects. “No measurable effect” is used by the NPS in determining if a categorical exclusion applies or if impact topics may be dismissed from further evaluation in an EA or EIS. The use of “no measurable effects” in this EA pertains to whether the NPS dismisses an impact topic from further detailed evaluation in the EA. The reason the NPS uses “no measurable effects” to determine whether impact topics are dismissed from further evaluation is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail in accordance with CEQ regulations at 1500.1(b).

In this section of the EA, NPS provides a limited evaluation and explanation as to why some impact topics are not evaluated in more detail. Impact topics are dismissed from further evaluation in this EA if:

- they do not exist in the analysis area, or
- they would not be affected by the proposal, or the likelihood of impacts are not reasonably expected, or
- through the application of mitigation measures, there would be minor or less effects (i.e. no

measurable effects) from the proposal, and there is little controversy on the subject or reasons to otherwise include the topic.

Due to there being no effect or no measurable effects, there would either be no contribution towards cumulative effects or the contribution would be low. For each issue or topic presented below, if the resource is found in the analysis area or the issue is applicable to the proposal, then a limited analysis of direct and indirect, and cumulative effects is presented. There is no impairment analysis included in the limited evaluations for the dismissed topics because the NPS's threshold for considering whether there could be an impairment is based on "major" effects.

Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; 2006 *NPS Management Policies*; and National Park Service knowledge of resources at Organ Pipe Cactus National Monument. 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 the *Environmental Consequences* chapter.

### **Visitor Use and Experience**

According to the 2006 *NPS 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 National Park Service 2006 *NPS 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).

Approximately 325,000 visitors annually come to Organ Pipe Cactus National Monument. Early winter to mid spring is the peak season for recreational visitation and almost all visitors come to the monument in personal vehicles. The monument is located several hours drive from any significant population center. Most visitors come for the solitude and to experience the remote Sonoran Desert wilderness. In addition to visitors for whom the monument is a destination, more than one million vehicles annually drive through the monument from points to and from Mexico. The monument is also used by researchers from around the world and serves as natural laboratory for understanding and managing desert ecosystems.

Current visitor facilities include the Kris Eggle Visitor Center, two campgrounds, and a number of scenic drives and trails. The Visitor Center is located along AZ Hwy 85 (the only access to Mexico for 80 miles both east and west) and located five miles north of the international boundary with Mexico. A 70-site public RV campground is located within one mile of the Visitor Center and a four-site undeveloped campground is located at Alamo Canyon. Because all ranger operations and emergency responses by the ranger staff of twenty are currently staged from four small offices within the Visitor Center, the facility is overcrowded and interpretive functions are compromised. The public restrooms are shared by LE rangers and other staff.

In addition to AZ Hwy 85, scenic roads currently open to the public include the Alamo Canyon Road, Ajo Mountain Loop Drive, and five miles of the North Puerto Blanco Drive. Scenic waysides, picnic areas, trails, and interpretive stops are also available. Approximately half of the monument, including Quitobaquito Springs and a 53-mile loop drive, is closed to public use

due to illegal border-related activity. Although the proposed new facilities lie outside of any public use area, enhancement of law enforcement operations is expected to have measurable impacts on visitor safety and opportunities. For these reasons, the topic of visitor use and experience has been carried forward for further analysis in this document.

## **Park Operations**

The monument's 16-unit housing area, maintenance compound, and a 70-site public campground are located within one mile of the Visitor Center. The nearest public facilities outside the monument other than at the US Customs and Border Protection Port of Entry are located 21 miles north of the Visitor Center and the nearest emergency response to the Visitor Center/residences comes from 35 miles away. The administrative and resources management offices for the monument are currently in three converted housing units. All ranger operations and emergency responses by the ranger staff of twenty are currently staged from four small offices within the Visitor Center. Five of the housing units are used by seasonal or non-law enforcement staff, leaving only eight units available to law enforcement and emergency operations staff.

Available law enforcement office space totals 1,222 square feet which is sufficient to support a staff of ten (law enforcement staff currently numbers twenty rangers). The current ranger offices are in the monument's visitor center. Neither administrative nor operational functions can be adequately met by the current location and space available to the Protection Division. Today all law enforcement and emergency operations present direct risks to the visiting public, and their proximity to areas frequented by the visiting public continually cause operational security to be compromised.

Prisoners, evidence, seized vehicles, and large amounts of contraband are managed at the Visitor Center. Command and control of strategic tactical operations is hampered by the total lack of space in which to operate and manage these functions. The narcotics canine and handler must share office space with other rangers making it difficult to manage the dog and all of the training narcotics. Emergency vehicles must drive through the visitor center parking lot to respond anywhere in the monument. NPS Health and Fitness Guidelines related to employee fitness and wellness are not being met. Extreme temperatures preclude options for outside training most of the year. Currently there is not adequate space for tactical or physical training. The combined influence of all of these factors is that public and staff safety are frequently compromised.

Emergency equipment must be stored in another building well away from the ranger office. Emergency response personnel must drive from the ranger office to reach this emergency equipment and then respond. Valuable time is lost during all responses jeopardizing life, safety, and property. Also, law enforcement vehicles are parked outside where intense sun and temperatures, reaching 120+ degrees Fahrenheit, damage expensive communication, emergency lighting, and evidence video systems. Security of vehicles and their contents is always a concern.

The proposed law enforcement operations facility is needed to support the recently expanded ranger staff, coordinate law enforcement planning and activities with Border Patrol, and improve the effectiveness of operations. Adverse impacts to visitation and visitor safety would be greatly reduced. Policy deficiencies relative to evidence security, controlled access to sensitive areas, and providing physical fitness facilities to employees covered under the mandatory physical fitness/testing program would be corrected. Guidelines for the appropriate storage of contraband and the managing of prisoners would be met. Current ranger offices would once again be able to serve their intended function as administrative and interpretation division office

space and the existing administrative office space would be able to be reconverted back to residential housing and made available to meet the monument's increased housing needs.

The RM Division works alongside the law enforcement staff to protect and preserve the monument's natural and cultural resources. Currently, resource management staff struggle to coordinate field activities from their existing facilities which consist of two converted former housing units. These facilities do not provide adequate office and laboratory space for employees and monument cooperators and are therefore are poorly suited to running a complex resource management program. Existing lab space doubles as a kitchen. The division's printers and plotter are located in a common area that is also a library/file room and workspace for temporary staff. A large meeting room also serves as seasonal office space, as well as a library and fieldwork staging area. Storage facilities do not meet NPS standards for collections storage and maintenance. There is no workspace for collections. This has resulted in inadequate protection and storage of sensitive equipment and collections. The wiring in both resource buildings is not up to code and is subject to system failures. Resource staff must travel through the monument's residential area to get to and from their offices multiple times per day. Coordinating research, monitoring and resource management activities from these inadequate and unconsolidated facilities is continually challenging and often limiting.

This project is a critical part of a NPS strategy to respond to and manage border-related criminal activities to regain control over monument lands. Without this project, the long-term capability of NPS to manage the monument resources and provide visitor services is at risk. Inadequate monument housing and employee workstations have hindered the ability of monument managers to attract and retain law enforcement and resource management employees, as well as volunteers for all divisions, and cooperating researchers. Meeting and supporting these needs, well into the future, is essential to the monument meeting its mission goals.

The deteriorating sewer treatment system is subject to failure and has an effect on the time and maintenance required by the Facility Management Division to respond to these issues. The general maintenance of park infrastructures also has an effect on park operations. For these reasons, the topic of park operations has been carried forward for further analysis in this document.

## **Water Resources**

National Park Service policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act 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.

Surface water resources at Organ Pipe Cactus NM are limited. Water availability varies seasonally, with the majority of rainfall occurring in late summer as geographically isolated thunderstorms or in winter as widespread, regional storms. These storms typically produce brief ephemeral flows that quickly infiltrate streambeds; only rarely is there sufficient runoff to cause flooding in the normally dry washes. All of the major watersheds within Organ Pipe Cactus NM flow in a westerly direction- either northwest to the Gila River, or southwest to the Gulf of California. No perennial (permanent) rivers or streams exist within the monument.

The proposed project area does not contain surface waters, and is mostly dry, except for periodic runoff during storm events. The outdated and deteriorated existing sewage disposal system has shown signs of failure, and corrective action is needed to ensure protection of water

resources. If no corrective action is taken, the sewer system would remain noncompliant with AZ state regulations. Constructing new buildings and parking areas would increase the impervious surface in the developed area, and could increase runoff. Temporary effects on water quality are possible during construction activities from erosion and introduction of sediment to drainages. For these reasons, the topic of water resources has been retained for further analysis in this document.

## Impact Topics Dismissed From Further Analysis

### Topography, Geology and Soils

According to the National Park Service's 2006 *NPS 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.

The substrate in the proposed project area is primarily Gunsight very gravelly loam, with 2-15 percent slopes. Small bedrock hills of Childs latite are immediately to the west of the proposed Resource Management Division office building. Some areas have had shallow surface disturbance in the past, other areas are undisturbed.

The proposed project location is in an area of the monument that does not contain significant topographic or geologic features. The project would occur within the developed area of the monument and most of the area has been previously disturbed by utility installation and roads. Minor modifications of the topography would be required to provide a level surface on which to construct buildings, and would result in a negligible to minor effect to the topography of this area. Construction of the drainfield, sewer and water lines, and buried utilities would require excavation, which would displace and permanently disturb soils. The estimated surface area of disturbance for the construction of the sewer treatment system is 1.7 acre. The surface area of disturbance for the law enforcement building would be approximately 0.8 acre; and construction of the resource management building would impact about 0.4 acre). Soils in other areas would be disturbed and compacted on a temporary basis in the construction zone and access roads. Appropriate ingress and egress points, staging areas, and stockpile areas would be established. Post-construction restoration would mitigate some of these impacts. Best Management Practices (BMPs) would be implemented during construction activities to reduce the potential for soil erosion and sedimentation.

Given that there are no significant topographic or geologic features in the project area, and that the area is within the developed zone of the monument with previous disturbance, the proposed actions would result in negligible to minor, temporary and permanent adverse effects to topography, geology, and soils. Further, such minor or negligible impacts would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. 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.

### Vegetation

According to the National Park Service's 2006 *NPS 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). The existing vegetation where the new buildings and drainfield would be located consists primarily of creosote bush and triangle-leaf bursage, with some ocotillo, palo verde

trees and scattered cacti. The new sewer line through the residence area passes through a more diverse desert scrub, and could affect common Sonoran Desert species such as saguaro and organ pipe cacti, a variety of other cacti, creosote bush, brittlebush, triangle-leaf bursage, ocotillo, mesquite, ironwood, and palo verde trees.

Vegetation would be removed in the footprint of the new facilities, plant nursery, utility corridors, construction access roads, and fence. The layout of the proposed facilities and utilities would be designed to avoid large columnar cacti. Mitigation measures include avoiding columnar cacti, or if avoidance is impractical, qualified personnel would salvage and transplant cacti under six feet in height. Taller columnar cacti would be destroyed. Following construction, disturbed areas would be revegetated and rehabilitated; therefore, removal and/or disturbance of vegetation in the project area is expected to result in negligible to minor adverse impacts to vegetation. Further, such minor or negligible impacts would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. Because these effects would be minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

## Wildlife

According to the National Park Service's 2006 *NPS 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 animals (NPS 2006). The project area is in a heavily used administrative service area and hence is little used by the larger animals.

The location of the proposed new buildings and sewer system is within the developed administrative/housing area of the monument that contains no surface water and is generally flat with no major geologic features. The presence of humans, human-related activities, and structures have already 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. Some smaller wildlife such as rodents, reptiles, and invertebrates could be disturbed during construction of the new buildings and sewer system.

During construction, noise would also 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, the temporary noise from construction activities would have a negligible to minor adverse effect on wildlife. 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.

## Special Status Species

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 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 *NPS 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). Special status species known to be present in the monument are: acuña cactus (candidate), Quitobaquito pupfish (endangered), desert tortoise (candidate), Sonoyta mud turtle (candidate), cactus ferruginous pygmy owl (candidate), lesser long-nosed bat (endangered), and Sonoran pronghorn (endangered).

Only the desert tortoise, cactus ferruginous pygmy owl, and lesser long-nosed bat could be expected to use the monument's administrative/housing developed area which has been previously disturbed with some natural restoration. On May 5, 2010, a NPS wildlife biologist surveyed the proposed project area for potential impacts to special status species and determined that with implementation of mitigation measures (i.e. avoidance and/or plant salvage/transplantation), impacts to foraging and nesting habitat would be negligible and that there would be "no effect" to the lesser long-nosed bat. Because there would be no effect to special status species and no unacceptable impacts would occur, this topic is dismissed from further analysis in this document.

## **Wetlands**

For regulatory purposes under the Clean Water Act, 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, §404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge or dredged or fill material or excavation within waters of the United States. National Park Service policies for wetlands as stated in 2006 *NPS Management Policies* and Director's Order 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.

No wetlands are located in the project area; therefore, a statement of findings for wetlands will not be prepared. Further, there would be no unacceptable impacts to wetlands; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. Because there are no wetlands in the project area and because there would be no unacceptable impacts, this topic is dismissed from further analysis in this document.

## **Floodplains**

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 *NPS Management Policies* and Director's Order 77-2 *Floodplain Management* will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to Director's Order 77-2 *Floodplain Management*, certain construction within a 100-year floodplain requires preparation of a statement of findings for floodplains.

The project area is not within a 100-year floodplain; therefore, a statement of findings for floodplains will not be prepared. Further, there would be no unacceptable impacts to floodplains; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. Because there are no floodplains in the project area, and thus there would be no unacceptable impacts, this topic is dismissed from further analysis in this document.

## **Archeological Resources**

In addition to the National Historic Preservation Act of 1966 (NHPA); the Antiquities Act of 1906; the Archeological Resources Protection Act of 1979; and other federal legislation related to the conservation and preservation of cultural resources, the 2006 *NPS Management Policies* and



the National Park Service's Director's Order-28B *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 alternative locations for the new drainfields; the new RM building; and the new Law Enforcement building were surveyed for cultural resources by the Monument's Staff Archeologist in July/August 2009 and reported in Organ Pipe Cactus National Monument Cultural Resource Report No. ORPI 2009W, '*A Class III Intensive Cultural Resource Survey of Alternative Drainfield Locations and Future Building Construction Sites in the Administrative/Residential Area, Organ Pipe Cactus National Monument, Pima County, Arizona.*' Locations for the proposed new sewer line and fence around the Maintenance yard were subsequently surveyed in early December 2009 and reported in an addendum to that report, ORPI Cultural Resources Report No. ORPI 2009W.1, '*Additional Areas Surveyed.*' Both cultural resource surveys were negative for cultural resources and the Finding of Effect was "No Historic Properties Affected." With negative results, the project qualifies for streamlined NHPA Section 106 review by the Arizona State Historic Preservation Office under the 2008 Programmatic Agreement.

There is a plan in place to deal with any inadvertent cultural discoveries during construction. Should any cultural resources be discovered during construction of any of the proposed infrastructure projects covered in this EA, supervisors will halt work and contact the monument Staff Archeologist for immediate assessment of the inadvertent discovery. Should the inadvertent discovery involve human remains or funerary objects, rules governing the Native American Graves and Repatriation Act (NAGPRA) become effective immediately; the remains should be left in place undisturbed, protected, and treated with respect. Notification to the monument Superintendent would be made immediately, and the Superintendent would begin the chain of culturally affiliated tribal notifications according to NAGPRA guidelines.

Because the project would not disturb any known archeological sites, the affect of the project on archeological resources is expected to be non-existent to negligible. Further, such negligible impacts would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. Because the cultural resource surveys were negative, the Finding of Effect was No Historic Properties Affected, and no known archeological or historic properties are located in the immediate vicinity, 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.

## **Ethnographic Resources**

National Park Service's Director's Order-28 *Cultural Resource Management* defines ethnographic resources 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 DO-28 and Executive Order 13007 on sacred sites, the National Park Service should try to preserve and protect ethnographic resources.

In consultation with Native American tribes, ethnographic resources are not known to exist in the proposed project area. Native American tribes traditionally associated with the monument

were apprised of the proposed project in a letter dated November 25, 2009. One response was received from the Hopi Tribe, initially concurring with the project. Since there are no ethnographic resources known within the project area, and there would be no unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. 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.

### **Paleontological Resources**

According to 2006 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). There are no known paleontological resources within the project area; therefore, this topic has not been analyzed in detail.

### **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. A cultural landscape inventory has not been conducted for the project area. The project area is within the footprint of the monument administrative area and staff housing. Because the proposed facilities would not preclude the area from being designated a cultural landscape in the future, this topic is dismissed from further analysis in this document.

### **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. Some natural and cultural resource specimens are currently housed in one of the RM Division office buildings in the project area. The museum area where the specimens are kept currently does not meet DO-24 standards. All or part of the collections would be relocated to a space in the new RM Division building, which would meet NPS standards for museum collection management. The proposed new facilities, therefore, would result in a net improvement in management of the collection. The proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. 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.

### **Historic Structures**

The National Park Service, as steward of many of America's most important cultural resources, is charged to preserve historic properties for the enjoyment of present and future generations. According to the National Park Service's 2006 Management Policies and Director's Order-28 Cultural Resource Management, management decisions and activities throughout the National Park System must reflect awareness of the irreplaceable nature of these resources (NPS 2006). The National Park Service will protect and manage cultural resources in its custody through effective research, planning, and stewardship and in accordance with these policies and guidelines.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory

Council on Historic Preservation an opportunity to comment in the consultation process. The term “historic properties” is defined as any site, district, building, structure, or object eligible or listed in the National Register of Historic Places, which is the nation’s inventory of historic places and the national repository of documentation on property types and their significance.

Section 106 compliance was undertaken in concert with the 2009 archeological reconnaissance survey by the Staff Archeologist and the previous archeological survey performed in 1996 (ORPI 1996C) with a Finding of Effect of No Historic Properties Affected. There are no historic structures in the area of potential affect for this project and the determination is that no historic properties would be affected by this proposal. Therefore, this topic has been dismissed from further analysis.

## **Wilderness**

The Wilderness Act of 1964 was established to ‘. . . secure for the American people of present and future generations the benefits of an enduring resource of wilderness.’ The 2006 *NPS Management Policies* states that “Wilderness considerations will be integrated into all planning documents to guide the preservation, management, and use of the park’s wilderness area and ensure that wilderness is unimpaired for future use and enjoyment as wilderness.” Approximately 95% of the monument (about 312,600 acres) was designated as wilderness on November 10, 1978 (Public Law 95-625). Wilderness is an area “...where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain...” and “...which is protected and managed so as to preserve its natural conditions...” (Public Law 88-577). Management of wilderness must comply with the Wilderness Act of 1966 and NPS wilderness management policies. This project is located outside of wilderness and would have no impact on areas designated wilderness or areas with wilderness character. Because there would be no impact to the monument’s wilderness areas, and the proposed actions would not result in any unacceptable impacts, this topic has been dismissed from further analysis in the document.

## **Biosphere Designation**

According to 2006 *NPS Management Policies*, “Biosphere Reserves are sites that are part of a world-wide network of natural reserves recognized for their roles in conserving genetic resources; facilitating long-term research and monitoring; and encouraging education, training, and the demonstration of sustainable resource use. . . .” In 1976, Organ Pipe Cactus National Monument was designated an international biosphere reserve by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) under the direction of the Man and the Biosphere Program. This project would not affect the monument’s designation as an international biosphere reserve because there would be no impacts to unique ecosystems or values associated with this project. Because there would be no effect to the monument’s biosphere designation, and the proposed actions would not result in any unacceptable impacts, this topic is dismissed from further analysis in the document.

## **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. Organ Pipe Cactus National Monument is designated as a Class II air quality area 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 §163 of the Clean

Air Act. Further, 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 (EPA 2000).

Construction activities such as hauling materials and operating heavy equipment could result in temporary increases of vehicle exhaust, emissions, and fugitive dust in the general project area. Any exhaust, emissions, and fugitive dust generated from construction activities would be temporary and localized. Dust production would be mitigated by frequent wetting of the surface. Overall, the project could result in a negligible degradation of local air quality, and such effects would be temporary, lasting only as long as construction. The Class II air quality designation for Organ Pipe Cactus National Monument would not be affected by the proposal. Further, because the Class II air quality would not be affected, there would be no unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. Because there would be no effects on air quality, and the proposed actions would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

### **Soundscape Management**

In accordance with 2006 *NPS Management Policies* and Director's Order-47 *Sound Preservation and Noise Management*, an important component of the National Park Service's mission is the preservation of natural soundscapes associated with national park units (NPS 2006). Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among National Park Service units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The proposed location for the two new buildings and all construction activity would occur within the developed zone of Organ Pipe Cactus National Monument. Existing sounds in this area are most often generated from vehicular traffic (visitors and employees entering/leaving the monument), general park operations, people, climate controls on the buildings, some wildlife such as birds, and wind. Sound generated by the long-term operation of the buildings may include climate controls such as heating or air conditioning units and people using the building. Because the area already contains artificial noises, the long-term operation of the building is not expected to appreciably increase the noise levels in the general area.

During construction, human-caused sounds would likely increase due to construction activities, equipment, vehicular traffic, and construction crews. Any sounds generated from construction would be temporary, lasting only as long as the construction activity is generating the sounds, and would have a negligible to minor adverse impact on visitors and employees. Further, such negligible or minor impacts would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. 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.

### **Lightscape Management**

In accordance with 2006 *NPS Management Policies*, the National Park Service strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human caused light (NPS 2006). Organ Pipe Cactus National Monument strives to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements. The monument also strives to ensure that all outdoor lighting is shielded to the maximum extent

possible, to keep light on the intended subject and out of the night sky. The visitor center and the residences are the primary sources of light in the monument.

The proposed action may incorporate minimal exterior lighting on the two new buildings, but the lighting would be directed toward the intended subject with appropriate shielding mechanisms, and would be placed in only those areas where lighting is needed for safety reasons. The amount and extent of exterior lighting on the buildings would have negligible effects on the existing outside lighting or natural night sky of the area. Further, such negligible impacts would not result in any unacceptable impacts; the proposed actions are consistent with §1.4.7.1 of *NPS Management Policies* 2006. 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.

## **Socioeconomics**

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 beneficial impact to the economies of Ajo and Why in western Pima County, Arizona due to minimal increases in employment opportunities for the construction workforce and revenues for local businesses and governments generated from these additional construction activities and workers. Any increase in workforce and revenue, however, would be temporary and negligible, lasting only as long as construction. Because the impacts to the socioeconomic environment would be negligible, this topic is dismissed.

## **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. According to the NRCS, the project area does not contain prime or unique farmlands (NRCS 2003). Because there would be no effects on prime and unique farmlands, this topic is dismissed from further analysis in this document.

## **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 Organ Pipe Cactus 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.

## **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 facilities 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.

### **Climate Change and Sustainability**

Although climatologists are unsure about the long-term results of global climate change, it is clear that the planet is experiencing a warming trend that affects ocean currents, sea levels, polar sea ice, and global weather patterns. Although these changes will likely affect winter precipitation patterns and amounts in the parks, it would be speculative to predict localized changes in temperature, precipitation, or other weather changes, in part because there are many variables that are not fully understood and there may be variables not currently defined. Therefore, the analysis in this document is based on past and current weather patterns and the effects of future climate changes are not discussed further.

## ALTERNATIVES

During November 2009, an interdisciplinary team of National Park Service employees met for the purpose of developing project alternatives. This meeting resulted in the definition of project objectives as described in the *Purpose and Need*, and a list of alternatives that could potentially meet these objectives. A total of six action alternatives and the no-action alternative were originally identified for this project. Of these, five of the action alternatives were dismissed from further consideration for various reasons, as described later in this chapter. One action alternative and the no-action alternative are carried forward for further evaluation in this environmental assessment. A summary table comparing alternative components is presented at the end of this chapter.

### Alternatives Carried Forward

#### Alternative A – No-Action

Under this alternative, there would be no amendment to the *GMP* and there would be no construction of two new office buildings, a new sewage treatment system, plant nursery, or maintenance yard enclosure fence. Office space for the RM Division would remain in the two former residential units and the Superintendent and Administration Division would continue to occupy one former residential unit. The three former residential units would not be converted back to housing. The Protection Division would remain at the Visitor Center in the limited space available. Routine maintenance and repairs to the existing sewer system in the residence area would be attempted, but the overall system would remain in a deteriorated condition with probable failures. The maintenance compound would remain unfenced, and plant nursery operations would continue to occupy space behind a converted residential unit (current RM office building). Should the no-action alternative be selected, the National Park Service would respond to future needs on a case-by-case basis with no change in the present course of action. See Figure 2 for a map of the existing infrastructure.

#### Alternative B – Provide Infrastructure to Support Visitor Safety and Resource Protection

This alternative would result in an amendment to the 1997 *GMP*. Implementation of all desired components of this alternative is not possible at this time due to funding limitations. Consequently, project components would occur in phases and would be dependent on acquiring the necessary funding. Currently, funding is available only for the construction of the sewer treatment system. This alternative is based on preliminary designs and best information available at the time of this writing. Specific distances, areas, and layouts used to describe the alternative are only estimates and could change during final site design. If changes during final site design are inconsistent with the intent and impacts of the alternative, then additional assessments would be completed, as appropriate.

Alternative B consists of constructing two office buildings for the RM Division and the Protection Division, a sewage treatment system, plant nursery, enclosure fence around the existing maintenance compound, and other associated infrastructure (Figure 2). An area near the maintenance compound was chosen for the proposed actions because of its relatively flat topography and existing on-site utilities. The project area is within the developed zone of the monument, and much of the general area is low quality habitat or was previously disturbed by the construction of utility corridors or roads. The following text further describes the components of alternative B:

- **Construct Two Office Buildings** – Two buildings would be constructed near the existing Maintenance facility to provide adequate office space for the Protection Division and RM

Division. The proposed Law Enforcement - Emergency Operations Center would be approximately 16,000 square feet of interior space, and would provide needed office space, a tactical operations briefing and control center, secure weapon/ammunition storage, compliant evidence and prisoner management, emergency personnel training facility, compliant narcotic canine operations facility, fire engine and emergency vehicle bays, and parking. The new RM Building would be approximately 6,000 square feet, and would provide modernized facilities capable of supporting complex park resource monitoring, protection, and management activities. The Resource Management Center would provide needed office space, fieldwork staging areas, laboratory facilities, associated collections/herbarium secure storage, a reference library, a meeting space for monument staff and cooperators, and parking. The buildings would be integrated into the monument's landscape and environs with sustainable design and systems to minimize environmental impact. Utilities to support the buildings would include excavation to accommodate new sewer line connections (400-500 linear feet), a 1,500 gallon septic tank, fiber optic cable, water lines, and electrical lines. Construction of the two buildings and associated utilities would disturb about 52,000 square feet (1.8 acres).

- **Sewage Treatment System** – A new sewage treatment system would be constructed to replace the existing failing system. A soils investigation report was completed on September 23, 2009, and determined that the proposed location for the drainfield site was best because of its gentle slope, existing on-site electric lines, and soils that are appropriate for a drainfield. The proposed sewer treatment system was designed to convey wastewater from the residential loop and proposed two new facilities, to the proposed drainfield. The new sewer system would consist of a septic tank (approximately 17,000 gallons), approximately 1,300 linear feet of 6" sewer line, ten manholes, and a drainfield. The septic tank would be buried near the existing drainfield, and a new sewer pipe would be installed to convey wastewater to the proposed drainfield located near the maintenance compound. The sewer pipe would be located east of Organ Pipe Drive, and would be at least ten feet east of the existing water line and fiber optic cable. Sewer lines would be buried 10 feet deep, requiring excavation and a disturbance zone 20 feet wide. The drainfield would require an excavation approximately 3-4 feet deep. During construction, soil removed from the areas of the septic tanks, sewer lines and drainfield would be stored temporarily off-site at the Tiger Cage. A temporary access and egress route would be used for the transport of materials to and from the drainfield. No plants would be allowed to grow on or near the new drainfield because plant roots could interfere with its proper functioning. The estimated surface disturbance of the proposed sewer treatment system would be approximately 74,400 sq. feet (1.7 acre).
- **Plant Nursery** – A small plant nursery would be built within the existing perimeter of the maintenance compound. The new nursery would replace the limited plant nursery operations at one of the converted housing units. The new nursery would consist of some raised beds (about 4 feet by 8 feet), some ground-level beds, and a shed (about 500 square feet) that would house tools. The design of the nursery is in the conceptual stage, but would be located in a disturbed area within the maintenance compound. No utilities other than water would be required. A new water line would be installed between the new nursery and an outdoor tap near the southwestern corner of the maintenance shed. The new water line would follow an existing road, so no new disturbance would occur.
- **Maintenance Yard Enclosure Fence** – An enclosure fence approximately 1,100 feet long would be built around the perimeter of the existing maintenance yard. The purpose of the fence is to provide security and deter theft of property. At least a portion of the fence would be chain-link. The proposed fence would not disturb an existing corral fence built of railroad

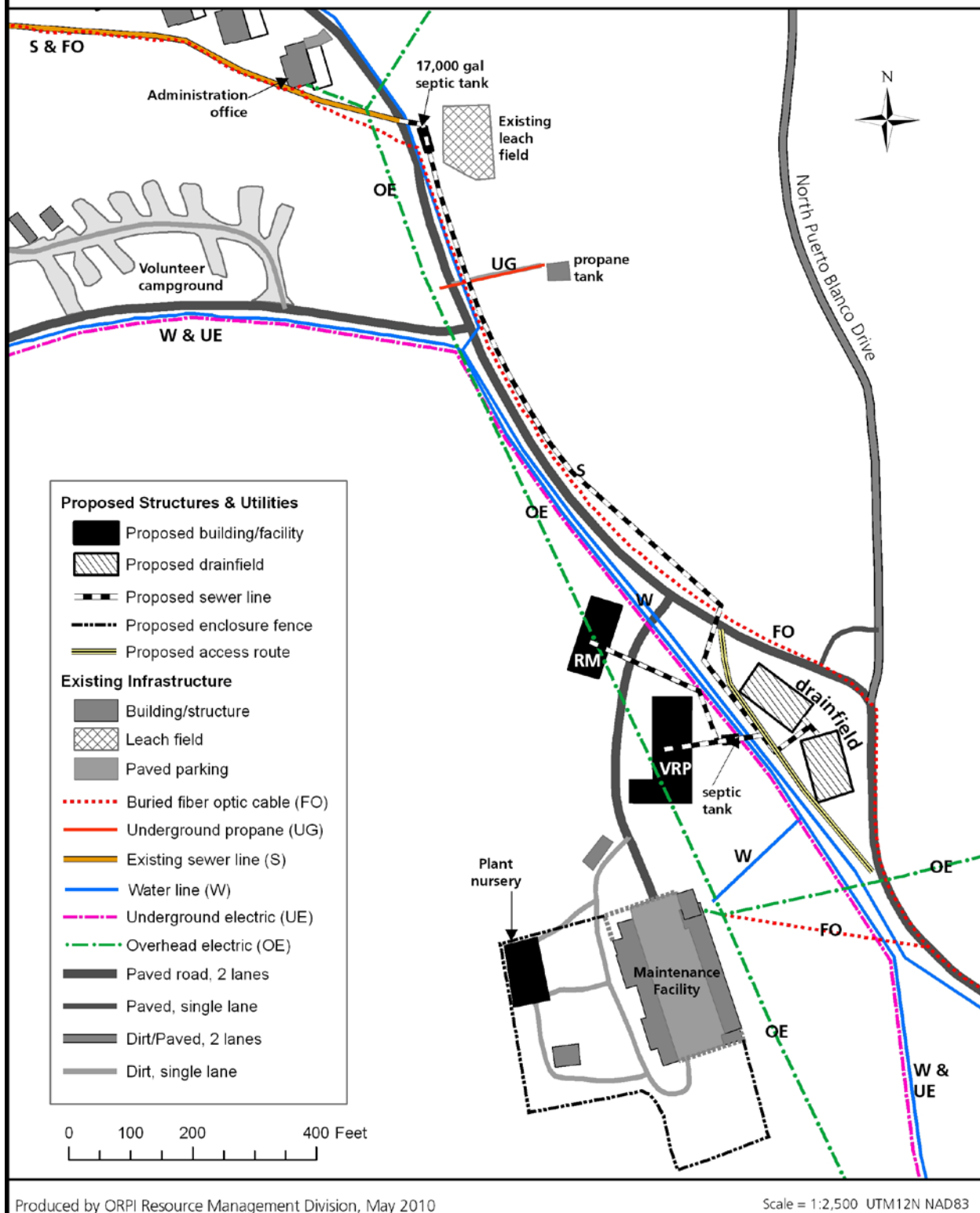


ties and wire that is in the area. Enclosure fences may also be constructed around the two proposed facilities.

- **Use/Operation of the Facilities** – The new office buildings would primarily be used by monument employees for administrative functions. The current employee offices of the RM Division and the Protection Division would be relocated to the new buildings. Space vacated by the resource management staff would be renovated back to residential units. The office space in the visitor center would be vacated by the Protection Division and occupied by the Administration Division. The building vacated by the Administration Division would be renovated back into a residential unit. The new plant nursery would propagate native plants for restoration and monument landscaping purposes. The new sewer treatment system would be operated and maintained by the Facilities Management Division.
- **Utilities** - The new infrastructure would be served by existing utilities near the site, including water, sewer, electric, telephone, and fiber optic cable. Connecting these existing utilities to the new facilities would entail excavation and placement of additional underground piping/wiring. Modification of electrical lines would be coordinated with Arizona Public Services.

**Figure 2 – Project Area**

Figure 2. Approximate location and size of proposed structures and utilities (in black) proposed for the developed zone (headquarters area), existing structures (in gray) and utilities. RM = proposed Resource Management Division office. VRP = proposed Visitor and Resource Protection office.



## Mitigation Measures

The following mitigation measures were developed to minimize the degree and/or severity of adverse effects and would be implemented during construction of the action alternative, as needed:

- Should any cultural resources be discovered during construction of any of the proposed infrastructure projects covered in this EA, supervisors will halt work and contact the monument Staff Archeologist for immediate assessment of the inadvertent discovery. Should the inadvertent discovery involve human remains or funerary objects, rules governing the Native American Graves and Repatriation Act (NAGPRA) become effective immediately; the remains should be left in place undisturbed, protected, and treated with respect. Notification to the monument Superintendent would be made immediately, and the Superintendent would begin the chain of culturally affiliated tribal notifications according to NAGPRA guidelines.
- To minimize the amount of ground disturbance, staging and stockpiling areas would be in previously disturbed sites, away from visitor use areas. Staging for construction would be accommodated in the maintenance compound, administrative (VIP) campground, or other NPS approved, previously disturbed locations. The existing maintenance yard would be used to stage the construction of the enclosure fence and the new plant nursery. Construction of the new sewer system and office buildings would occur in phases, and likely happen in different years. All staging and stockpiling areas would be returned to pre-construction conditions following construction.
- Soil salvage would occur prior to construction activities in areas where past surface disturbance is minimal, including the proposed sewer line between the septic tank and drainfield, and the proposed RM and VRP buildings and associated utilities. Following construction, the salvaged soil would be spread over the surface of the disturbed area and the surface would be smoothed but not compacted.
- During construction, soil removed from the septic tanks and drainfield would be removed from the site and stockpiled temporarily at the Tiger Cage.
- During construction, soil removed from the sewer line trenches would be placed temporarily alongside the excavation then replaced as construction is completed. Excess material would be removed to the Tiger Cage. Salvaged soil would be spread over the surface of the disturbed area and the surface would be smoothed but not compacted.
- All equipment and materials entering into the monument would be free of soil, seeds, vegetative matter, and other debris that could contain or hold seeds and have the potential to introduce or spread exotic plant species. Vehicles will be washed each time they enter the monument after having driven off paved roads.
- The perimeter of the construction zone would be fenced with temporary fencing prior to the start of construction. The fencing would confine activity to the minimum area required for construction. A maximum of 15 feet around the perimeter of the proposed buildings and a maximum of 10 feet on either side of the sewer line would be provided. Temporary fencing would be placed between the drainfield and Organ Pipe Drive to protect a narrow strip of plants that will provide post-construction screening. All protection measures would be clearly stated in the construction stipulations and workers would be instructed to avoid conducting activities beyond the construction.
- The construction route providing access and egress from the proposed drainfield would be clearly marked to prevent unnecessary disturbance. The access route would be

grubbed but not bladed prior to construction.

- Recontouring and revegetation of disturbed areas would take place following construction and would be designed to minimize the visual intrusion of the disturbance. Restoration efforts would establish native species that tolerate the post-disturbance conditions, and to encourage future natural re-establishment of native plants and animals. Invasive plants would be managed in the construction zone. Specific restoration requirements would be identified and detailed for each project/contract where appropriate. Native plant materials would be used for restoration, as required by NPS policy. Standard restoration practices include: salvaging and replacing topsoil, salvaging and replacing small cactus, using heavy equipment to decompact soil in construction area, installing nursery-grown plants if available, and seeding.
- For human health and safety reasons, no restoration activities would occur in the area of the existing drainfield. Some existing drainfield appurtenances would be removed from the site, while most would be abandoned in place.
- Mature saguaros and organ pipe cacti would be avoided if practicable. Saguaros over 6 feet tall (about 2 meters) and organ pipes with five or more arms would be destroyed. Transplanting large saguaros would require disturbance outside the construction zone and would not be permitted.
- Prior to construction, saguaros under 6 feet tall (about 2 meters) and organ pipes with four or fewer arms would be salvaged by qualified personnel and transplanted to the construction area after construction.
- Because disturbed soils are susceptible to erosion until revegetation takes place, erosion control measures shall consist of Best Management Practices (BMPs), such as silt fences, to minimize any potential soil erosion and storm water discharges.
- Contract specifications will minimize the introduction and spread of invasive species, as required by Executive Order 13112. All construction vehicles will be washed prior to arriving in OPCNM to prevent the introduction of invasive species seed. Construction vehicles going back and forth to Ajo or Why every day and that drive off the pavement in Ajo or Why need to be cleaned before entering OPCNM.
- Construction crews will adhere to the following stipulations regarding encounters with threatened, endangered and sensitive species such as Sonoran pronghorn, cactus ferruginous pygmy-owl, Mexican rosy boa, rattlesnakes, and Gila monster:
  - a. Construction crews will not kill, harm, harass, or feed wildlife.
  - b. Construction crews will use best safety practices when working around poisonous reptiles; if a poisonous reptile cannot be avoided, construction crews will contact OPCNM staff (520.387.6849) to remove them from the project area.
  - c. If a pygmy-owl or lesser long-nosed bat is detected in the work area, the animal will not be disturbed, and construction crews will provide a report with the general location to OPCNM staff.
- The project construction would adhere to the AGFD recommendations regarding open trenches (Appendix A).
- If desert tortoises are encountered during construction, the contractor would handle these individuals in accordance with the attached AGFD Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects (Appendix A).

- The contractor would control, reduce, remove, or prevent air pollution in all its forms, including air contaminants, in the performance of the contractor's work in accordance with the Air Quality Standards in Title 18, Chapter 2 (Air Pollution Control) of the Arizona Administrative Code as administered by the ADEQ. Fugitive dust generated by construction would be controlled by spraying water on the construction site, if necessary.
- A Storm Water Pollution Prevention Plan (SWPPP) for the project would be produced by the contractor prior to construction that OPCNM (520.387.6849) would review and approve.
- The contractor would be responsible for submitting the Arizona Pollutant Discharge Elimination System (AZPDES) Notice of Intent and the Notice of Termination to the Arizona Department of Environmental Quality (ADEQ).
- The contractor would comply with the Water Quality Standards in Title 18, Chapter 11 of the Arizona Administrative Code as administered by the ADEQ.
- To reduce noise and emissions, construction equipment would not be permitted to idle for long periods of time.
- The contractor would produce and follow a spill prevention and contingency plan and a waste management plan during the construction and cleanup phase of the project. The plan identifies and quantifies all on-site hazardous and petroleum substances that would be used and could be available during these phases. Recommended practices and emergency response procedures are also outlined in the plan. Fuel and lubricants are anticipated hazardous materials to be used during construction. Equipment oil changes would be performed offsite and not within OPCNM. Any waste oil generated would be handled, stored, and disposed of according to applicable regulations. Any fuel or oil spills or leaks would be cleaned up and/or repaired immediately.
- Concrete and concrete rinsate can permanently sterilize soils. Dry or wet concrete would not be stored or poured on native soil. A temporary basin for containing rinsate from concrete mixers and other tools would be used.
- If previously unidentified or suspected hazardous materials are encountered by the contractor during construction, work must cease at that location. The contractor must coordinate with OPCNM to arrange for proper assessment, treatment, or disposal of those materials. Such locations must be investigated and proper action implemented prior to the continuation of work in that location.
- The contractor would dispose of all excess waste material and construction debris outside OPCNM boundaries at either municipal landfills approved under Title D of the Resource Conservation and Recovery Act, construction debris landfills approved under Article 3 of the Arizona Revised Statutes 49-241 (Aquifer Protection Permit) as administered by the ADEQ, or inert landfills.
- All contractor crews would be responsible for leaving the work area each night as clean as or better than before entering the area and would report to appropriate agencies any uncovering of hazardous materials during construction.
- The contractor would furnish portable field toilets for each crew.
- A traffic control plan conforming to ADOT standards would be in place prior to construction, and appropriate traffic control measures would be applied.

- According to 2006 *NPS Management Policies*, the National Park Service would strive to construct 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, recycling, and integration of visitors with natural and cultural settings. 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.

## Alternatives Considered and Dismissed

The following alternatives were considered for project implementation, but were ultimately dismissed from further analysis. Reasons for their dismissal are provided in the following alternative descriptions.

- **Construct New Ranger Operations and Visitor Center Buildings** – This alternative was the proposed action developed for the 1997 *GMP*. It consisted of constructing a new 4,000 square foot building for ranger operations near the maintenance facilities, converting the current visitor center into a 5,000 square foot science, education and resource management center, developing a new 4,500 square foot visitor center near the old one, relocating the nursery to the new resource center, and converting three office buildings and two dormitories back into monument housing units. Administrative offices and seasonal/temporary housing would be moved to Lukeville through the development of partnerships. The 1997 *GMP* did not anticipate the escalation of border-related issues and expansion of law enforcement staff to twenty. This alternative does not address the need for a new septic system, nor does it provide adequate space for law enforcement operations. Therefore, this alternative was dismissed because it only partially meets the purpose and need for the project and the project objectives.
- **Utilize Facilities Outside the Monument** – Out-of-park options include Lukeville (5 miles south), Why (21 miles north), and Ajo (35 miles north). All of these locations would increase emergency response time for law enforcement and place resource management staff farther from resources. The NPS would have to purchase or lease property. No permanent facilities are available that are of sufficient size and designed to meet operational needs for law enforcement and resources management. Therefore, this alternative was dismissed because it does not adequately meet the purpose and need for the project and the project objectives.
- **Utilize Existing Buildings and Relocate Septic System** – This alternative consisted of continuing to use part of the visitor center for ranger operations, continuing to use housing units for resource management and administrative offices, and relocating the septic system. Ranger office space would remain limited to 1,222 square feet located in the monument's visitor center where emergency operations present direct risks to the visiting public and operational security is compromised. Resource management and administrative offices and facilities would remain in converted housing units where operations require frequent travel through the residence area. The shortage of housing creates difficulty in attracting and retaining qualified law enforcement rangers. The housing units are also inadequate for museum and laboratory functions. Therefore, the alternative of utilizing existing space in the

monument was eliminated for safety and efficiency reasons and because the alternative would not meet the project's objectives.

- **Alternative Drainfield Site Locations** – A soils investigation report, meeting the requirements of AZ State regulations for site inspections regarding on-site wastewater treatment systems, was completed on September 23, 2009 (Nichols On-Site Engineering 2009). In this report, the following three sites were investigated for potential location of the drainfield: 1) the proposed location (as carried out for further analysis in this document); 2) an area southeast of the maintenance facilities (south of the proposed location); and, 3) an area northeast of the maintenance facilities and across the residence loop road (north of the proposed location). The proposed location for the drainfield was selected because utility crossings were minimal, a shorter length of piping would be needed, resulting in a shallower system and reduced costs, and it maximized use of a previously disturbed area.
- **Sewage Treatment System Alternatives**- Three alternative sewage treatment systems were considered. An alternative to pump waste generated from the residential loop and the proposed new buildings to the existing campground lagoon was considered but dismissed because the existing lagoons would not provide the capacity needed to accommodate the residential loop and proposed new buildings. An alternative for a pressurized on-site disposal system with dosing siphons was considered and later dismissed because the proposed new buildings would not be served by the system as there would not be enough elevation difference between the proposed office buildings and the drainfield site for the office buildings to use a dosing siphon system. A third alternative for a pressurized on-site disposal system with pumps was considered and later rejected due to the maintenance requirements and added costs of the pump system.

## Alternative Summaries

Table 1 summarizes the major components of Alternatives A and B, and compares the ability of these alternatives to meet the project objectives (the objectives for this project are identified in the *Purpose and Need* chapter). As shown in the following table, Alternative B meets each of the objectives identified for this project, while the No Action Alternative does not address all of the objectives.

**Table 1 – Summary of Alternatives and How Each Alternative Meets Project Objectives**

Alternative Elements	Alternative A – No Action	Alternative B – Preferred
New Law Enforcement Center and Resource Management Building	Law enforcement rangers would continue to operate out of the visitor center. Resource management staff would continue to operate out of two converted housing units.	A new 16,000 square foot ranger operations facility and new (up to 6,000 square foot) resources management facility would be constructed. Administrative staff would move to the visitor center.
Sewer Treatment System	The current, failing septic system would not be relocated and upgraded.	A new sewer treatment system would be constructed to support current facilities and proposed infrastructure. The drainfield would be located just east of the maintenance facilities.
Plant Nursery	No new nursery would be developed. Limited nursery operations would continue to take place behind one of the converted housing units.	The nursery would be moved to an already disturbed area behind the maintenance compound. Features would include raised beds, ground level beds, and a shed.
Enclosure Fence	No enclosure fence would be	A secure, enclosure fence would be

	constructed around the maintenance compound.	built around the maintenance compound.
Conversion of offices back into housing	No buildings would be converted back into housing units.	Three buildings would be converted back into needed housing units.
Utilities/Construction Staging	New utility connections and construction staging would not be needed.	Some excavation would be required to route existing utilities to the new buildings. Staging for construction would be accommodated in a NPS approved location.
Project Objectives	Meets Project Objectives?	Meets Project Objectives?
Provide permanent facilities that meet current health and safety standards, structural requirements, and sewage disposal regulations.	No. Existing office space is not sufficient for twenty LE rangers and does not meet safety standards. Current sewer system is failing, not in compliance with AZ State regulations, and cannot support existing or proposed new park infrastructure.	Yes. Proposed new infrastructure would meet current and future requirements for office space. A new sewer treatment system would meet health and safety standards and be in compliance with AZ State regulations.
Consolidate resource management functions into one location.	No. Employee offices would continue to be split between two converted housing units.	Yes. All resource management offices and facilities would be consolidated in the new building.
Provide adequate work space and facilities for law enforcement and resources personnel.	No. Ranger office space would be limited to 1,222 square feet. Prisoners, evidence, seized vehicles, and large amounts of contraband would be managed at the visitor center. The converted housing units are inadequate for office space and museum and laboratory functions.	Yes. Proposed new buildings would provide adequate work space and facilities for law enforcement and resource management personnel.
Identify a location that minimizes impacts to park resources and will not result in impairment or unacceptable impacts to these resources.	Yes. Continued use of existing infrastructure would not result in impairment or unacceptable impacts to these resources.	Yes. Construction of new infrastructure would take place in a location that minimizes impacts to park resources and would not result in impairment or unacceptable impacts to these resources.
Minimize visitor exposure to law enforcement operations.	No. Ranger office space would remain in the park's visitor center where law enforcement and emergency operations may present risks to the visiting public.	Yes. The new ranger operations center would be located away from public use areas and would not expose visitors to emergency or law enforcement operations.

Table 2 summarizes the anticipated environmental impacts for alternatives A and B. Only those impact topics that have been carried forward for further analysis are included in this table. The *Environmental Consequences* chapter provides a more detailed explanation of these impacts.

**Table 2 – Environmental Impact Summary by Alternative**

Impact Topic	Alternative A – No Action	Alternative B – Preferred Alternative
<b>Visitor use and experience</b>	Minor to moderate adverse impact to visitor use from continued area closures and illegal border-related activity.	Minor to moderate beneficial effects to visitor use from improved law enforcement and resource management operations. Minor to moderate adverse effects resulting from changes to the viewshed, and construction noise/dust.
<b>Park Operations</b>	Moderate adverse impacts resulting from inadequate	Moderate beneficial effects from an improved work environment that meets health and safety standards.



Impact Topic	Alternative A – No Action	Alternative B – Preferred Alternative
	work facilities, illegal border-related activity, and failure of aging sewer system.	Temporary, minor adverse impacts during construction of the new facilities.
<b>Water Resources</b>	Moderate adverse impacts from failing aging sewer system.	Moderate, beneficial effects from a new, functional and reliable sewer treatment system. Minor adverse impacts from increase of impervious surface area.

## 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:

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- 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;
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative A, *No-Action*, does less to support the long-term operational needs for resource management and visitor protection, and does not fully realize the six criteria. Although it minimizes the footprint of infrastructure within the already developed administrative area, it does not provide an adequate work environment essential to performing duties that minimize impacts elsewhere in the monument. The *No-Action* alternative would not provide adequate office facilities or make available much needed housing, and does not assure safe, healthful, productive, and esthetically pleasing surroundings; nor does it permit high standards of living. Under the *No-Action*, no upgrades to the existing sewer treatment system would occur and failure of the sewer system would remain imminent, and therefore, this alternative would not attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences. This alternative also does not meet the criteria for improving renewable resources because the existing facilities are inefficient, and do not enhance the quality of renewable resources.

Alternative B is the environmentally preferred alternative because it best addresses the above six criteria. Alternative B, *Provide Infrastructure to Support Visitor Safety and Resource Protection*, would provide permanent facilities that meet current health and safety standards, structural requirements, and sewage disposal regulations; and, consolidate resource functions into one location; provide adequate work space and facilities for law enforcement and resources

personnel; and minimize public exposure to law enforcement functions. By providing adequate and appropriate office facilities and a new sewer treatment system, this alternative would assure for all generations safe, healthful, productive, and esthetically pleasing surroundings; it fulfills the responsibilities of each generation as trustee of the environment for succeeding generations; it attains the widest range of beneficial uses of the environment without degradation or risk of health or safety; and it helps to preserve important aspects of our national heritage by supporting visitor safety and resource protection operations. The proposed infrastructure would be designed to be sustainable and enhance the quality of renewable resources to the greatest extent practicable.

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.

## ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential environmental consequences, or impacts, that would occur as a result of implementing the proposed project. Topics analyzed in this chapter include visitor use and experience, and park operations. 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.

- **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.

### Cumulative Impact Scenario

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), require 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 both the no-action and preferred alternative.

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 Organ Pipe Cactus National Monument and, if applicable, the surrounding region. Because the scope of this project is relatively small, the geographic and temporal scope of the cumulative analysis is similarly small. The geographic scope for this analysis includes actions within the monument's administrative site boundary, 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:

- Maintenance Yard Extension (2002) – The maintenance yard was extended to the south to accommodate storage of vehicles, equipment and other materials. Less than an acre was disturbed.
- Visitor Center Improvements (2004-2005) – A new comfort station was built, the access road from Highway 85 was reconfigured, and the parking area enlarged and reconfigured. The former access road and entrance station were removed. Less than 2 acres were disturbed and the former access road restored.
- Fiber Optic Cable (2006) – Fiber optic cable was installed in the headquarters area. The cable mostly followed previously disturbed areas such as road edges and sewer lines. A short distance between the maintenance facility and Organ Pipe Drive was disturbed.
- Residence Area Improvements (2009) – Dirt parking pads in the residence area and volunteer campground were replaced with concrete. Walls around the yards of residence 37 and 38 were built. A bridge was constructed across a small wash between RM building 1 and RM building 2. No additional ground disturbance occurred.
- Painting Buildings (2008-2009) – The Visitor Center and maintenance facilities were given a new coat of paint. No additional ground disturbance occurred.
- SBI-net Tower 204 (2009) – The Department of Homeland Security completed an environmental assessment for the construction of seven towers within the boundary of Organ Pipe Cactus NM. Tower 204 would be constructed within the administrative site boundary on the hill above the water tower that supplies the offices and buildings. Ground disturbance is minimal. Tower 204 will be maintained by the Department of Homeland Security.
- Chip Sealing of Park Roads (2009) – Chip sealing of approximately five miles of road within the administrative site boundaries was recently completed. This project repaired roads and did not result in any increase in the footprint of road infrastructure within the monument's administrative area.
- Fiber Optic Cable (2009) -- A fiber optic cable was recently installed by Table Top Telephone Company along AZ Hwy 85 from Why, Arizona to monument headquarters. Installation required clearing roadside vegetation, trenching, and boring.
- Multi-purpose Building (future) -- The monument will construct a new multi-purpose building within the administrative area near the existing playground to provide a place for monument residents to gather inside for community and social events.
- Visitor Services Improvements -- The monument is in the process of designing and assessing improvements to visitor services including the re-construction of ramadas and improvements to the Twin Peaks Campground dump station and main campground comfort stations. These projects are in various stages of planning and implementation.

## Visitor Use and Experience

### Intensity Level Definitions

The methodology used for assessing impacts to visitor use and experience is based on how new facilities would affect the visitor, particularly with regards to the visitors' enjoyment of the monument's primary resource. The thresholds for this impact assessment are as follows:

- Negligible:** Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.
- Minor:** Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
- Moderate:** Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative, and would likely be able to express an opinion about the changes.
- Major:** Changes in visitor use and/or experience would be readily apparent and have substantial long-term consequences. The visitor would be aware of the effects associated with the alternative, and would likely express a strong opinion about the changes.

### **Impacts of Alternative A (No-Action Alternative)**

The no-action alternative would have minor to moderate adverse effects on visitor use and experience. A large portion of the monument would remain closed to public access and visitor safety would continue to be suboptimal due to inadequate facilities to support law enforcement and resource protection activities. Visitors are already aware of reduced recreation opportunities. Visitors would experience greater chances of encountering law enforcement activities in the Visitor Center parking area, rangers in full tactical gear in the public restrooms, and emergency response vehicle traffic in the Visitor Center parking area. The Visitor Center would remain overcrowded by a ranger staff of twenty continuing to occupy four small offices, and interpretive functions compromised resulting in long-term, minor to moderate, adverse impacts to visitor use and experience.

Cumulative Effects: Any project that occurs in the monument has some effect on park operations; therefore, most of the actions listed in the cumulative scenario in the introduction of this chapter would have some degree of effect on visitor use and experience. The lack of adequate facilities for law enforcement is having a minor to moderate adverse effect on visitation by reducing security. Cumulatively, there would be a moderate adverse effect on park operations when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: The no-action alternative would result in minor to moderate adverse effects to visitor use and experience because visitor exposure to law enforcement operations would continue, and areas of the monument would remain closed due to inefficiencies resulting from inadequate facilities for park staff to perform the necessary duties in order to support visitor safety and resource protection operations. Cumulatively, this alternative would have minor to moderate adverse effects on visitor use and experience when considered with other past, present, and reasonably foreseeable future actions.

### **Impacts of Alternative B (Preferred Alternative)**

Implementation of the preferred alternative would have a long-term minor to moderate beneficial effect on visitor use and experience indirectly by enhancing law enforcement and resource management operations. Minor, temporary, adverse impacts to visitor use and experience would result during construction activities. The project area is located in a portion of the administrative area that is adjacent to the North Puerto Blanco Drive but otherwise closed to visitor use. Construction vehicles carrying materials to and from the Tiger Cage would use the North Puerto Blanco Drive during the construction phase. Noise and dust from construction

activities would also adversely affect visitor use and experience; however all construction-related impacts would be temporary and cease following construction activities. Under the preferred alternative, two new buildings would be constructed where none currently exist, but within the developed zone of the monument where facilities, utilities, and buildings are common. The new buildings would be designed to be compatible with the surrounding area and incorporate sustainable design features. However, the change in viewshed would be long-term, and could be perceived by some as a minor to moderate, adverse impact on the visual quality.

With improved law enforcement effectiveness, visitors would be less likely to encounter and become victims of criminal activities during their visit. Public use areas now closed as a result of criminal activity would be reopened. The monument's reputation would improve resulting in more visitation and a more enjoyable visitation experience. The Visitor Center would return to its originally designed intent and visitor experience would be enhanced. The law enforcement operations facility would remove law enforcement staff, offices, and activities, such as: criminal apprehension, transport, processing, and housing, evidence handling and storage, weapons management, emergency vehicle response, and law enforcement canine handling from occurring in and around the Visitor Center and public parking area. Law enforcement staff (often dressed in full tactical gear) would no longer be required to use public restrooms at the Visitor Center. Administrative staff would return to the Visitor Center to be more accessible to visitors. Interpretive staff would have less conflict related to sharing of inadequate space.

The resource management building would provide updated facilities from which to conduct complex and diverse resource management monitoring and management activities. Currently, such activities are frequently limited by the ability of existing facilities to support them. Also as a result of this project the three housing units currently occupied by resource management and administration would be made available to house additional law enforcement rangers which in turn would provide more law enforcement staff immediately available in the park to directly support monument law enforcement efforts and mitigate critical resource threats around the clock. Maintaining resource management activities in the monument is critical to the preservation and recovery of natural and cultural resources and visitor enjoyment.

The replacement of the sewer treatment system is not anticipated to impact visitor use or experience other than the temporary impacts during construction activities. However, if the existing sewer system fails, certain facilities might be closed and could negatively impact visitor experience.

Cumulative Effects: As described under alternative A, any construction activities have the potential to affect visitor use and experience. Most of the actions listed in the cumulative scenario in the introduction of this chapter would have some degree of effect on visitor use and experience. New facilities for law enforcement would have a minor to moderate beneficial effect on safety and visitation by enhancing security. Cumulatively, there would be a moderate beneficial effect on park operations when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: Under the preferred alternative, there would be minor to moderate beneficial effects to visitor use and experience because areas of the monument that are presently closed could be reopened and visitor exposure to law enforcement activities would be minimized. This alternative would also have long-term, beneficial effects on visitor experience by enhancing the protection and management of resources that visitors come to enjoy and interpretive opportunities in the Visitor Center would improve. Constructing two buildings where none currently exist would be a change in the viewshed and could be perceived by some as a minor to moderate, adverse impact. Cumulatively, this alternative would have a minor to moderate

beneficial effect on visitor use and experience when considered with other past, present, and reasonably foreseeable future actions.

## Park Operations

### Intensity Level Definitions

Implementation of a project can affect the operations of a park such as the number of employees needed; the type of duties that need to be conducted; when/who would conduct these duties; how activities should be conducted; and administrative procedures. For the purpose of this analysis, the human health and safety of park employees is also evaluated. The methodology used to assess potential changes to park operations is defined as follows:

- Negligible:** Park operations would not be affected or the effect would be at or below the lower levels of detection, and would not have an appreciable effect on park operations.
- Minor:** The effect would be detectable, but would be of a magnitude that would not have an appreciable adverse or beneficial effect on park operations. If mitigation were needed to offset adverse effects, it would be relatively simple and successful.
- Moderate:** The effects would be readily apparent and would result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
- Major:** The effects would be readily apparent and would result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed, could be expensive, and their success could not be guaranteed.

### Impacts of Alternative A (No-Action Alternative)

The no-action alternative would have a long-term, moderate, adverse impact on park operations at Organ Pipe Cactus National Monument. Operations are changing due to the recent very large increases of law enforcement staff needed to respond to border-related incidents. The lack of appropriate office space, training facilities, and prisoner detention/processing areas results in inefficient operations. The current space available for the Protection Division is suitable for a maximum of ten rangers. Productivity of the twenty law enforcement rangers currently occupying that space without the proper training and detention areas is compromised, and cannot be expected to be highly efficient. Housing availability within the monument would remain strained because the former housing units that are currently serving as office space would not be converted back to housing and rangers would need to search for available housing in the small town located more than thirty miles away from the monument. The monument would continue to lose valuable recruitment ability, and has lost candidates for positions due to the lack of available housing. Without additional housing, the monument would continue to struggle to have staff on-site that are able to respond to emergencies that can occur anytime of the day. Structural/vehicle fire responses would continue to lack the minimum number of personnel to meet industry standards. EMS responses, especially to highway multi-casualty incidents, would continue to stretch monument staff to the limit. Unless security can be increased for monument residents, maintaining the attraction of the monument that draws volunteers who contribute valuable time, knowledge, and resource management and visitor service assistance, may be lost.

Office space for the RM Division would remain in the two converted residential units. The space is cramped, inefficient, and is not conducive for effective operations. RM staff would remain in separate offices, leading to further inefficiencies. The monument is dedicated to safety of visitors and employees, and with restrictions to access in portions of the backcountry, logistical planning for backcountry operations would remain burdensome and inefficient due to lack of consolidation of park staff. For these reasons, long-term, moderate, adverse impacts on park operations would result.

Other monument operations in the Visitor Center such as interpretive programs, volunteer efforts, and other staff work would also be less productive as more staff try to manage operations in overcrowded, inappropriate fixed spaces. Park operations would continue to occur within the residential loop of the monument, and traffic and congestion would continue to be a threat to families and children living in the park.

Under the No-Action Alternative, the operation, maintenance, and potential health issues with the current sewer system would not be addressed. The efficiency of park operations would not be improved, and maintenance requirements and costs for operation of the current sewage disposal system would increase with system failure imminent. The increase in maintenance response and costs; and, the potential for sewage spills, water quality concerns, and other resource damage would have a long-term, adverse, moderate impact on public health and park operations.

Cumulative Effects: Any project that occurs in the monument has an effect on park operations; therefore, most of the actions listed in the cumulative scenario in the introduction of this chapter would have some degree of effect on employees and monument operations. Recent projects and those currently underway include chip-sealing roads in the administrative area, installing a fiber-optic cable along AZ Hwy 85, constructing a building for community gatherings in the residence area playground, improving visitor services such as ramadas and the dump station, and constructing SBN towers. All projects create a temporary burden on park operations during their construction phase and most have a long-term beneficial effect. Under the no-action alternative, continuing with the current suboptimal facilities and associated difficulties to leverage other projects, would result in a moderate, adverse, cumulative effect on park operations when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: The impact of continuing with the current inadequate facilities would have a moderate adverse effect on park operations and employee health and safety. Cumulatively, these effects would have a moderate, adverse, impact on park operations when considered with other past, present, and reasonably foreseeable future actions.

### **Impacts of Alternative B (Preferred Alternative)**

The new law enforcement operations facility and resource management building would improve all aspects of park operations and result in long-term, moderate, beneficial effects. Law enforcement operations would occupy a facility that allows a highly coordinated and sophisticated response to the sophisticated, organized, and border-related crime that is degrading the monument's wilderness areas and threatening its long-term viability. Operations would be better prepared, equipment would be better maintained in a state of readiness, and the quality of all visitor services would be increased. Emergency response time would be significantly reduced. Evidence and information management and storage would more likely support criminal prosecution making the law enforcement efforts more effective at removing criminals from the monument permanently and deterring additional crime. Maintenance related to upkeep of the law enforcement operations building would increase costs, but the facility would improve productivity for twenty rangers and more than offset those costs. Park managers



and administrative staff could return to the Visitor Center to more efficiently and effectively interact with park visitors and oversee park operations resulting in long-term, moderate beneficial effects. Resource Management staff would have a highly functional building capable of leveraging the large number of volunteers and partners who provide invaluable assistance in maintaining the monument resources.

Costs for maintaining the Resource Management building would likely be similar to existing costs for maintaining the monument housing units the resource management staff occupy, but productivity of staff and leveraging of volunteer and researcher work effort would greatly increase monument staff productivity.

Construction of a dedicated resource management facility would provide essential office, meeting and laboratory space as well as adequate storage space for files, field specimens and library collections. These desperately needed improvements would provide a facility that is properly equipped to support the diverse range of cultural and natural resource research, monitoring and management programs that monument staff, and its partners, engage in. This facility would greatly enhance the monument's ability to successfully address the monument's considerable resource management challenges that have been further complicated by the recent escalation of border related activities.

Additional housing for rangers, by reconverting the three units back to housing, would improve the parks ability to provide all types of emergency services, especially after hours resulting in long-term, moderate, beneficial effects. Additional housing would benefit the park day-to-day operations designed to protect park resources from the impacts of criminal activity by facilitating the mobilization of additional law enforcement resources on short notice. The monument would be better able to provide emergency assistance to Border Patrol and other agencies.

Operational costs would be reduced by eliminating hours of additional overtime associated with bringing rangers from outside the park on duty and paying their travel time. Retention of specially trained law enforcement staff would also improve, resulting in long-term, moderate, beneficial effects.

Under the preferred alternative, there would be long-term, moderate, beneficial effects to public health from the new sewer system because the risk for sewage spills and potential contamination of groundwater would be eliminated.

Cumulative Effects: Any project that occurs in the monument has an effect on park operations; therefore, most of the actions listed in the cumulative scenario in the introduction of this chapter would have some degree of effect on employees and park operations. Recent projects and those currently underway include installation of fiber optic cable in the headquarters area, painting, chip-sealing roads in the administrative area, installing a fiber-optic cable along AZ Hwy 85, constructing a building for community gatherings in the residence area playground, improving visitor services such as ramadas and the dump station, and constructing SBInet towers. All projects create a temporary burden on operations during their construction phase and most have a long-term beneficial effect. Under the preferred alternative, there would be a moderate beneficial effect on park operations and ability to leverage other actions; therefore, there would be a moderate beneficial effect on park operations when considered with other past, present, and reasonably foreseeable future actions.

Conclusion: A facility for the Protection Division would support the expanded law enforcement ranger staff, coordinate planning and activities of the NPS and United States Border Patrol, and improve the effectiveness of law enforcement operations, resulting in long-term, moderate, beneficial effects on park operations and employee health and safety. Likewise, a dedicated RM building would provide a highly functional facility capable of leveraging the efforts of the large number of partners and volunteers and provide office, meeting, and laboratory space, as

well as adequate storage for files, field specimens, and library collections, resulting in long-term, moderate, beneficial effects. Replacing the deteriorated sewer system with an efficient, reliable new system would greatly improve public health and result in long-term, beneficial effects. Alternative B would result in long-term, beneficial, moderate impacts to park operations and public health by providing adequate facilities and infrastructure necessary to support visitor safety and resource protection. Cumulatively, these effects would have a moderate beneficial impact on park operations when considered with other past, present, and reasonably foreseeable future actions.

## Water Resources

### Intensity Level Definitions

For the purposes of analyzing potential impacts to water resources, the methodology used to assess potential changes to water resources are defined as follows:

- Negligible:** Chemical, physical, or biological impacts to water quality would barely be detectable but would be within historical or desired water quality conditions.
- Minor:** Chemical, physical, or biological impacts to water quality would be detectable but would be within historical or desired water quality conditions.
- Moderate:** Chemical, physical, or biological impacts to water quality would be detectable and the historical baseline would be altered or desired water quality conditions would not be met.
- Major:** Chemical, physical, or biological impacts to water quality would be detectable and would frequently be altered from the historical baseline or desired water quality conditions would not be met and a violation in a water quality standard is likely.

### Impacts of Alternative A- (No-Action)

Under the No-Action Alternative, there would be no construction of two new office buildings, associated infrastructure, or sewer treatment system. This would represent no change in current conditions and no improvements. The failing sewer system would continue to deteriorate and the risk of raw sewage spills would increase, and could adversely affect public health. By perpetuating long-term, adverse impacts on water resources, which is in conflict with *NPS Management Policies*, *NPS Director's Order-83*, and AZ State regulations, not replacing the current sewer system would result in long-term, adverse, and moderate impacts on water resources.

Cumulative Effects: Any project that occurs in the monument has the potential to affect water resources; therefore, most of the actions listed in the cumulative scenario in the introduction of this chapter would have some degree of effect on water resources. Recent projects and those currently underway include chip-sealing roads in the administrative area, installing a fiber-optic cable along AZ Hwy 85, constructing a building for community gatherings in the residence area playground, improving visitor services such as ramadas and the dump station, and constructing SBNet towers. The No-Action Alternative would result in no additional development or increase in impervious surface. However, the No-Action Alternative does not address the existing adverse water resource impacts from inadequate sewage disposal infrastructure. Cumulatively, the No-Action Alternative would have an adverse, minor to moderate impact to water quality in the localized area when considered with other past, present, and reasonably foreseeable future actions.

**Conclusion:** The No-Action Alternative would result in no additional development and would not yield an increase in impervious surface area. However, the No Action alternative does not address the existing adverse water resource impacts from inadequate sewage disposal infrastructure, resulting in long-term, adverse, and moderate impacts on water resources. Cumulatively, these effects would have a minor to moderate, adverse impact on water resources when considered with other past, present, and reasonably foreseeable future actions.

### **Impacts of Alternative B- (Preferred)**

Under the Preferred alternative, two buildings, associated infrastructure, and a new sewage system would be constructed within the developed zone of the monument. The Preferred Alternative would have localized, short-term, minor, adverse impacts on water quality during construction activities, with a long-term beneficial effects resulting from sewage system improvements. Proposed site preparation and construction activities, including, grading, clearing, excavating, and trenching for utilities, could potentially increase erosion and sediment transport created from surface disturbances. Soil erosion control BMPs would be implemented during construction to reduce the potential for sediment transport. There would be a long-term, minor, adverse impact on water resources from the increase in impervious surface area resulting from construction of buildings and parking areas.

The existing failing sewer system would be decommissioned, and a new efficient and reliable system would be installed, thereby eliminating the risk of sewage spills and potential effects on water quality. The new sewer system would improve the transport and treatment of wastewater, and would result in a long-term, moderate, beneficial effect on water resources. There could be an increase in water use from the additional buildings and increase in staff occupancy of buildings, however, sustainability guidelines with water efficient considerations would be incorporated into building design, resulting in negligible impacts to water use and potentially long-term beneficial effects in overall water conservation.

**Cumulative Effects:** Any project that occurs in the monument has the potential to affect water resources; therefore, most of the actions listed in the cumulative scenario in the introduction of this chapter would have some degree of effect on water resources. Recent projects and those currently underway include chip-sealing roads in the administrative area, installing a fiber-optic cable along AZ Hwy 85, constructing a building for community gatherings in the residence area playground, improving visitor services such as ramadas and the dump station, and constructing SBNet towers. Alternative B would result in new infrastructure within the developed zone of the park and an increase in impervious surface area, resulting in cumulatively negligible, adverse impacts on water resources when considered with other past, present, and reasonably foreseeable future actions. The Preferred Alternative would correct the deteriorating sewer treatment system, and would contribute cumulatively minor to moderate, beneficial effects to water resources when considered with other past, present, and reasonably foreseeable future actions.

**Conclusion:** Under Alternative B, there would be a long-term, minor, localized, adverse impact on water resources from the increase of impervious surface area due to construction of new buildings and parking areas. Constructing a new sewer system would address the health, safety, and environmental issues associated with the current deteriorating sewer system, and would comply with AZ State regulations, resulting in a long-term, moderate, beneficial effect on water resources. Cumulatively, these effects would have a minor to moderate, beneficial effect on water resources with minor, adverse cumulative effects, when considered with other past, present, and reasonably foreseeable future actions.

## Unacceptable Impacts

As described in *Purpose and Need*, the NPS must prevent any activities that would impair park resources and values. The impact threshold at which impairment occurs is not always readily apparent. Therefore, the Service will apply a standard that offers greater assurance that impairment will not occur. The Service will do this by avoiding impacts that it determines to be unacceptable. 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. To determine if unacceptable impacts could occur to the resources and values of the parks, the impacts of proposed actions in this environmental assessment were evaluated based on monitoring information, published research, and professional expertise, and compared to the guidance on unacceptable impacts provided in *NPS Management Policies* 1.4.7.1 that defines unacceptable impacts as impacts that, individually or cumulatively, would:

- Be inconsistent with a park's purposes 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, or
  - NPS concessioner or contractor operations or services.

By preventing unacceptable impacts, park managers also ensure that the proposed use of park resources will not conflict with the conservation of those resources. In this manner, the park managers ensure compliance with the Organic Act's separate mandate to conserve park resources and values. Using the guidance above (see bullets), the following text analyzes the potential for unacceptable impacts for all alternatives carried forward in this Environmental Assessment.

- Both alternatives are consistent with the monument's purposes and values. The monument was established to perpetuate for future generations a representative sample of the natural and cultural resources of the Sonoran Desert and provide for public understanding, safe use, and enjoyment of the same; serve as a natural laboratory for understanding and managing the Sonoran Desert ecosystem; serve as a baseline indicator against which environmental changes can be identified; and, preserve for future use and enjoyment the character and values of this designated wilderness. If no new office buildings, associated infrastructure, and sewer system were constructed, under Alternative A (No-Action), park operations would continue to operate in their current manner, becoming somewhat more inefficient as staffing would increase, space would become more limited, and supporting infrastructure would not be attained. However, these inefficiencies would not preclude the monument from maintaining its purposes and values for which it was established. If the

proposed infrastructure identified in Alternative B (Preferred) was constructed in the developed zone, park operations would improve and support for visitor safety and resource protection would be enhanced, which would be consistent with the monument's purposes and values. Neither alternative would interfere with the preservation of the monument's natural and cultural resources.

- Neither alternative impedes the attainment of the monument's desired future conditions as this project is consistent with the general concepts outlined in previous planning efforts. The monument's *GMP* identifies the need for adequate office space and residential space for an increase in staff size, within the developed zone of the monument. Alternative A (No-Action) would not result in an amendment to the *GMP* and no new infrastructure would be constructed at this time. The 1997 *GMP* did not foresee the current situation and condition facing the monument today, and therefore, Alternative B was developed to address those needs. Alternative B (Preferred) would be an amendment to the *GMP*. Consistent with the goals outlined in the 1997 *GMP*, infrastructure would be constructed within the developed zone of the park to provide adequate office space and former housing units, currently used as office space, would be converted back to housing.
- Under Alternative A (No-Action), law enforcement and resource management personnel would continue to work in facilities that are inadequate and the aging sewer system would be at risk for failure. This would be a minor to moderate adverse impact to employee health and safety and is not sustainable in the long-term, but it is not considered unacceptable as long as the sewer system remains somewhat functional. Alternative B (Preferred) would provide permanent facilities that meet current health and safety standards, structural requirements, and sewage disposal regulations.
- Under either alternative, visitors would continue to have opportunities to enjoy, learn about, or be inspired by park resources and values. Alternative A (No Action) would maintain visitor use and experience exactly as it is now with approximately half of the monument closed. Alternative B (Preferred) would enhance law enforcement operations to provide visitor protection and regain control of areas now closed, and enhance opportunities for resource management activities.
- Both alternatives provide for employee work facilities that do not unreasonably interfere with park programs, an appropriate use, the natural atmosphere, or concessioner activities. Alternative A (No Action) would not involve construction-related activities, thereby maintaining the existing conveniences and current atmosphere. During construction of the proposed infrastructure associated with Alternative B (Preferred), there would be short-term temporary disturbance to visitors as a result of noise, dust, and construction equipment; however, these inconveniences would be limited to the construction period only.

Overall, the analysis of effects on resources, park operations, and employee and visitor health and safety indicated that there are no major adverse effects under either alternative; effects were analyzed as negligible to moderate. Based on this, and the above analysis, there would be no unacceptable impacts from Alternative A (No Action) or Alternative B (Preferred).

## Impairment

National Park Service's *Management Policies, 2006* require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, 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 park, 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, but does not necessarily, constitute impairment, but an impact would be more likely to constitute impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be impairment is based on whether an action would have major (or significant) effects. This EA identifies less than major effects for all resource topics. Guided by this analysis and the Superintendent's professional judgment, there would be no impairment of park resources and values from implementation of either alternative.

# CONSULTATION AND COORDINATION

## Internal Scoping

Internal scoping was conducted by an interdisciplinary team of professionals from Organ Pipe Cactus National Monument. Interdisciplinary team members first met in November 13, 2009, 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. The results of these evaluations are documented in this environmental assessment.

## External Scoping

External scoping was conducted to inform the public about the proposal to construct a new multi-purpose building at Organ Pipe Cactus National Monument and to generate input on the preparation of this environmental assessment. A scoping letter dated November 25, 2009, was mailed to 39 area residents, agencies, news organizations, and congressional representatives. A tribal scoping letter was sent to 11 representatives of monument affiliated tribes. The public was given 30 days to comment on the project. During the scoping period, one response was received from the Hopi Tribe as noted below.

## Agency Consultation

In accordance with the Endangered Species Act, the National Park Service reviewed the U.S. Fish and Wildlife Service list of federally listed special status species, and the Arizona Game and Fish Department list of state-listed species. Both agencies were notified of the project as part of the scoping process and will be notified when the EA is available for public review and comment. Because the NPS determined that there would be *no effect* to federally or state listed species, no formalized consultation was required.

In compliance with Section 106 of the National Historic Preservation Act, the National Park Service abides by a service-wide 2008 Programmatic Agreement signed by the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. The 2008 Programmatic Agreement specifies when a park is required to consult with the State Historic Preservation Officer (SHPO) when considering the effects of a project on any historic properties in the vicinity, and offering the SHPO the opportunity to comment on the effects of the project. In cases where there is a professional archeological survey performed on the subject land parcel, and the results are negative, the Finding of Effect is No Historic Properties Affected, and project proponents are not required to consult with the SHPO; instead, a project summary is presented to the SHPO at an annual meeting (streamlined review). The determination of effect for the project activities associated with this environmental assessment was determined to be a 'No Historic Properties Affected' undertaking and no additional consultation is required with the Arizona SHPO at this time. The project will be discussed at the annual NPS-SHPO meeting.

## Native American Consultation

Native American tribes affiliated with the monument were contacted at the beginning of this project to determine if there were any ethnographic resources in the project area and if they wanted to be involved in the environmental compliance process, including:

- Ak-Chin Him Dak
- Gila River Indian Community
- Hia-C'ed O'odham Policy Board
- Hopi Tribe
- Salt River Pima-Maricopa Indian Community
- Tohono O'odham Nation

During the 30-day scoping period, one response was received from the Hopi Tribe concurring with the proposed project.

## Environmental Assessment Review and List of Recipients

The environmental assessment will be released for public review in May, 2010. To inform the public of the availability of the environmental assessment, the National Park Service will publish and distribute a letter 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 for review at the monument's visitor center and on the NPS Planning, Environment, and Public Comment (PEPC) internet website at <http://parkplanning.nps.gov/orpi>.

The environmental assessment 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, or electronically on the NPS PEPC website listed above. 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.

Agencies and organizations contacted to assist in identifying issues and providing an opportunity to review and comment on this EA include, but are not limited to, the following:

### Federal Agencies

Bureau of Indian Affairs, Papago Indian Agency, Superintendent

Bureau of Land Management

Arizona State Director

Lower Sonoran Field Office

Environmental Protection Agency, Region IX

Fish and Wildlife Service

Cabeza Prieta National Wildlife Refuge

Tucson Field Office

Luke Air Force Base, 56<sup>th</sup> Fighter Wing, Range Management Office

National Park Service

Coronado National Monument

Saguaro National Park

Yuma Crossing National Heritage Area



U.S. Border Patrol

U.S. Customs Service

U.S. Department of the Interior, Deputy Assistant Secretary LE

U.S. Geological Survey- Sonoran Desert Field Station

### **Congressional Representatives**

U.S. Representative Manuel Alvarez

U.S. Representative Raul Grijalva

U.S. Senator John McCain

U.S. Senator Jon Kyl

### **Tribal Government**

Ak-Chin Him Dak

Gila River Indian Community

Hia-C'ed O'odham Policy Board

Hopi Tribe

Salt River Pima-Maricopa Indian Community

Tohono O'odham Nation

### **State Agencies**

Arizona Game and Fish Department

Arizona Department of Environmental Quality

Arizona Department of Transportation, Environmental Planning Group

Arizona State Land Department, Commissioner

### **Local Agencies**

Pima Association of Governments

Pima County Office of Conservation Science

Pima County Sheriff Office

Yuma County Chamber of Commerce

### **Organizations and Businesses**

Ajo Copper News

Arizona Public Service Company, Manager, West Valley District

International Sonoran Desert Alliance, Executive Director

Rocky Point Times

The Runner

The Sonoran Institute, Executive Director

The Nature Conservancy, Tucson Conservation Center

University of Arizona, School of Renewable Natural Resources

**Individuals (list available upon request)**

## **List of Preparers**

From the National Park Service, Organ Pipe Cactus National Monument, Ajo, Arizona:

- Lee Baiza, Superintendent
- Mark Sturm, Chief, Resource Management Division
- Dane Tantay, Chief, Visitor and Resource Protection Division
- Bob Bryant, Facilities Management Division
- Peter Holm, Ecologist
- Sue Rutman, Botanist
- Connie Gibson, Archeologist

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## REFERENCES

- NPS 2006      *NPS Management Policies*, National Park Service, U.S. Department of the Interior, December 2006.
- NPS 1997      Final General Management Plan/Development Concept Plans, Organ Pipe Cactus National Monument, 1997.
- NPS 2009      *Class III Intensive Cultural Resource Survey of Alternative Drainfield Locations and Future Building Construction Sites in the Administrative/Residential Area, Organ Pipe Cactus National Monument, Pima County, Arizona*. Organ Pipe Cactus National Monument Cultural Resource Report No. ORPI 2009W. July/ August, 2009.
- NPS 2009      *Additional Areas Surveyed*. Organ Pipe Cactus National Monument Cultural Resources Report No. ORPI 2009W.1. December 2009.
- NPS 2010      *Residence Sewer System, PMIS 89899, Design Report*. Organ Pipe Cactus National Monument, prepared by Marina S. Connors, PE, Civil Engineer, Intermountain Region, National Park Service. October 2009. Updated March 2010.
- Nichols 2009      *Geotechnical Site Investigations for Organ Pipe Cactus National Monument*. Prepared by Nichols On-Site Engineering, Tucson, AZ. October 2009.

# APPENDIX A

## ARIZONA GAME AND FISH DEPARTMENT

### TRENCHING GUIDELINES

DRAFT August 15, 2005

#### Background:

During the construction of trenches and ditches it is important to consider potential impacts to wildlife and wildlife movement. These structures can be hazardous or cause mortality, especially in the nighttime, summer months, and wet weather months, when a high variety of species tend to be most active.

#### Recommendations:

- Trenches should be covered or back-filled as soon as possible. Trenching and back filling crews should be kept close together, utilizing small areas at a time minimizing the potential impacts or mortalities associated with open trenches.
- Monitor the trenches often during the construction, as well as, after construction is completed.
- Trench during the cooler months (October – March), if at all possible. However, there may be exceptions (e.g., critical wintering areas), which need to be assessed on a site-specific basis.
- Avoid leaving trenches open overnight, as this increases the chance for entrapment and mortality. Covering trenches or adding escape ramps should be considered if trenches must be left open overnight, or cannot be back-filled immediately. Trenches that have been left open overnight, especially where endangered species occur, should be inspected and animals removed prior to back filling.
- Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches. Escape ramps should be constructed at least every 90 meters and can be short lateral trenches sloping to the surface or wooden planks extending to the surface. The slope should be less than 45 degrees (100%).

#### Literature Cited:

New Mexico Department of Game and Fish. 1994, Guidelines for Oil and Gas Development and Fish and Wildlife Resources.

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES  
ENCOUNTERED ON DEVELOPMENT PROJECTS  
Arizona Game and Fish Department  
Revised January 17, 1997

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position at all times and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 105 degrees fahrenheit unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to two miles, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 105 degrees fahrenheit, the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- ! These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- ! These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- ! Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.