National Park Service
U.S. Department of the Interior

Lake Meredith National Recreation Area
Texas

LAKE MEREDITH NATIONAL RECREATION AREA MULTI-USE TRAIL

ENVIRONMENTAL ASSESSMENT

January 2010

UNITED STATES DEPARTMENT OF THE INTERIOR - NATIONAL PARK SERVICE

LAKE MEREDITH NATIONAL RECREATION AREA MULTI-USE TRAIL ENVIRONMENTAL ASSESSMENT

TEXAS

The National Park Service (NPS) is conducting an Environmental Assessment (EA) to analyze the impacts of constructing a new, non-motorized, multi-use recreational trail at Lake Meredith National Recreation Area (the recreation area), Texas. Declining water levels at Lake Meredith have reduced the amount of public access to the reservoir, resulting in an overall reduction in the availability of recreational opportunities for visitors. The demand for recreational uses such as hiking and mountain biking continues to increase both regionally and nationally, and the recreation area represents a large portion of the publicly available land in the Texas panhandle region. Currently, the recreation area only contains a minimal amount of hiking and biking trails. Wildfires also pose a substantial threat to public safety in and around the recreation area. Multi-use trails in the project area would serve as a firebreak and would provide an increased level of access for firefighting crews in the event of a wildfire. A new multi-use trail is needed to address the lack of land-based recreational opportunities in the region, to increase the availability of interpretive resources in the recreation area, to improve access for emergency response personnel, and to provide a firebreak at the urban-wildland interface.

This EA evaluates two alternatives. Alternative A is the "no action" alternative, which represents the current condition of the project area and is used as a baseline against which the impacts of the action alternative will be measured. Alternative B (NPS preferred alternative) involves the construction of a multi-use trail as well as installing interpretive signage, kiosks, bike racks, and trash receptacles. The multi-use trail would consist of five phases of primitive trails totaling approximately 22 miles in length and would be available for pedestrian and bicycle use. Phase one would be located in the Harbor Bay and Fritch Canyon area; phase two would be between Harbor Bay and Short Creek; phase three would be located between Short Creek and South Turkey Creek; phase four would start at the mouth of South Turkey Creek and continue up the canyon; and phase five would be located between Fritch Fortress and the northern portion of phase one. This EA analyzes all five phases of the proposed multi-use trail; however, construction of each phase would occur as funding becomes available.

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that (1) analyzes a reasonable range of alternatives to meet project objectives; (2) evaluates potential issues and impacts to Lake Meredith National Recreation Area's resources and values; and (3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics that have been addressed in this document because the resultant impacts may be greater than minor include soils, vegetation, visitor use and experience (including health and safety), and recreation area management and operations. All other resource topics have been dismissed because the resource does not exist within the recreation area (or project area), or the project would result in no or negligible to minor effects to those resources and a full analysis was not considered to be necessary. No major effects are anticipated as a result of this project. External scoping was conducted to assist with the development of this document, and the majority of respondents supported the development of a multi-use trail at the recreation area.

Public Comment

If you wish to comment on this EA, you may do so online at the NPS website "Planning, Environment, and Public Comment" at http://parkplanning.nps.gov/lamr or you may mail comments to the address below. This EA will be available for public review for 30 days ending **February 19, 2010**. 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. While 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.

Please address written comments to:

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Acronyms

BOR	Bureau of Reclamation
CEQ	Council on Environmental Quality
CFR	U.S. Code of Federal Regulations
CRMWA	Canadian River Municipal Water Authority
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GPS	Global Positioning System
NEPA	National Environmental Policy Act
NPOMA	National Parks Omnibus Management Act of 1998
NPS	National Park Service
NRCS	National Resources Conservation Service
ORV	off-road vehicle
PEPC	Planning, Environment, and Public Comment
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WRD	Water Resources Division (WRD)

PURPOSE AND NEED FOR ACTION

INTRODUCTION

Lake Meredith National Recreation area was formally established in 1990 by an act of Congress "in order to provide for public outdoor recreation use and enjoyment of the lands and waters associated with Lake Meredith in the State of Texas, and to protect the scenic, scientific, cultural, and other values contributing to the public enjoyment of such lands and waters, there is hereby established the Lake Meredith National Recreation Area…" The recreation area is located approximately 35 miles north of Amarillo, Texas (figure 1) and lies within Potter, Moore, Hutchinson, and Carson counties and serves as a resource for water-based recreational activities in the region.

The purpose of this environmental assessment is to examine the environmental impacts associated with the proposal to construct a new, non-motorized, multi-use trail at the recreation area.

The multi-use trail would consist of five phases of primitive trails totaling approximately 22 miles in length and would be available for pedestrian and bicycle use. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (Part 40 of the Code of Federal Regulations (CFR) Section 1508.9), and the NPS Director's Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*.

BACKGROUND

The recreation area is approximately 45,000 acres in size and is the largest public landmass in the panhandle region (NPS 2008a). Providing diverse and water-based recreational opportunities is part of the significance of the national recreation area. Although water-based opportunities such as fishing and boating are provided, there is only a minimal amount of trail mileage available to visitors for hiking and biking. The recreation area also lacks interpretive facilities that would allow visitors to understand the natural and cultural resources that give the recreation area its identity and demonstrate its significance. Adequate interpretive opportunities are an important method of providing public education and promoting the stewardship of park resources.

There has been a rapid increase in mountain biking in the United States, particularly over the last 20 years. This is most likely due to technological improvements in mountain bike design, which allows more people to participate in this activity. According to a 2003 National Survey on Recreation and the Environment, general bicycling was the second most popular land-based recreation activity in the United States and an estimated 45.2 million people biked on backcountry roads, trails, or cross country at least once in the twelve months prior to the survey (White et al. 2006). In the Texas panhandle, Palo Duro Canyon is a premier location for mountain bikers. According to Palo Duro Canyon staff, the numbers of daily users has increased substantially. There are now four major races, which will host between 100 – 150 riders each and the fund raising "24-hour ride" now has over 300 entrants (Wimer 2009a). Although Palo Duro Canyon provides a destination for mountain bikers in the region, additional public trails in the panhandle would help address the continuing increase in demand for access to mountain bike trails.

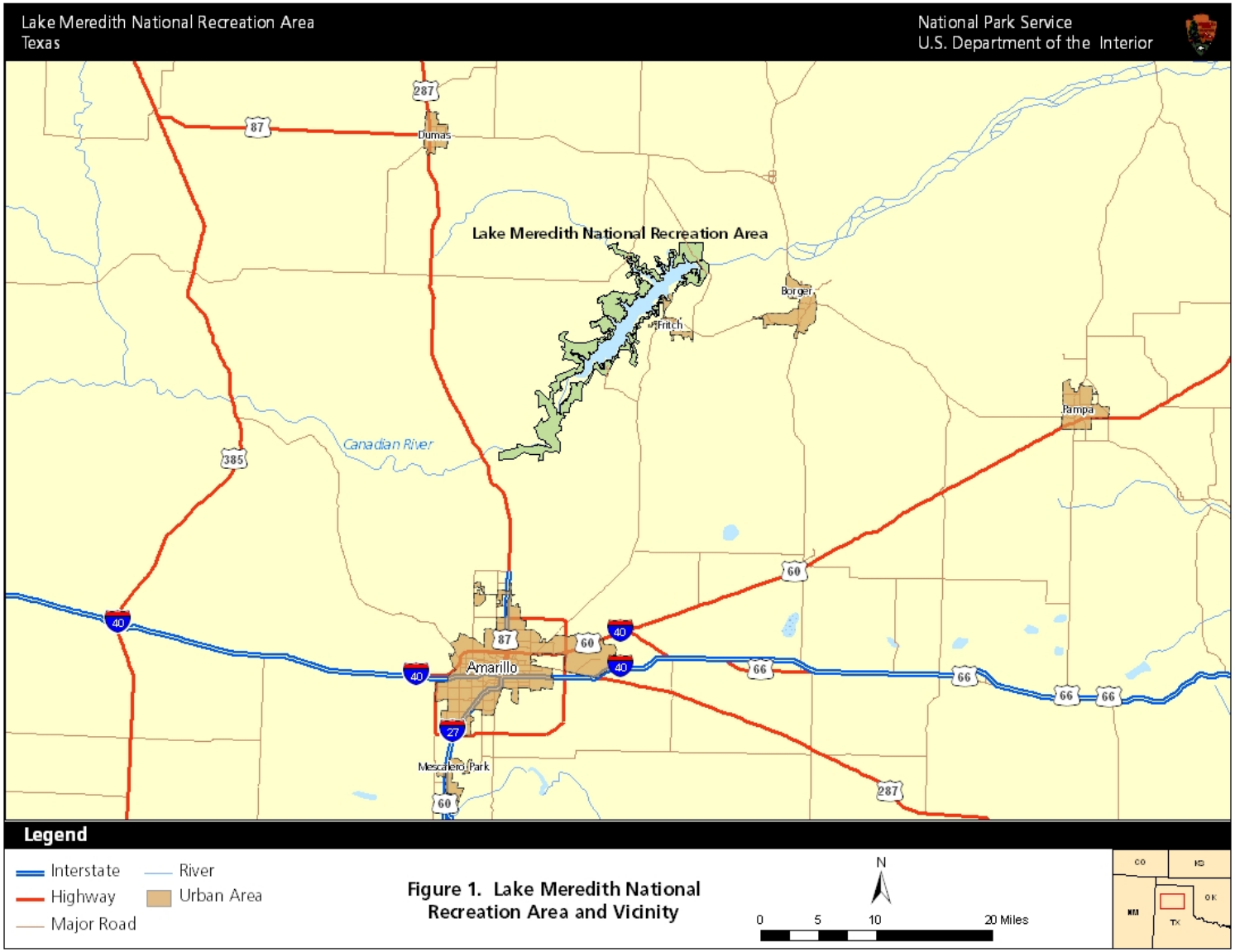


Figure 1. Lake Meredith National Recreation Area and Vicinity

The water level of Lake Meredith has become an item of concern for recreation area staff, park visitors, and local communities. Water levels at Lake Meredith have reached a record low each of the last four years (Wimer 2009a). Dropping water levels in Lake Meredith have resulted in a substantial loss of public access to the reservoir and a corresponding reduction in water-based recreational opportunities. Visitation to the recreation area has declined over the last 10 years and lower water levels and reduced access could be a contributing factor to this decline in use. Although water levels are not expected to increase in the near future, the addition of a multi-use trail could provide visitors with an alternative form of recreation.

Wildfires pose a substantial threat to public safety in and around the recreation area. The elimination of grazing operations in the park and periods of prolonged drought have given rise to an increase in the potential for catastrophic wildfire events. In March 2006, the Borger fire consumed 479,549 acres and resulted in eleven civilian deaths, one firefighter death, one civilian injury, and nine firefighter injuries (NWS 2006). This event underscored the dangers of wildfires and importance of preventative measures. Multi-use trails in the project area would serve as a firebreak and would provide an increased level of access for firefighting crews in the event of a wildfire. Also, because roads and trails are limited within the recreation area, additional access points and trails would improve response times for emergency and rescue teams.

PURPOSE AND NEED

The purpose of this project is to provide visitors with a wider range of non-water based, non-motorized visitor experiences and to provide improved emergency access within the park unit.
The multi-use trail project is needed to accomplish the following objectives:

- Provide emergency service access to hard to reach areas of the park, in order to reduce response times and improve visitor safety.
- Establish a firebreak at the urban interface to improve the safety of park neighbors and visitors.
- Work cooperatively with interested user groups to create advocates for the national recreation area as well as to assist in the establishment and maintenance of the trail.
- Establish and maintain a multi-use trail that has minimal impact on the natural environment and avoids impairment and unacceptable impacts.
- Provide a recreational trail that addresses the limited amount of hiking and mountain biking opportunities in the park and the region.

RELATIONSHIP TO REGULATIONS, POLICIES, AND PLANS

Guiding Regulations and Policies

National Environmental Policy Act

NEPA is implemented through CEQ regulations (40 CFR 1500–1508). The NPS has in turn adopted procedures to comply with the Act and the CEQ regulations, as found in NPS Director's Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2001), and its accompanying handbook, and the Department of the Interior regulations implementing NEPA (Department Manual 12).

National Park Service Management Policies

This is the basic NPS-wide policy document, adherence to which is mandatory unless specifically waived or modified by the NPS director or certain departmental officials, including the Secretary of the Interior. The following sections from the NPS *Management Policies 2006* (NPS 2006a) are particularly relevant to the proposal to construct a multi-use trail, as described below.

Trails and Walks

Section 9.2.2 of the NPS *Management Policies 2006* (NPS 2006a) indicates that trails and walks will be planned and developed as integral parts of each park's transportation system and incorporate principles of universal design. Trails and walks will serve as management tools to help control the distribution and intensity of use. All trails and walks will be carefully situated, designed, and managed to reduce conflicts with automobiles and incompatible uses; allow for a satisfying park experience; allow accessibility by the greatest number of people; and protect park resources. Heavily used trails and walks in developed areas may be surfaced as necessary for visitor safety, accessibility for persons with impaired mobility, resource protection, and/or erosion control. Surface materials should be carefully selected, taking into account factors such as the purpose and location of a trail or walk and the potential for erosion and other environmental impacts.

Trail planning will take into account NPS interest in cooperating with federal, state, local, and tribal governments, as well as individuals and organizations, to advance the goal of a seamless network of parks. Section 9.2.2.2 (Hiking Trails) of NPS *Management Policies 2006* states that trail design will vary to accommodate a wide range of users and be appropriate to user patterns and site conditions. Wetlands will generally be avoided, and where possible they will be spanned by a boardwalk or other means, using sustainable materials that will not disturb hydrologic or ecological processes.

In accordance with 36 CFR 4.30, bicycle use is allowed on park roads, in parking areas, and on routes designated for bicycle use. The designation of bicycle routes is allowed in developed areas and in special use zones based on a written determination that such use is (1) consistent with the protection of a park's natural, cultural, scenic, and esthetic values; (2) consistent with safety considerations; (3) consistent with management objectives; and (4) will not disturb wildlife or other park resources. A similar determination may be made to designate routes outside developed areas and special use zones; however, the designation must be made by promulgating a special regulation.

Lake Meredith National Recreation Area Planning Documents

Master Plan (1973)

The master plan for the national recreation area details the aspects of the national recreation area that make it unique, as well as provides a plan that facilitates access to land and water in the area. The development of additional recreational facilities is consistent with the master plan. Objectives in this plan included a strong emphasis on providing access to the lake and surrounding land and to provide "information on recreation pursuits, to encourage participation, facilitate greater enjoyment, and develop a better understanding of the resource and its value." The plan also lists "access roads and trails to water" as the third overall development priority and indicates Harbor Bay as a location for trails and supporting infrastructure (NPS 1973). Portions of the proposed multi-use trail would be located near the shoreline of the reservoir and would provide increased access to the lake and surrounding lands.

Wildland Fire Management Plan (1998)

The Wildland Fire Management Plan for the national recreation area is a detailed program of action to implement a prescribed fire program and manage wildland fire. This plan is the primary reference for conducting all fire management activities and is intended to help achieve the resource management objectives as presented in the resource management plan. Protection of life (employee and public), property, cultural resources, the perpetuation of natural resources and their associated processes, and protection of cultural and historic scenes are the highest priorities for the plan. This plan is based on a strategy to use prescribed burns and mechanical methods to remove excess fuel from the system, which would reduce the likelihood of major wildfires and would also provide benefits to native vegetation and wildlife in the area.

Resources Management Plan (1996)

The Resources Management Plan provides goals for the national recreation area that address preserving national recreation area resources, providing for the public enjoyment and visitor experience, perpetuating cultural resources and enhancing recreational opportunities managed by partners, and ensuring organizational effectiveness. The plan contains a goal that promotes conditions where "visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities" (NPS 1996). By broadening the scope of recreational opportunities available in the recreation area, the proposed multi-use trail is consistent with the Resources Management Plan.

Strategic Plan (FY 2008-2012)

The Strategic Plan (NPS 2008a) was written to fulfill the requirements of Section 104 of National Parks Omnibus Management Act of1998 (NPOMA). This legislation requires all field units of the national park system to prepare strategic plans and annual performance plans consistent with the Government Performance and Results Act of 1993 and make these documents available to the public. This plan contains long-term goals, which target in quantifiable, measurable ways what the national recreation area staff will accomplish during the planning period toward achieving the overall mission goals. The long-term goals in the plan address both appropriate "servicewide" goals as well as park-specific outcomes. The Strategic Plan includes information on how these goals will be accomplished, including staffing, fiscal, infrastructure, and other resources available to achieve the plan's long-term goals. The Strategic Plan provides goals and direction for invasive species control, visitor satisfaction, visitor safety, facilities maintenance, community partnerships, and interpretive programs.

Superintendent's Compendium (2008)

Under the provisions of 16 USC 3 and 36 CFR 1, 1-7, the compendium designates closures, permit requirements, and other restrictions imposed under the discretionary authority of the Superintendent for Lake Meredith National Recreation Area. Regulations listed in the compendium are a requirement in addition to those listed in 36 CFR 1, 1-7 unless otherwise noted. In addition to the compendium regulations, written determinations, which explain the reasoning behind the superintendent's use of discretionary authority, are required by 36 CFR 1.5 (c) and appear in the document as italicized print or are available for review in the Chief Ranger's Office. The compendium for Lake Meredith provides information on and regulations for resource and administrative closures, hunting, bicycling, camping, and fishing. Section 4.30 of the compendium states that bicycle use is permitted on park roads, parking areas, and on the following designated routes: Plum Creek to Devil's Canyon and Mullinaw to Chicken Creek.

APPROPRIATE USE

Section 1.5 of NPS *Management Policies 2006* (NPS 2006a), Appropriate Use of the Parks, directs that the NPS 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* (NPS 2006a), 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 NPS; 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.

The proposal to construct a primitive, multi-use trail at Lake Meredith National Recreation Area is consistent with applicable laws, executive orders, regulations and policies because a non-motorized, primitive trail would provide more diverse and healthful recreational and educational opportunities while protecting natural resources by using sustainable trail design methods, avoiding water resources, and utilizing previously disturbed areas where practicable. The proposal would also result in increased visitor and community safety by providing a firebreak near the urban-wildland interface.

As previously discussed in the *Lake Meredith National Recreation Area Planning Documents* section, the construction of a multi-use trail would be consistent with the recreation area's existing plans for public use and resource management. Therefore, the NPS finds that the construction of a non-motorized, primitive, multi-use trail would be an appropriate use of the Lake Meredith National Recreation Area.

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. Lake Meredith National Recreation Area conducted internal scoping with appropriate NPS staff, as described in more detail in the *Consultation and Coordination* chapter. The recreation area 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 a multi-use trail, and to generate input on the preparation of this environmental assessment. The scoping letter, dated February 4, 2009, was mailed to the interested public, various federal and state agencies, affiliated Native American tribes, and local governments. Scoping information was also posted on the recreation area's website.

During the 30-day scoping period, six pieces of correspondence were received containing a total of six signatures. The public submitted five correspondence letters through the NPS Planning, Environment, and Public Comment (PEPC) website and one letter was submitted directly to the recreation area. Four commenters supported the establishment of the multi-use trail. The Wichita and Affiliated Tribes supported the trail, under the condition that they be informed in the event of the unearthing of cultural resources or human remains. One commenter also expressed concern over the potential for impacts to hunting opportunities in areas near the proposed trail. Mitigation strategies have been included in this EA to address cultural resource issued identified during external scoping. Also, the NPS would consider closing the trail during particular hunting seasons, so hunting opportunities would not be impacted by the proposed multi-use trail. More information regarding external scoping and Native American consultation can be found in *Comments and Coordination*.

ISSUES AND IMPACT TOPICS

Potential issues associated with the construction and maintenance of a multi-use trail at the recreation area were identified during internal and public (external) scoping. The issues that were identified formed the basis for the impact topics to be analyzed in this EA. Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; NPS *Management Policies 2006*; and NPS knowledge of the resources at the recreation area. Impact topics carried forward for further analysis in this EA are listed below along with the reasons why the particular impact topic is further analyzed.

Soils and Sedimentation

Over 67 percent of the land base at Lake Meredith National Recreation Area is comprised of slopes greater than or equal to 12 percent (NPS 2006b). Soils on steep slopes are susceptible to water and wind erosion. In addition, erosion tends to increase where vegetation has been removed and grading activities have occurred (NPS 2006b). The proposed project involves the construction of a multi-use trail in five phases totaling approximately 22 miles in length. Although the proposed trail would be primitive in nature, some grading activities would be required to ensure that the trail has a reasonable slope and width to allow for safe use. There would be measurable impacts to soil resources from construction and visitor use, which could also produce incidental impacts on water quality from erosion and sedimentation. Therefore, this impact topic was retained for further analysis.

Vegetation

The proposed construction of a multi-use trail would require the removal of some vegetation and could result in damage to vegetation adjacent to the trail. Long-term use and maintenance of the trail would likely prohibit re-growth of this native vegetation within portions of the proposed trail corridor. It is known that invasive plant species can be introduced during construction activities, as vehicles often transport plant seeds on their tires. Also, allowing new recreational use in areas not historically accessed by the public could also contribute to the spread of invasive plant species. There could also be some beneficial effects of providing access trails, as recreation area staff would be afforded better access to areas where invasive species could be controlled or eradicated. These actions are considered to have measurable effects; therefore, the topic of vegetation was carried forward for further analysis in this EA.

Visitor Use and Experience (including Health and Safety)

According to NPS *Management Policies 2006*, the enjoyment of park resources and values by the public is part of the fundamental purpose of all park units (NPS 2006a). Lake Meredith National Recreation Area was established, in part, to provide for public use and enjoyment of the lands and waters associated

with Lake Meredith. Historically, recreational activities at Lake Meredith have been primarily water-based, such as fishing, boating, water skiing, and swimming. However, decreasing water levels in the reservoir have led to reduced access to water-based activities. Also, there are only limited opportunities for hiking and biking at the recreation area. The proposed trail project would provide additional non water-based recreational opportunities and improve visitor enjoyment of the recreation area. Portions of the proposed trail would also function as a firebreak and provide health and safety benefits to recreation area visitors and surrounding communities. Construction of the trail would also provide increased access for emergency personnel responding to visitor safety issues in the project area. Therefore, this topic is carried forward for further analysis.

National Recreation Area Management and Operations

The construction and maintenance of an approximately 22-mile-long multi-use trail would require a substantial commitment of time and resources from recreation area staff. Although teams of volunteers would most likely assist the NPS with construction and maintenance activities, recreation area staff and resources would be required to ensure the success of the project. Dedication of staff and resources for construction and maintenance would have a measurable effect on management and operation of the recreation area. The creation of additional access and a firebreak would also improve emergency response activities. Therefore, this impact topic has been carried forward for further analysis in this document.

IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

Some impact topics have been dismissed from further consideration, as listed below. The rationale for dismissing these specific topics is stated for each resource.

Wildlife

According to the NPS *2006 Management Policies*, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals (NPS 2006a). The general area surrounding the proposed trail corridor may provide habitat for several native wildlife species that depend on the mixed grassland habitats that exist along the tops of the mesas or the more riparian habitat types found along the shore or the reservoir. Native wildlife in the project area may include several species of birds, mammals, reptiles, and amphibians.

Common mammals known to occur in and around the national recreation area include mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus)*, coyote (*Canis latrans*) porcupine (*Erethizon dorsatum*), raccoon (*Procyon lotor*), skunks (*Spilogale putorius, Mephitis mephitis*), ground squirrels (*Spermophilus tridecimlineatus*), rabbits (*Sylvilagus audubonii, Sylvilagus floridanus, Lepus californicus*), pocket gopher (*Geomys bursarius*), mole (*Scalopus aquaticus*), a few bats, and several varieties of rats and mice. Turtles, lizards, frogs, and snakes, including two poisonous species (prairie rattlesnake [*Crotalus viridis*] and western diamondback rattlesnake [*Crotalus atrox*] can be found in the national recreation area (NPS 2006b).

Prominent birdlife consists of wild turkey (*Meleagris gallopavo*), northern bobwhite (*Colinus virginianus*), scaled quail (*Callipepla squamata*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), and red-winged blackbird (*Agelaius phoeniceus*). The national recreation area lies along the Central Flyway, which is a major north-south bird migration route located between the arid region to the west and the more moist landscapes to the east. Large numbers of ducks, geese, and other migratory birds occur seasonally to utilize open water areas as well as wetland areas during the fall through spring months.

Protection under the Migratory Bird Treaty Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition, this act serves to protect environmental conditions for migratory birds from pollution or other ecosystem degradations. Although migratory birds use the open water and wetland areas, the immediate project area contains little to no suitable habitat for migratory birds. There are no known nesting sites in the project area, and these lands are not vital for foraging or roosting. Construction-related noise could potentially disturb transient bird species, but these adverse impacts would be 1) temporary, lasting only as long as construction, and 2) negligible, because suitable habitat for transient birds is found throughout the region.

Construction and use of the multi-use trail would disturb wildlife and wildlife habitat; however, given that the trail would consist of a natural surface and would not involve motorized use, impacts to wildlife are expected to be minor and would decrease once the construction process is complete. Any disturbed areas created by construction activities outside of the new trail corridor, such as any staging areas, would be re-vegetated and rehabilitated following construction activities. Construction activities would have temporary adverse impacts on wildlife to a minor degree; however, these effects would last only as long as the construction period. Dust and noise would increase, which may disturb wildlife in the general area, and would be temporary, lasting only as long as construction activities. Impacts to wildlife from continued visitor use would exist, but would be limited as human activity would be confined to a narrow corridor and would not involve motorized use. Natural areas surrounding the trail corridor would remain in their current condition and would continue to offer habitat for wildlife.

Because the effects to wildlife and wildlife habitat from the proposed project would be temporary in nature and would be less than minor in the long-term, the topic of wildlife has been dismissed from further consideration.

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 ESA requires all Federal agencies to consult with the USFWS or designated representative to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the NPS *Management Policies 2006* and Director's Order 77 *Natural Resources Management Guidelines*, require the NPS to examine the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species (NPS 2006a). For the purposes of this analysis, the USFWS and the Texas Parks and Wildlife Department (TPWD) were contacted with regards to federally listed and state-listed species to determine those species that could potentially occur in or near the project area.

No critical habitat is currently designated within the recreation area. However, the USFWS recently initiated evaluation of potential critical habitat for the Arkansas River shiner within the recreation area, from the confluence of Coetas Creek with the Canadian River and west to the boundary of the park unit. Although the Arkansas River shiner has recently been found in the recreation area, there is no suitable habitat within the project area for the proposed multi-use trail.

A list of federally listed species that may occur in or near the recreation area was obtained from the USFWS website on March 9, 2009 and is summarized in table 1 along with the state-listed species and corresponding state status (USFWS 2009). The complete lists and associated summary descriptions of habitats for federally protected species that are likely to occur in Potter, Moore, and Hutchinson counties were reviewed on the USFWS Southwest Region's website at

http://www.fws.gov/southwest/es/EndangeredSpecies/lists/. The Texas Parks and Wildlife Department's list of rare species for these counties was obtained on that agency's website at http://www.tpwd.state.tx.us/huntwild/wild/species/endang/index.phtml (TPWD 2009a).

Recreation area personnel have observed wintering bald eagles and Texas horned lizards in or near the project area. Because eagles are not known to nest in the recreation area, the construction and maintenance of the multi-use trail would not have any measurable impacts to eagles. Although actions associated with the construction of the trail could temporarily displace individual horned lizards from the project area, this action would not affect the overall population or habitat.

At the time of the publication of this document, no response had been received from the USFWS or the TPWD on this proposal.

Because no federally listed threatened, endangered, proposed or candidate species are known or likely to inhabit the proposed project area; no designated critical habitats lie within or near the project area; and any effects to state listed species if present would likely have few measurable consequences, the topic of special status species has been dismissed from further consideration in this EA.

TABLE 1. SPECIAL STATUS SPECIES

Species	Federal Status	State Status	County Known to Occur in (Per USFWS Region 2)
BIRDS Arctic Peregrine Falcon *Falco peregrinus tundrius*	Delisted	T	—
Bald Eagle *Haliaeetus leucocephalus*	Delisted	T	Hutchinson Moore Potter (wintering only)
Interior Least Tern *Sterna antillarum athalassos*	E	E	Hutchinson
Lesser Prairie-chicken *Tympanuchus pallidicinctus*	C	—	Moore
Peregrine Falcon *Falco peregrinus*	Delisted	E	—
Whooping Crane *Grus americana*	E	E	Potter
MAMMALS Black Bear *Ursus americanus*	T (only due to similarity to Louisiana Black Bear)	T	—
Black-footed Ferret *Mustela nigripes*	E	E	—
Gray Wolf *Canis lupus*	T	E	—
REPTILES Texas Horned Lizard *Phrynosoma cornutum*	—	T	No federal listing. Not tracked by USFWS.
FISH Arkansas River Shiner *Notropis girardi*	T	T	Hutchinson Potter

E=endangered, T=threatened, P=proposed, C=candidate

Source: USFWS 2009, TPWD 2009a

Water Resources

NPS 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 (EPA) also has responsibility for oversight and review of permits and actions, which affect waters of the United States.

The proposed multi-use trail would not directly impact water resources as the trail would be aligned to avoid any rivers or streams. The trail would not cross any perennial streams, creeks, or rivers. The construction of portions of the trail would be in close proximity to Lake Meredith and could result in short and long-term soil erosion which could potentially lead to the deposition of sediment in the reservoir. Potential localized water quality impacts from soil erosion and sedimentation are discussed under the Soils impact topic later in this document. Overall, the quality and quantity of water in the reservoir are not expected to be measurably affected by the project. Therefore, this topic has been dismissed from further consideration.

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, Section 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. NPS policies for wetlands as stated in NPS *Management Policies 2006* 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 (NPS 2006a, 2002b). In accordance with Director's Order 77-1, *Wetlands Protection*, proposed actions that have the potential to adversely impact wetlands must be addressed in a Statement of Findings for wetlands.

Although there are wetlands near the shoreline of Lake Meredith, the final trail alignment would avoid wetland areas and construction of the multi-use trail would not impact wetlands. Therefore, a Statement of Findings for wetlands will not be prepared, and the topic of wetlands has been dismissed from further consideration.

Floodplains

Executive Order 11988, *Floodplain Management*, requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. According to NPS *Management Policies 2006* (NPS 2006a) and Director's Order 77-2, *Floodplain Management (NPS 2002c)*, NPS is mandated to strive to preserve floodplain values and minimize hazardous floodplain conditions. Portions of the proposed multi-use trail would be located within a mapped floodplain. Because the water level is regulated by the operation of the dam and reservoir, the area surrounding Lake Meredith would not technically be considered a regulated floodplain. However, floodplain protection policies in Director's Order 77-2 would still be applicable to projects in these types of areas. A Statement of Findings for floodplains would not be necessary for this project because unpaved trails that are constructed at grade do not produce adverse impacts to floodplain functions or values and are therefore

outside the scope of Director's Order 77-2 (NPS 2008b). Therefore, this topic has been dismissed from further consideration.

Wilderness

According to the NPS *Management Policies 2006*, the NPS will evaluate all lands it administers for suitability for inclusion within the national wilderness preservation system, and for those lands that possess wilderness characteristics, no action will be taken that would diminish wilderness suitability (NPS 2006a). According to the 1964 Wilderness Act, which established the national wilderness preservation system, wilderness is defined as, "…an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." There is no congressionally designated wilderness in or near the project area; therefore, the topic of wilderness has been dismissed from further consideration.

Archeological Resources

In addition to the National Historic Preservation Act (NHPA) and the National Park Service 2006 *Management Policies*, 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.

Numerous archeological surveys have been completed within the project area between 1974 and 2004. The 2001 survey by Susanna and Paul Katz entitled "*Archaeological Survey, Fritch Fortress to Harbor Bay Prescribed Burn Area, Lake Meredith National Recreation Area, Hutchinson and Moore Counties, Texas"* was the most important during the Section 106 NHPA consultation for phase one of the proposed multi-use trail. Only phase one of the proposed multi-use trail has been located on the ground using a GPS unit. During the consultation with the Texas State Historic Preservation Officer (SHPO), the proposed trail location was modified to avoid areas of concern as a mitigation strategy for possible exposure of known archeological sites. Section 106 consultation for phases two, three, four, and five of the trail will be completed after phase one has been constructed and when the exact trail location within the 50-foot corridor has been determined for the subsequent phases.

Because the project will not disturb any known archeological sites, the effect of the project on archeological resources is expected to be negligible. If any new sites are discovered during construction, trail work would cease in the immediate area while the trail is re-routed to avoid these resources. 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 has been dismissed from further consideration.

Ethnographic Resources

National Park Service's Director's Order-28 *Cultural Resource Management* (NPS 1998) 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 national recreation area were apprised of the proposed project during the external scoping process. The February 13, 2009 response letter from the Wichita and Affiliated Tribes confirmed their cultural affiliations with the area, but did not indicate the presence of ethnographic resources in the project area. Therefore, this topic has been dismissed from further consideration.

Cultural Landscapes

According to the National Park Service's Director's Order-28 *Cultural Resource Management Guidelines*, a cultural landscape is a reflection of human adaptation and use of natural resources, and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. Although a cultural landscape inventory has not been conducted for the national recreation area, there are no historic structures in the project area and therefore no known cultural landscapes exist that could be impacted by the proposal.

Because the proposed actions are consistent with §1.4.7.1 of NPS *Management Policies* 2006 and no impacts to cultural landscapes are expected, this topic has been dismissed from further consideration.

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. There are no museum collections located at the national recreation area. Therefore, this topic has been dismissed from further consideration.

Air Quality

The Clean Air Act of 1963 (42 USC 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 NPS units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards.

Construction activities such as hauling materials and operating 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, and would likely dissipate rapidly due to the constant breezes which blow year round and seldom allow stagnant air to remain in the area. Currently, the area of Lake Meredith National Recreation Area is in attainment for all EPA designated criteria pollutants (TCEQ 2009). 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 activities are being conducted. Ongoing use and maintenance of the trail could cause some fugitive dust impacts. Because motorized uses would not be permitted on the trail, impacts to air quality from trail use and maintenance would be negligible at most. Therefore, air quality has been dismissed from further consideration.

Soundscapes

In accordance with NPS *Management Policies 2006* and Director's Order 47, *Sound Preservation and Noise Management*, an important component of the NPS mission is the preservation of natural soundscapes associated with national park units (NPS 2006a). 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 NPS units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The soundscape within the recreation area is comprised of both manmade and natural sounds. Portions of the proposed trail would be in proximity to nearby roads and adjacent residential and agricultural land uses and would be subject to the sounds of vehicles, heating and cooling units, oil and gas wells, and other machinery. During hunting season, the sound of gunfire would be prevalent in areas open to hunting. Natural sounds in and around the project area include birds, wildlife, wind, and water.

The development of a primitive, multi-use trail would not contribute to long-term impacts to the soundscape at Lake Meredith National Recreation Area, as there would be no motorized use allowed. The project would likely have temporary impacts to the soundscape while construction activities are conducted, such as human-caused sounds from equipment, vehicular traffic, and trail crews. Any sounds generated during the construction of the proposed trail would be temporary, lasting only as long as the activity is producing the sounds, and would have a negligible adverse impact on visitors, employees, and adjacent landowners. Therefore, the topic of soundscapes has been dismissed from further consideration.

Socioeconomics

The proposed action would neither change local and regional land use nor appreciably impact local businesses or other agencies. The development of a multi-use trail could provide a negligible beneficial impact to the economies of local communities due to minimal increases in revenues for local businesses generated from increased visitation to the recreation area. Trail construction would require some use of the local labor force, although it is expected that most of the construction would be accomplished through the use of volunteers and NPS staff. Because the impacts to the socioeconomic environment would be negligible, this topic has been dismissed from further consideration.

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. According to the soil surveys for Hutchinson, Moore, and Potter counties, there are no designated prime farmland soils in the project area that could be impacted by the development of a multi-use trail (NRCS 2009a); therefore the topic of prime and unique farmlands has been dismissed from further consideration.

Minority/Low Income Populations

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 multi-use trail would be available for use by all people 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. Therefore, this topic has been dismissed from further consideration.

Lightscape Management

In accordance with 2006 *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 2006a). Lake Meredith National Recreation Area strives to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements. The national recreation area 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. Artificial lighting at the recreation area is minimal.

The proposed multi-use trail would not require the installation of exterior lighting and would not result in any impacts to night skies. Therefore, this topic has been dismissed from further consideration.

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 have been dismissed from further consideration.

ALTERNATIVES

This chapter describes the two alternatives considered by the NPS: a no action alternative (alternative A), and an action alternative (alternative B). The alternatives presented in this chapter were derived from the recommendations of an interdisciplinary planning team and through feedback from the public during the external scoping process. NEPA requires that federal agencies develop a range of reasonable alternatives and provide an analysis of what impacts the alternatives could have on the human environment (the natural and physical environment and the relationship of people with that environment). However, according to NPS Director's Order 12, if the interdisciplinary team finds that no reasonable alternatives exist and that there is no potential for significant impacts, there may be only the no-action alternative and the park's proposal (Director's Order 12, sec. 5.4 D.1), which was the outcome in this planning effort. NPS Director's Order 12 also requires that the NPS identify their "Preferred Alternative" and the "Environmentally Preferred Alternative" from among the alternatives evaluated. This chapter also describes alternatives or alternative elements that were considered but dismissed from further consideration.

DESCRIPTION OF ALTERNATIVES CARRIED FORWARD

No Action Alternative (Alternative A)

The alternatives under consideration must include a "no action" alternative as prescribed by 40 CFR 1502.14, which are the guiding regulations of NEPA. A no action alternative is developed for two reasons. First, the no action alternative represents a viable and feasible choice in the range of management alternatives. Second, because a no action alternative represents the continuation of current management actions, it provides a benchmark of existing impacts continued into the future against which to compare the impacts of the other proposed management alternatives. In this EA, the impacts of the no action alternative can be considered as the continuation of current management of the park unit, without the addition of new recreational amenities in the project area.

Under the no action alternative, the multi-use trail would not be constructed at the recreation area and the majority of the project area would remain undisturbed and largely inaccessible to visitors. Existing recreational opportunities at the recreation area would continue including hiking, swimming, fishing, horseback riding, boating, hunting, ORV use, picnicking, and camping. While the no action alternative fails to meet the project purpose and the majority of the objectives, it is carried forward for evaluation as a baseline for comparison of the action alternative.

Construct a Multi-Use Trail (Alternative B, NPS Preferred Alternative)

Under this alternative, the recreation area would construct a non-motorized, multi-use trail in five phases, all of which are analyzed in this EA. Each phase of the trail would be constructed as funding becomes available. The trail would be located entirely within the boundaries of the recreation area (figure 2). Additional access points may be sought in the future, which would require additional NEPA compliance. The bike component to the multi-user trail would be considered a new use within the park unit and would require special promulgation through rulemaking before the project is implemented.

The multi-use trail would provide visitors with additional recreational and educational opportunities while providing increased emergency access and also a partial firebreak at the urban-wildland interface. Phase one of the trail would be located in the Harbor Bay and Fritch Canyon area; phase two would go from Harbor Bay, southwest toward Short Creek; phase three would continue from Short Creek to the entrance

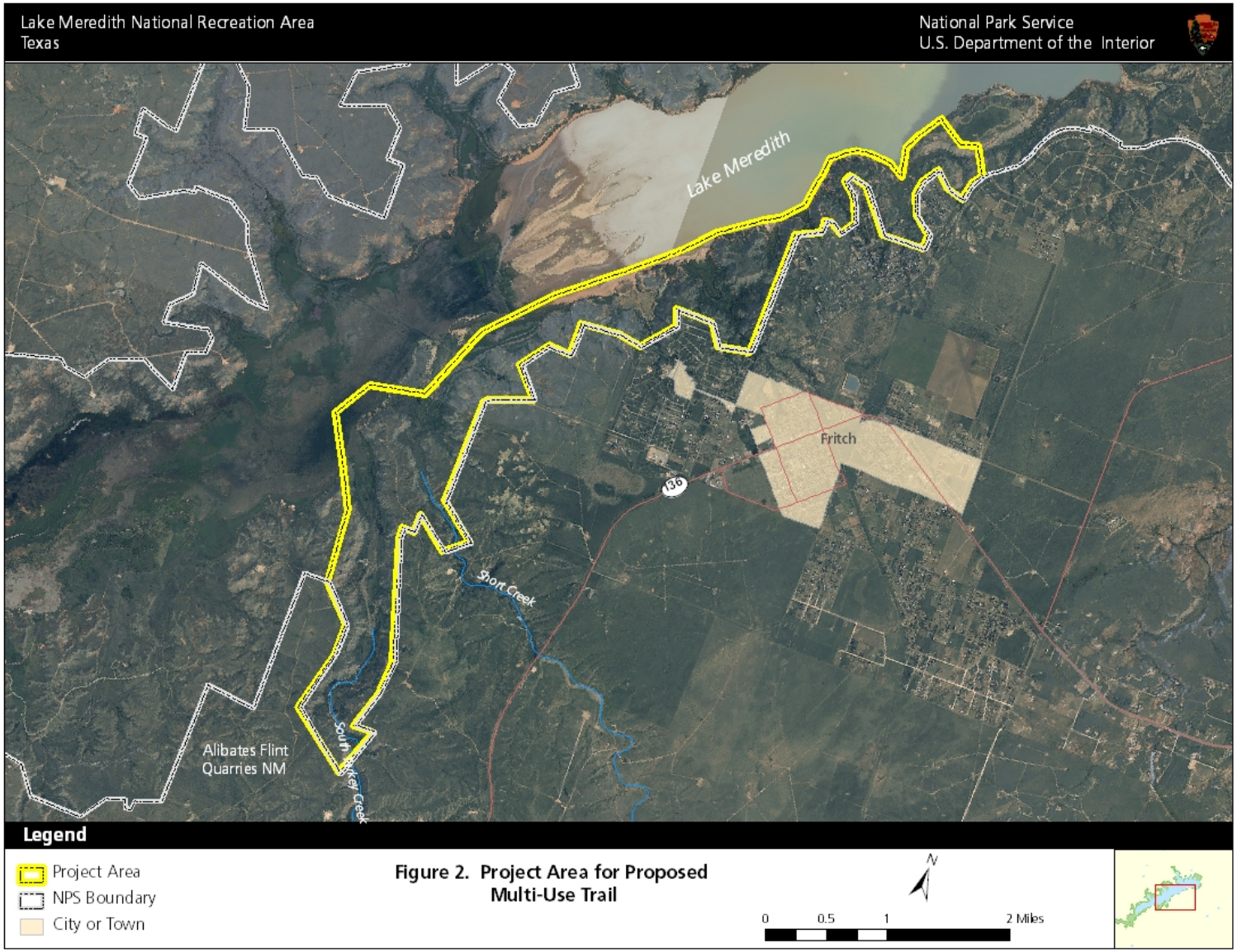


Figure 2. Project Area for Proposed Multi-Use Trail

of South Turkey Creek; phase four would consist of a loop trail that would go from the mouth of South Turkey Creek up the canyon and back; and phase five would be located between the Fritch Fortress day use area and the northern portion of phase one (figure 3). The estimated total linear distance of all phases of the multi-use trail would be approximately 22 miles. The following describes the components of the proposed multi-use trail.

Trail Corridor. The corridor was identified and aligned by studying topographic maps, aerial photos, and through extensive fieldwork in early 2009. This background work resulted in a proposed trail corridor for all phases of the project, although only phase one has been recorded with a Global Positioning System (GPS) device at the present time. The actual location of the proposed trail would be within an approximately 50-foot wide corridor as indicated on figure 3. Any additional land disturbance or action outside of this corridor would require additional NEPA compliance.

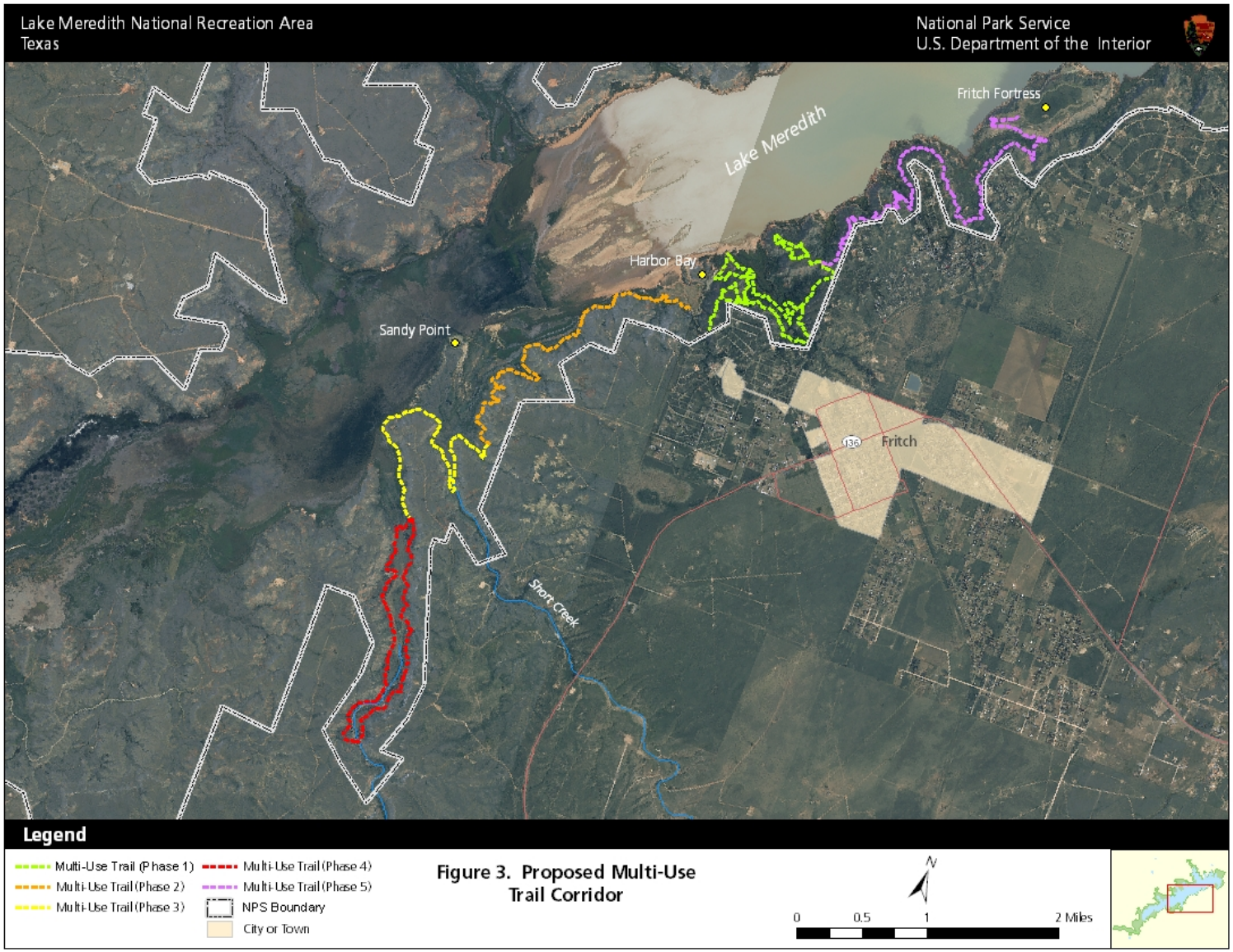
Each phase of the proposed multi-use trail is described below.

Phase 1—The trailhead for phase one would be located on the northeast side of Harbor Bay near the large boat ramp. Phase one (figure 4) would continue to the northeast, generally located approximately halfway between the shoreline of Lake Meredith and the southern boundary of the recreation area. Near Fritch Canyon, there would be a spur trail along the canyon rim which would offer good views of Lake Meredith before descending into the canyon. Phase one also contains two places where a primitive flattened log bridge would be needed to avoid a drainage swale near the boundary of the recreation area.

Harbor Bay is an existing developed area within the park that contains park roads, two boat ramps (use of which is dependent on lake level), and designated picnic and camping areas containing tables, shade structures and fire rings. The existing paved parking lot at Harbor Bay contains approximately 80 spaces and would not be expanded under this proposal. There are vault toilets in the Harbor Bay area, but no potable water source is provided. Camping is also allowed in the lower grass areas, but no amenities are provided at this location.

Phase one would involve trails above the canyon rim in addition to lower trails at the bottom of the canyon. In addition to providing a range of visitor experiences, the rim trails in this area would function as a firebreak at the wildland-urban interface and could reduce the threat of wildfire spreading outside the recreation area to adjacent communities. The total length of proposed trail in phase one would be approximately 5.7 miles.

Phase 2—Phase two of the proposed multi-use trail would begin at a trailhead located in the southwest portion of Harbor Bay and would proceed west along the historic lake shore, avoiding wetlands and water features where present and hugging the base of the canyon wall. Unlike phase one, the proposed trail corridor for phase two would only involve trails below the rim of the canyon. This phase of the trail would continue in this manner until reaching the Short Creek area as indicated on figure 5. The majority of this phase would be in areas of gentle or flat topography, with some steep slopes near the connection with phase three. The total length of proposed trail in phase two would be approximately 3.3 miles.


Lake Meredith National Recreation Area
Texas
National Park Service
U.S. Department of the Interior
Fritch Fortress
Lake Meredith
Harbor Bay
Sandy Point
136
Fritch
Short Creek
Legend
Multi-Use Trail (Phase 1)
Multi-Use Trail (Phase 2)
Multi-Use Trail (Phase 3)
Multi-Use Trail (Phase 4)
Multi-Use Trail (Phase 5)
NPS Boundary
City or Town
Figure 3. Proposed Multi-Use Trail Corridor
N
0
0.5
1
2 Miles

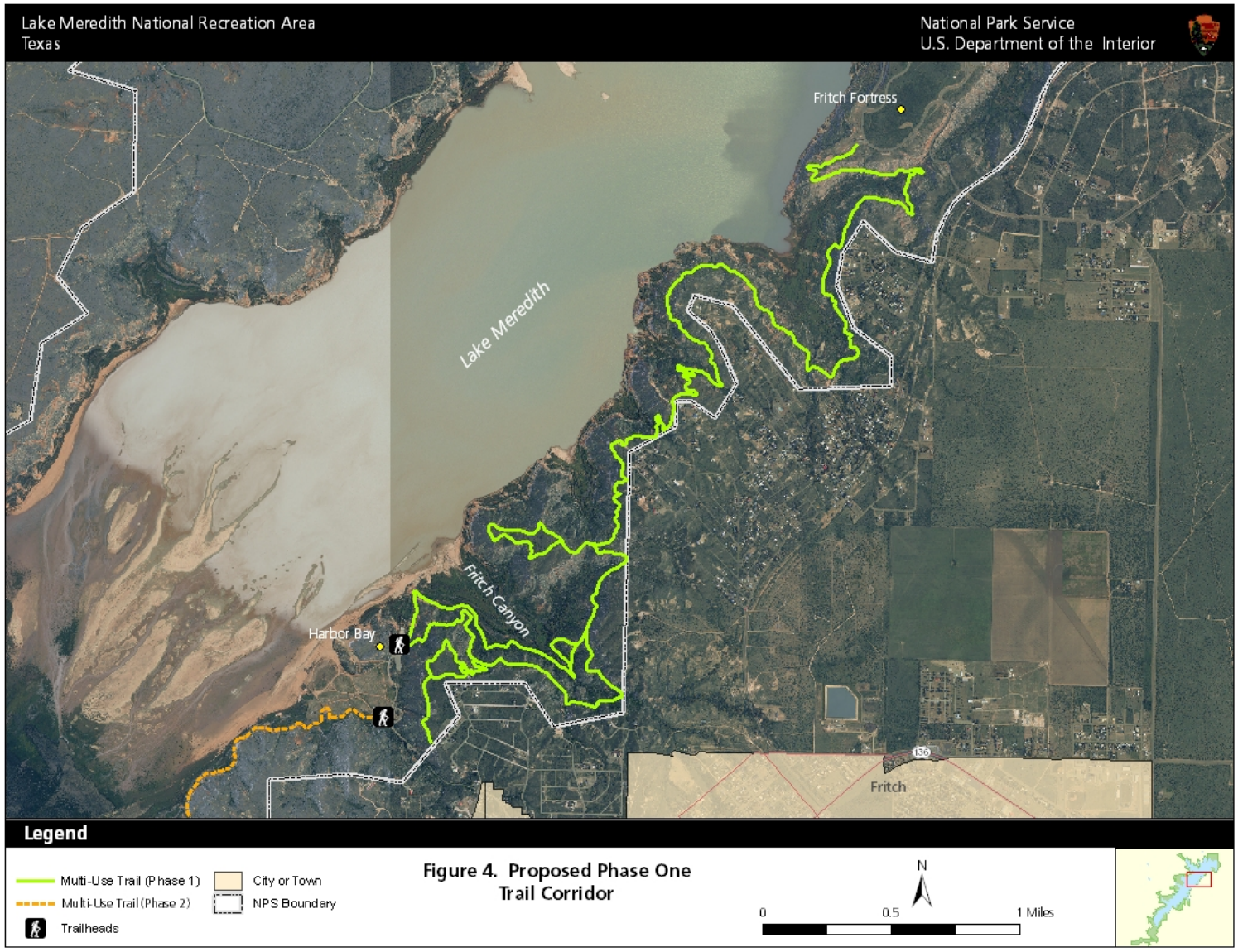


Figure 4. Proposed Phase One Trail Corridor

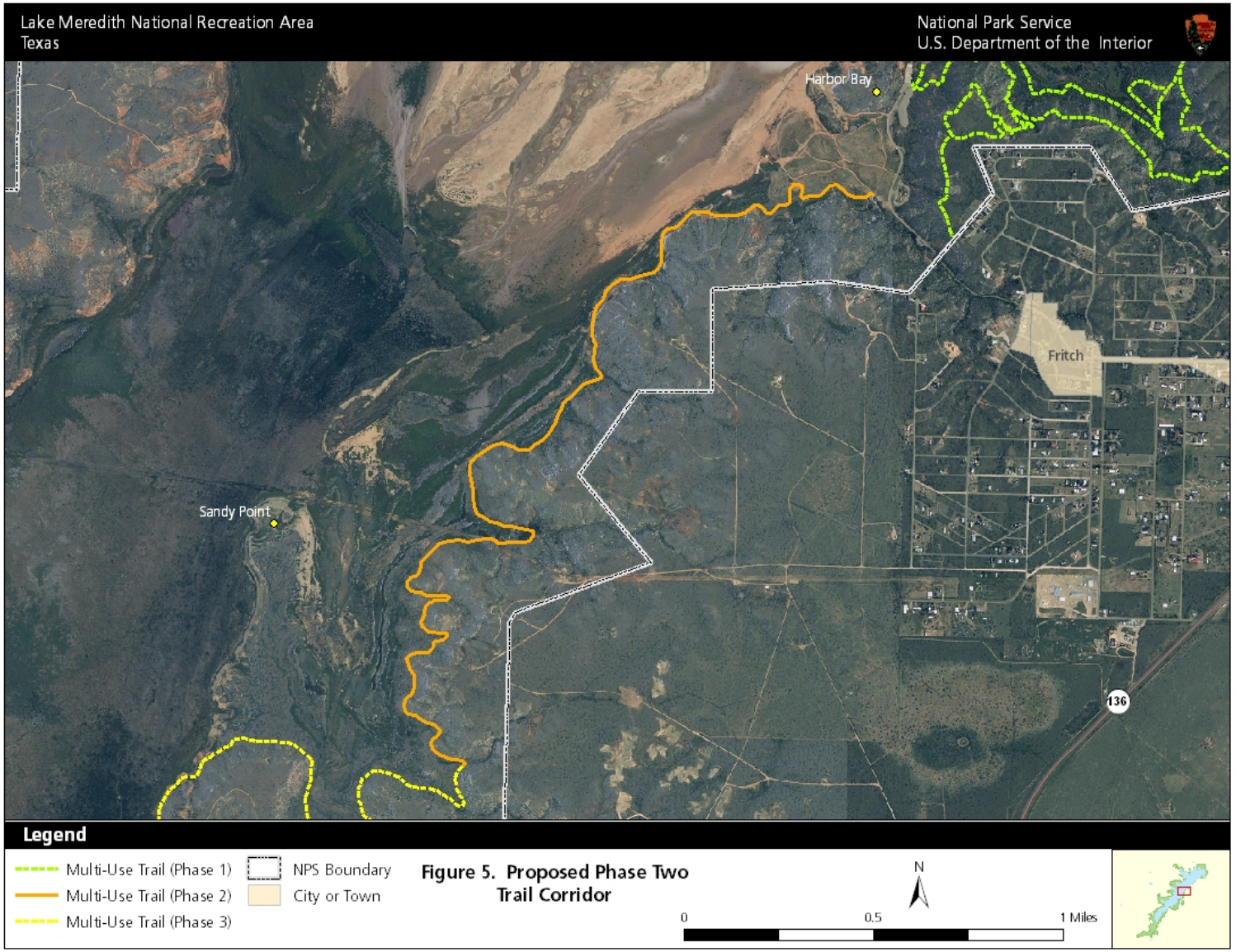


Figure 5. Proposed Phase Two Trail Corridor

Phase 3—Phase three (figure 6) of the proposed multi-use trail would start in the Short Creek area and continue along the edge of the canyon, around Sandy Point, and then turn south toward the mouth of South Turkey Creek. The majority of this phase would be in areas of gentle or flat topography located at the base of the canyon, following the existing contours along the historic edge of the reservoir. The total length of proposed trail in phase three would be approximately 2.8 miles.

Phase 4—Phase four (figure 7) would consist of a loop trail that continues along the bottom of Turkey Creek canyon, utilizing any existing social trails and old road beds wherever possible. Most of phase four would follow the contours around the base of the canyon, although there would be some localized areas containing steep slopes. However, there are some existing travel routes that would be incorporated into this phase of the trail, thereby limiting construction disturbance. The total length of proposed trail in phase four would be approximately 4.4 miles. Primitive camping opportunities may be available within Turkey Creek canyon. More detail on camping in this area is provided in the *Parking, Signage, and Amenities* section below.

Phase 5 – Phase five (figure 8) of the multi-use trail would branch off at phase one in the Fritch Canyon area and connect to the Fritch Fortress day use area. This phase of the proposed trail would contain many areas of steep slopes and would require the most excavation and potential for the use of retaining walls. This phase also contains numerous cultural resources that would need to be avoided. The combination of steep slopes and cultural resources could make this phase of the trail one of the most difficult to design, construct, and use. Similar to the trails in phase one, trails above the canyon rim in this phase would function as a firebreak at the wildland-urban interface and could reduce the threat of wildfire spreading outside the recreation area to adjacent communities. The total length of proposed trail in phase five would be approximately 5.2 miles.

Trail Design. The trail would be designed to blend into the natural surroundings through the use of native materials and a primitive surface. The trail would be primitive with no hardened surfaces and would be approximately two to four feet wide in most areas. The trail would be designed to minimize soil and vegetation impacts and offer visitors an improved interpretive experience at the recreation area. The final trail alignment within the 50-foot-wide corridor presented in this EA would consider topography, slope, drainages, and other resources in order to provide visitors with a safe and aesthetically pleasing trail. The trail would avoid all wetlands and water features and would involve the use of at least one primitive bridge in phase one. When present and possible, existing social trails and other travel corridors would be used to avoid any unnecessary disturbance to recreation area resources. Due to the primitive nature of the trail, the single track width, and the steep topography in the project area, wheelchair access to many areas along the multi-use trail may not be possible. Phase one is the only phase of the trail that has been ground-truthed and approved by the Texas SHPO's office. All other phases of the proposed trail would need to be located using a GPS and would require Section 106 consultation and approval prior to construction.

Trail Construction. The trail would be constructed using natural materials found at the project site and would not require imported surfacing or paving material. Some areas of the trail would require the use of motorized equipment such as trail dozers and motorized wheelbarrows. In areas of extreme slope, retaining walls would be required in order to avoid excessive grading. Retaining walls would be constructed with natural materials such as stone or logs. In areas with steep slopes, the trail would be constructed using a "full-bench" design. A full bench is constructed by cutting the full width of the tread into the hillside removing the excavated soil. Although this method requires more excavation, it results in a more stable and durable trail tread that requires less maintenance.

Erosion control measures would be installed with the trail where needed. Some areas of the new trail, primarily near canyon walls and on slopes, would require channeling drainage away from eroded surfaces

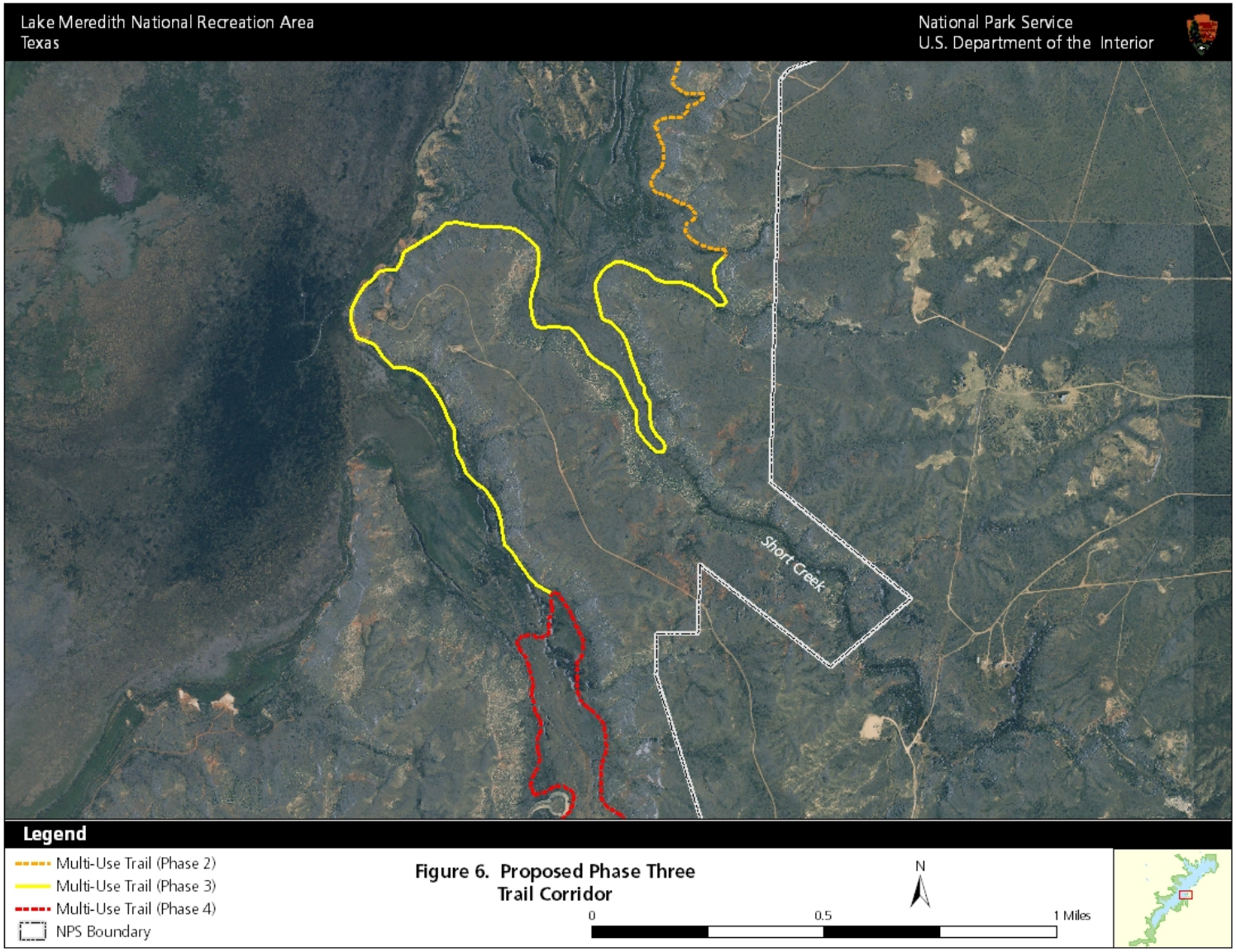


Figure 6. Proposed Phase Three Trail Corridor

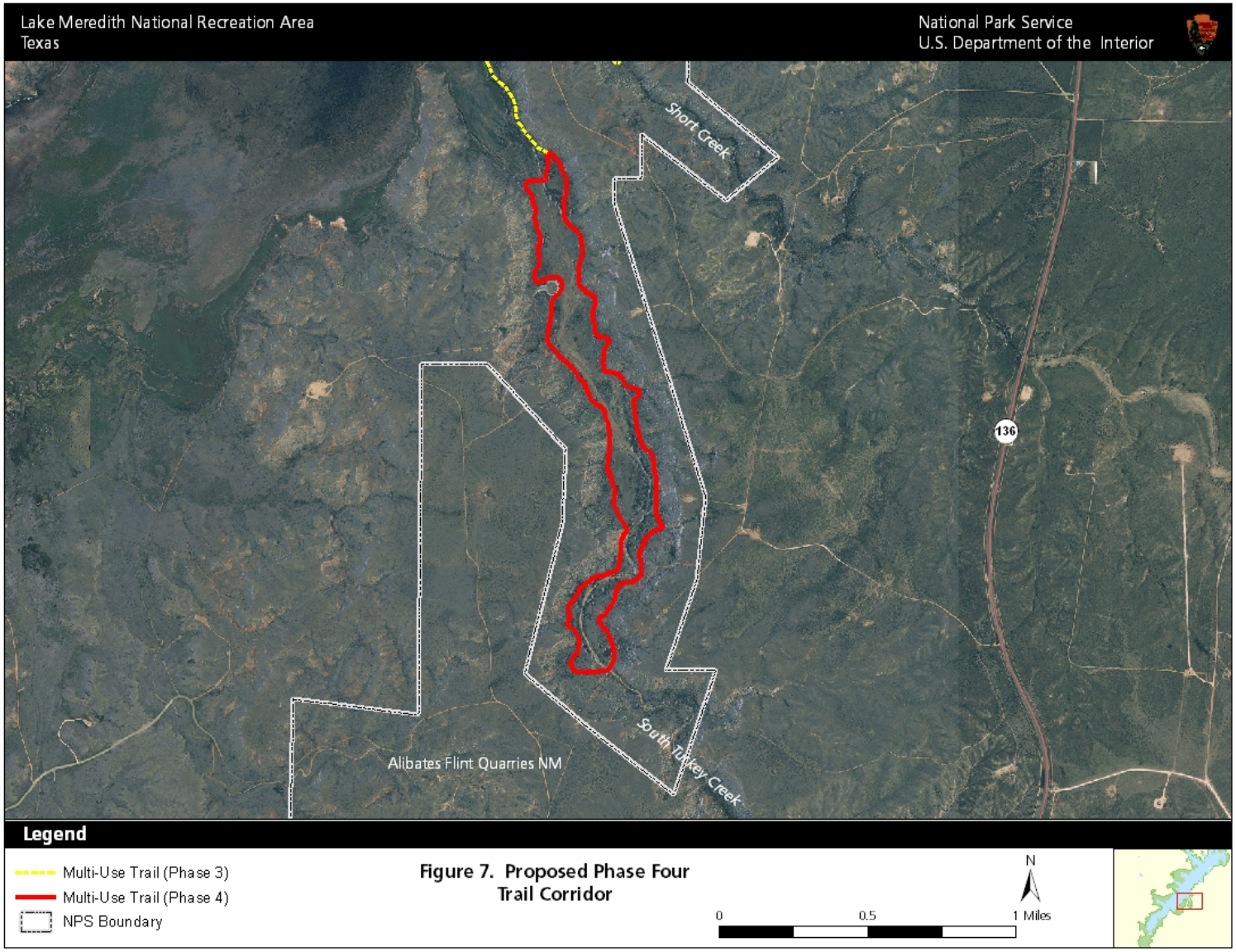


Figure 7. Proposed Phase Four Trail Corridor

Figure 8. Proposed Phase Five Trail Corridor

using berms or swales. Materials to be used to gain elevation and prevent erosion on the new trail would be local natural materials and may include rock, soil, and logs. These materials may also be used as necessary throughout the trail to control erosion and/or protect resources. One area of the trail in phase one would require the installation of a primitive log bridge to avoid an intermittent drainage and to reduce erosion in the area.

Areas near the proposed trailheads would be temporarily used for construction staging, material stockpiling, portable restroom, and equipment storage. Staging would be located in previously disturbed areas, and fenced or taped off from visitor contact. The exact location of the staging area would be determined following final trail design and the area would be restored to its original condition following completion of construction activities. The NPS would facilitate trail construction with the assistance of local trail clubs and volunteer groups. Final design and construction would be completed in accordance with the guidance provided in the 2007 NPS publication "Guide to Sustainable Mountain Trails" (NPS 2007a) and other available literature on sustainable trails.

Parking, Signage, and Amenities. No new or expanded parking lots would be required as the parking area at Harbor Bay would provide adequate parking for trail users. Bike racks and trash cans would be installed in the Harbor Bay area. Vault toilets currently exist at Harbor Bay, but no new or existing restrooms would be available outside of this area. There is also no potable water available in the project area, so trail users would be required to provide their own.

Kiosks would also be installed at the two trailheads located at Harbor Bay and would provide visitors with trail rules, maps, advisories, closures, and safety precautions. Interpretive signage and trail markers would be primitive in nature and would be placed along the trail where appropriate to provide information on cultural and natural resources and to ensure the visitors remain on trails and do not get lost and/or damage park resources. Along the trail there may be signs designating skill levels and or points of interest.

There would be no camping permitted along the trail in phases one through three or phase five, although phase four may offer primitive camping opportunities due to the level topography that is prevalent in the area. No trash or sanitary facilities would be provided at the primitive camping area. Campers would be required to use the "pack-it-in, pack-it-out" standards for trash disposal. Human waste would need to be buried at least 6 inches below the ground surface and at a minimum of 100 feet from campsites, trails, and water sources. However, if trash or waste disposal were to become an aesthetic or public health issue, stricter waste disposal standards would be implemented through regulations in the Superintendent's compendium.

Mobile phone service is consistently available in phases one and five. In phases two through four, mobile phones service is available at higher elevations but becomes intermittent in the canyons.

Management and Maintenance. The trail would be managed to allow for only non-motorized uses, including hiking and biking. Horses and motorized vehicles would not be allowed on the trail and pets would be permitted only if they are on a leash. The NPS would maintain the trail and conduct safety patrols as funding and priorities permit. Volunteer assistance would be used for ongoing trail maintenance whenever available. Maintenance activities would include erosion control, general trail repair, sign/kiosk repair and replacement, weed removal, and trash removal. Recreation area staff would also take measures to protect any cultural or natural resources from damage caused by visitors or pets that travel off of the designated trail surface. Signs or physical barriers could be installed to prevent creation of unauthorized trails in the recreation area. All of phases three and four of the proposed trail would be located in areas

also open to hunting. In order to provide for visitor safety, those phases of the trail could be closed to trail users during deer season.

MITIGATION MEASURES

The following mitigation measures have been developed to minimize the degree and/or severity of adverse effects, and would be implemented during all activities associated with the proposed action, as needed:

- Construction activities would be scheduled to minimize construction-related impacts upon visitors. Areas not under construction would remain accessible to visitors as much as is safely possible.

- Trail crews would be required to appoint a foreman to oversee trail maintenance activities. The NPS would coordinate with foremen and any volunteers to monitor trail construction per NPS standards. Specifically, NPS would monitor and or direct water bar placement, drainage placement, brushing and clearing, re-vegetation, where to obtain fill and other materials for trails, and how to apply fill materials such as soil, gravel, rocks, etc. Trail foremen would be responsible for ensuring that their crew performs the necessary work in accordance with instructions and standards provided by the NPS.

- To minimize the amount of ground disturbance, staging and stockpiling areas would be located in previously disturbed areas, away from visitor use areas to the extent possible. All staging and stockpiling areas would be returned to pre-construction conditions following construction.

- Revegetation efforts would strive to reconstruct the natural spacing, abundance, and diversity of native plant species in the trail corridor. No foreign materials with the potential to introduce invasive plant species would be brought into the area.

- A construction zone for installation of trail, as well as staging areas and work zones would be identified and demarcated with construction tape or some similar material prior to any construction activities. The tape would define the zone and confine the activity to the minimum area needed for implementing the project.

- All crew members and volunteers assisting in the trail work efforts would be educated about the importance of avoiding impacts to sensitive resources that have been flagged for avoidance, which may include natural and cultural resources.

- Should construction unearth previously undiscovered cultural resources, work would be stopped in the area of discovery and the recreation area would consult with the state historic preservation officer and the Advisory Council on Historic Preservation, as necessary, according to 36 CFR 800.13, *Post Review Discoveries*. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.

- According to NPS *Management Policies 2006*, the NPS would strive to construct the trail with a sustainable design to minimize potential environmental impacts. Development would not compete with or dominate recreation area features, or interfere with natural processes, such as the seasonal migration of wildlife or hydrologic activity. To the extent possible, the design and

management of the trail would emphasize environmentally sensitive construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER CONSIDERATION

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

Locate the Trail in the Bugbee Area

During internal and external scoping, it was suggested that the multi-use trail be located in the Bugbee area on the northern side of the lake instead of in the Harbor Bay area. This alternative was dismissed because of the lack of existing facilities in the Bugbee area, the increased distance from Amarillo, the lack of nearby commercial services, and the lack of varied terrain.

Locate the Trail near Plum Creek

During internal and external scoping, it was suggested that the multi-use trail be located near Plum Creek area instead of in the Harbor Bay area. Plum Creek is located on the southern end of the lake across from Alibates Flint Quarries National Monument. This alternative was dismissed due to the lack of existing facilities in the Plum Creek area, the distance from Amarillo, and the lack of nearby commercial and retail services. It was also dismissed due to the potential congestion issues, as this is currently a high-use area, especially for equestrian users.

Locate the Trail in the Rosita Flats Area

During internal and external scoping, it was suggested that the multi-use trail would be located in the Rosita Flats area instead of the Fritch Fortress area. This alternate location was dismissed due to the potential for visitor safety issues and conflicts with ORV users at the Rosita Flats ORV use area.

Create a Hiking Trail Only

During the alternatives development process, it was suggested that the proposed trail be for pedestrian use only. This alternative element was dismissed because if a trail was to be constructed, it should fulfill the need for more varied recreational uses and should be managed to attract new user groups, especially if water-based recreational opportunities continue to decline as the water level of the reservoir drops.

Allow Motorized and Equestrian Use of the Trail

During alternatives development, it was suggested that motorized equipment (ORVs and dirt bikes) be allowed to use the proposed trail. The recreation area already contains legally-designated ORV use areas in the Rosita Flats and Blue Creek areas and the use of vehicles off of park roads is not permitted outside of these areas. Therefore, motorized equipment use on the proposed trail was dismissed as an alternative element. Equestrian use was also suggested for the proposed trail. However, because the trail would be relatively narrow with few spots to yield, it was determined that there would be the potential for visitor safety issues and conflicts among users. Thus, equestrian use of the proposed trail was dismissed.

Provide a Surfaced Trail

During internal and external scoping, many different trail surface types were discussed. The planning team considered such trail surfaces as pavement, crushed gravel, and a natural surface. Once the actual trail location was determined, the logistical constraints and costs of surfacing became apparent. In addition to the logistical and cost factors, the establishment of a wider, hard-surfaced trail would involve greater impacts to soils and water quality than a natural, single-track trail would. Thus, formally surfacing the trail was dismissed.

Provide Additional Amenities

The planning team discussed the potential for including more amenities to the project area such as additional parking lots, formalized camping facilities, and toilets. Because there is currently sufficient parking at Harbor Bay and the Fritch Fortress Day Use area, there was not a need for the addition of parking spaces. Steep topography and access constraints placed severe limits on establishing new parking lots to the southwest of Harbor Bay. Designated camping areas and vaults toilets are located in the Harbor Bay area. Topographic constraints would inhibit the construction of formalized campgrounds in phases one, two, three, and five, although primitive camping may be available in phase 4 of the proposed trail. Topographic and access constraints would preclude the installation of new toilet facilities along the trail system. Therefore, the addition of new toilets, campgrounds, and parking lots was considered but dismissed.

HOW ALTERNATIVES MEET OBJECTIVES

As stated in the *Purpose and Need for Action* chapter, all alternatives selected for analysis must meet all objectives to a large degree. The action alternatives must also address the stated purpose of taking action and resolve the need for action; therefore, the alternatives were individually assessed in light of how well they would meet the objectives for this EA, which are stated in the *Purpose and Need for Action* chapter. Alternatives that did not meet the objectives were not analyzed further (see the *Alternatives Considered but Dismissed from Further Consideration* section in this chapter).

Table 2 compares how each of the alternatives considered would meet the project objectives. The *Environmental Consequences* chapter describes the effects of each alternative on each impact topic. A summary of these effects is provided in table 3 in this chapter.

TABLE 2. HOW ALTERNATIVES MEET PROJECT OBJECTIVES

Objective	Alternative A: No Action	Alternative B: Construct Multi-Use Trail
Provide emergency service access to hard to reach areas of the park, in order to reduce response times and improve visitor safety.	Alternative A would not meet this objective because no new trails would be constructed that would provide additional emergency access to remote areas.	Alternative B would partially meet this objective as the new trails would provide improved emergency access to some remote areas of the park, although some areas of the park would still remain difficult to access.

Objective	Alternative A: No Action	Alternative B: Construct Multi-Use Trail
Establish firebreak at the urban interface to improve the safety of park neighbors and visitors.	Alternative A would not meet this objective because a new firebreak would not be established.	Alternative B would partially meet this objective because the trails on the canyon rim proposed for phases one and five of the project would function as a firebreak. However, the firebreak would be limited to one particular area of the park and would be of limited width.
Work cooperatively with interested user groups to create advocates for the national recreation area as well as to assist in the establishment and maintenance of the trail.	Alternative A would partially meet this objective as the NPS continually works with user groups to create advocates for the recreation area, although they would not be needed to construct a trail under this alternative.	Alternative B would fully meet this objective, as the NPS would work with user groups to establish and maintain the multi-use trail.
Establish and maintain a multi-use trail that has minimal impact on the natural environment and avoids impairment and unacceptable impacts.	Alternative A would not meet this objective because no trail would be constructed.	Alternative B would fully meet this objective because a multi-use trail would be established and maintained and mitigation measures implemented during trail design and construction would minimize impacts to natural resources.
Provide a recreational trail that addresses the limited amount of hiking and mountain biking opportunities in the park and the region.	Alternative A would not meet this objective because no new recreation opportunities would be created under this alternative.	Alternative B would fully meet this objective because the proposed trail would be multi-use in nature and would provide additional recreational opportunities for user groups such as hikers and bikers.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 3 summarizes the anticipated environmental impacts of alternatives A and B.
The information contained in table 3 is based on the environmental analysis presented in detail in the *Environmental Consequences* chapter of this document. Only those impact topics that have been carried forward as identified in the *Purpose and Need for Action* chapter are included in this table.

TABLE 3. SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Impact Topic	Alternative A: No Action	Alternative B: Construct Multi-Use Trail
Soils	Implementation of alternative A would not result in impacts to soils or water quality, as the multi-use trail would not be constructed. Because there would be no impacts to soils or water quality under the no action alternative, this alternative would not contribute to the overall effect on soils or water quality associated with any past, present or reasonably foreseeable future actions in the area of analysis.	Construction of a multi-use trail under alternative B would involve land disturbing activities that would result in short-term, moderate, adverse impacts to soils due to the amount of ground disturbance required to complete the project. Following construction, the existence and continued use of the trail would result in long-term, minor to moderate, adverse impacts to soil resources. Cumulative impacts to soils would be long-term, moderate, and adverse. Impacts on water quality from sedimentation would be long-term, negligible and adverse.
Vegetation	Implementation of alternative A would not result in impacts to vegetation, as the multi-use trail would not be constructed. Because there would be no impacts to vegetation under the no action alternative, this alternative would not contribute to the overall effect on vegetation associated with any past, present or reasonably foreseeable future actions in the area of analysis.	Construction of a multi-use trail under alternative B would result in the disturbance and permanent loss of vegetation where native plant communities could not be avoided within the proposed trail corridor. Long-term use of the trail would potentially result in damage to native vegetation, particularly when users hike or ride off of the established trail. Therefore, impacts to native plant communities would be long-term, minor to moderate and adverse under alternative B. Cumulative impacts to vegetation would be long-term, minor to moderate, and adverse.
Visitor Use and Experience/Health and Safety	Implementation of no action alternative would result in long-term, negligible to minor adverse impacts to visitor experience as the lack of land-based, non-motorized recreational opportunities would continue to negatively affect the overall visitor experience. This alternative would have a long-term, minor to moderate adverse impact on health and safety, as the project area would continue to lack a formal firebreak and emergency access would be limited to the current level. Cumulative impacts under alternative A would be long-term, negligible and adverse for visitor experience and long-term, minor, and adverse for health and safety.	Construction of the multi-use trail would result in long-term, moderate beneficial impacts on visitor use and experience, as the diversity and amount of recreational opportunities at Lake Meredith and in the region would be greatly expanded. Use of the trail as a firebreak for wildfire control and to facilitate emergency response and access would result in long-term, minor beneficial impacts to the safety of visitors and area residents. Cumulative impacts would be long-term, moderate, and beneficial for visitor use and experience and long-term, minor to moderate beneficial for health and safety.

Impact Topic	Alternative A: No Action	Alternative B: Construct Multi-Use Trail
Recreation Area Management and Operations	Because the trail would not be constructed, there would be no measurable change to management and operation of the recreation area under this alternative. However, there would continue to be adverse impacts to emergency response capabilities associated with limited access to the project area and the lack of an established firebreak. Cumulative impacts under alternative A would be long-term, minor, and adverse.	Due to the necessary diversion of park resources during trail construction, alternative B would result in short-term, minor, adverse impacts on recreation area management and operations. Once completed, the multi-use trail would have long-term, minor adverse impacts on management and operations due to the potential for substantial maintenance activities that would be required throughout the life of the trail. However, these impacts would be mitigated by using crews of volunteers to assist with trail maintenance. Cumulative impacts to recreation area management and operations under alternative B would be long-term, minor to moderate, and adverse.

IDENTIFICATION OF THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, which guides the CEQ. The CEQ provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA section 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 would meet some of the criteria for the environmentally preferred alternative as there would be no construction that could potentially degrade soils or vegetation. However, alternative A would not provide a range of beneficial uses, take steps to encourage sharing of amenities, or provide increased public health and safety through a firebreak and increased emergency response access. Alternative B is

the environmentally preferred alternative because it would better addresses these six evaluation factors. Alternative B, Construct a Multi-Use Trail, would provide a primitive trail that would enhance recreational and educational opportunities for visitors to Lake Meredith. Although there would be impacts to soils and vegetation, these impacts would be less than major and would be balanced with a new method of enjoying and appreciating park resources. Construction of the trail under alternative B would also result in improvements to public health and safety from the installation of a firebreak and increased access for emergency response teams and firefighting crews.

AFFECTED ENVIRONMENT

SOILS AND SEDIMENTATION

According to National Park Service (NPS) *Management Policies 2006*, the NPS will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue (NPS 2006a). These policies also state that the NPS 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.

Over 67 percent of the land base of the recreation area is comprised of slopes greater than or equal to 12 percent (NPS 2006b). Problems associated with soils in the Lake Meredith area are generally related to soil texture (grain size) and slope. Unprotected areas are subject to blowing soil and water erosion. In the park, soil compaction, erosion, and slumping occurs along roads, where vegetation cover is sparse and slopes are steep; these areas are especially prone to erosion from surface runoff during storms. Accelerated erosion is more prevalent on steeper slopes and other disturbed areas, particularly where vegetation has been removed and cut-and-fill activities have occurred (NPS 2002a). These areas would be more highly susceptible to soil surface disturbance, such as trampling by animals and people. Such activities could potentially increase erosion of soils near trails and contribute to sedimentation of streams and other water bodies, thereby decreasing water quality.

Within the project area, soils are generally sandy and stony and often contain steep slopes. Floodplain soils are located in the Turkey Creek area, which is the proposed location for phase four of the multi-use trail (NRCS 2009b). Construction and maintenance of trails can be difficult on steep slopes and, without adequate erosion control measures, could result in soil erosion and increased sedimentation in Lake Meredith and other water resources.

VEGETATION

According to NPS *2006 Management Policies*, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants (NPS 2006a).

The vegetation of the park is relatively sparse, due to soil and climatic conditions, and consists primarily of grasses and drought-tolerant shrubs. Stands of hackberry (C*eltis* spp.) and cottonwood trees (*Populus fremontii*) grow along the side canyons, and other trees are found where they have been planted around developed sites (NPS 1996). Although sparse, vegetation is important to the overall health of the parks and provides habitat for wildlife. It also holds and traps blowing sediment, thereby preventing erosion, and is a primary factor in the park's visual quality and biodiversity.

The proposed corridor for phase one of the trail contains four primary vegetation classes: vegetated cliffs, emergent scrub-shrub, unconsolidated shore, and mesquite grassland. Vegetated cliffs are sloped edges along ravines that are sparsely vegetated with bluestem (*Andropogon gerardii*), mesquite (*Prosopis* spp.), and grama grasses (gen. *Bouteloua*), netleaf hackberry (*Celtis reticulata* Torr.), and soapberry (*Sapindus saponaria)* among other vegetation types. Areas classified as “emergent scrub-shrub” are low-lying areas that may be inundated by lake level fluctuations and are vegetated with reeds, switchgrass (*Panicum*

virgatum L.), cottonwoods (*Populus deltoides* Bartr. ex Marsh), willows (*Salix* spp.), salt cedar (*Tamarix spp.)*, and seep willow (*Baccharis salicifolia*). Unconsolidated shore areas are located along the shoreline of the reservoir and consist of fine sands with little to no vegetation. When vegetation is present along the unconsolidated shore, it is sparse with species such as salt grass (*Distichlis spicata (L.)* Greene), salt cedar (*Tamarix* spp.), or herbaceous plants. Mesquite grasslands are densely vegetated with mesquite, soapweed Yucca (*Yucca glauca* Nutt. var. *glauca*), blue stem grasses, grama grasses, purple threeawn (*Aristida purpurea* Nutt.), and others. Phases two and three, like phase one, contain vegetated cliffs, emergent scrub-shrub, and unconsolidated shoreline classifications. However, these phases also contain some mixed forest areas that primarily contain common hackberry (*Celtis occidentalis* L.), one-seed juniper (*Juniperus monosperma* [Engelm]) Sarg.), cottonwood, soapberry (*Sapindus saponaria*), mesquite and salt cedar. Phase four of the proposed trail would be located along the canyon floor in the Turkey Creek area and contains mixed forest, mixed grassland, and Yucca grassland. Species found in the mixed grassland and Yucca grassland are very similar to those found in the mesquite grassland area (Nelson et al. 1999). Phase five contains similar vegetation to that found in phase one, although this phase also contains some areas of mixed grassland and mixed forest.

Forty-seven nonnative species have been documented in the national recreation area, ten of which have been classified as "highly invasive" and are displacing native species, eight of which are classified as "invasive and potentially problematic" (Nesom and O'Kennon 2005). Examples of highly invasive species found at the national recreation area include salt cedar, Russian thistle (*Salsola tragus*), and Mexican fireweed (*Bassia scoparia*). According to NPS estimates, approximately 12,000 acres within the recreation area are infested with non-native species (NPS 2008a), the most prevalent being the salt cedar. The NPS has completed an EA to address the control of salt cedar through chemical means and spraying took place in late August 2008 on a total of 5,298 acres. Herbicide was applied from the air in an area starting at the southwest boundary of the recreation area on the Canadian River at Rosita to the Sanford Dam. This included lake-bottom (pre-drought), and much of the entire shoreline (Wimer 2009b).

VISITOR USE AND EXPERIENCE

According to the NPS 2006 *Management Policies*, the enjoyment of park resources and values by people is part of the fundamental purpose of all park units (NPS 2006a). The NPS 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 NPS 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 NPS 2006 *Management Policies* also state that scenic views and visual resources are considered highly valued associated characteristics that the NPS should strive to protect (NPS 2006a).

Between 2000 and 2008, an average of 1,061,321 people visited the recreation area annually. However, visitation at the recreation area has decreased substantially since 1999. Approximately 875,280 people visited the recreation area in 2008 (NPS 2009a). Generally, visitation at the recreation area is highest in June, July, and August.

There are many options for visitors to take advantage of while at Lake Meredith National Recreation Area, although some of them are dependent on lake levels. Water-based recreation activities include fishing, boating, waterskiing, sailing, scuba diving, and swimming. Other activities include hunting, camping, horseback riding, hiking, off-road vehicle (ORV) use, picnicking, and bicycling (NPS 2009b). In 2008, there were a total of 32,466 overnight stays for camping; 42,070 people used the area for ORV use at both Rosita Flats and Blue Creek; and 607 people used the area for hunting (NPS 2009a).

According to the 2004 Visitor Study Report, the average time spent by day visitors was 3.31 hours and the average group size was three or more people. Of the approximate 481 on-site visitors surveyed during the study, nearly a quarter of respondents engaged in overnight use at the recreation area. As displayed below in table 4, visitors indicated that they engaged in a variety of activities at Lake Meredith, the most common being picnicking, swimming, boating, and fishing (ASU 2004). Table 4 also indicates that only 14 percent of visitors engaged in trail hiking and 2.4 percent went mountain biking, which could be due in part to the lack of variety of trails at the recreation area.

TABLE 4. ACTIVITY PARTICIPATION FROM ON-SITE VISITOR STUDY

Recreational Activity	Percentage of Respondents Who Engaged in the Activity
Picnicking	50.1
Trail Hiking	14.1
Mountain Biking	2.4
Swimming	48.0
Wildlife Viewing	13.9
Photography	12.0
Fishing from Shore	34.4
Boating	38.4
ATV Riding	14.1
Dune Buggy or Sand Rail Driving	8.0
Motorized Trail Biking/Dirt Biking	7.7
Visiting Archaeological Sites	5.9
Tent and RV Camping	32.0

Note: Respondents could check all that applied so column total does not equal 100%
Source: ASU 2004

Three information stations, five developed trails or paths, 16 day and overnight use areas, 2 ORV use areas, and 53 miles of park-maintained dirt and paved roadways provide recreational opportunities for visitors to Lake Meredith National Recreation Area. Visitor-use patterns are generally marked by weekend use. In the spring, visitors enjoy fishing, boating, horseback riding, bird watching, and ORV use. In the summer, lake use increases dramatically by boaters and campers. In the fall, visitation drops slightly and fishing and hunting become the primary recreational uses. Winter use of the recreation area is generally light, consisting of mainly regional visitors. During hunting season, visitor uses such as hiking, mountain biking and horseback riding could be limited due to safety issues and concerns (NPS 2006b). Although there are more remote areas at Lake Meredith, there are no primitive areas, and therefore no backcountry exists.

Decline in Water-based Activities

The water level of Lake Meredith is currently only at 50% of its full impoundment level. Previously, the lake has had up to 100 miles of shoreline, but currently there are approximately only 40 miles of shoreline (NPS 2007b). As a result, access to the lake has been limited and the availability of water-based activities within the recreation area has decreased.

Hiking, Biking, and Equestrian Use

Currently there are five existing trails and paths at Lake Meredith. The Spring Canyon paved trail is 3,550 linear feet and Spring Canyon North Trail is 243 feet long. Both of these trails are located in the northern section of the recreation area. Spring Canyon experiences heavy day use on weekends throughout the spring and summer seasons. At Plum Creek, the Devil's Canyon trail is 8,342 feet long and is used by horseback riders, mountain bikers, and hikers. The Mullinaw-McBride Trail is approximately five miles long and is primarily used by horseback riders and hikers. The Alibates Flint Quarries Trail is a short hike at approximately 3,960 feet (Wimer 2009c). Visitors are only allowed to hike this trail while accompanied by a park ranger in order to discourage flint collecting, which is prohibited. Each day, there are two park led hikes down to the site, weather permitting (Wimer 2009c).

Currently, visitors are allowed to access the project area, but no formal trail has been constructed in the area and there are no signs or other interpretative media available for visitors. The most popular location for general day use within the project area is Harbor Bay, which is an existing developed area within the park that contains a parking lot, park roads, two boat ramps (use of which is dependent on lake level), and designated picnic areas. Visitors use the area near Harbor Bay for fishing, hiking, picnicking, and general day use, although there are no improved recreational facilities in this area for daytime use. Bicycle use is permitted on all park roads, parking areas, and on designated routes from Plum Creek to Devil's Canyon and Mullinaw to Chicken Creek.

Camping

There are 11 campgrounds that are available to visitors year round and are free of charge to users. There are no RV hook-ups available, but picnic tables are located at select campground sites and running water is available at the restrooms. Each site has access to chemical, vault, or flush toilets (NPS 2009b). Within the project area, designated camping areas containing tables, shade structures and fire rings are located at Harbor Bay. There are vault toilets in the Harbor Bay area, but no potable water source is provided. Camping is also allowed in the lower grass areas, but no amenities or facilities are provided at this location.

Health and Safety Issues

Wildfires are common in the region and represent a health and safety concern for local communities and visitors to the recreation area. In March 2006, a Texas state record was set for the largest area burned in one fire season. This fire, known as the Borger fire, reached as close as 15 miles northeast of Lake Meredith. It ultimately consumed 479,549 acres. The wildfires resulted in eleven civilian deaths, one firefighter death, one civilian injury, and nine firefighter injuries. Forty structures were destroyed including 32 homes. It was estimated that between four to six thousand cattle were killed, as well as countless feeding supplies such as hay and grass. The fires also indirectly affected thousands of area residents in the panhandle, as 1,040 electrical poles were destroyed (NWS 2006).

Hunting within Lake Meredith is allowed in designated areas. Game species include dove, turkey, quail, goose, white-tailed, and mule deer. Hunters are required to have a Texas State Hunting License with

appropriate endorsements to match the game being hunted. During the General Deer Season and Youth Whitetail Seasons, all hunters are required to wear blaze orange (NPS 2009b). In addition to using existing trails at Lake Meredith, hunters use deer trails to move through the unimproved or more remote areas of the park unit. The only hunting-related accident reported at the recreation area occurred in 1996, when three boys and their father drowned when their boat capsized while duck hunting (Wimer 2009c).

Most of the injuries and fatalities at the recreation area are water-related. Until 1996, there was an average of three drownings per year in the lake body. However, between 1996 and 2009 there was only one drowning, which occurred in 2007 at the swimming area in the Stilling Basin in Spring Canyon (Amarillo.com 2007).

Additional recorded incidents at Lake Meredith include a hiker who fell off the ledge at Fritch Fortress and received major injuries, a visitor getting temporarily lost, and injuries related to ORV use at Rosita Flats and Blue Creek (Wimer 2009d). It is believed that there are many more visitor injuries that occur but are never reported to recreation area staff. Recorded employee injuries include a chemical burn from diesel fuel, an injured knee from a fall, and an all-terrain vehicle training exercise injury (Wimer 2009d).

NATIONAL RECREATION AREA MANAGEMENT AND OPERATIONS

Lake Meredith National Recreation Area is divided into six different divisions, each with its own unique set of responsibilities. The recreation area has a total of 29 permanent and 17 seasonal positions (Wimer 2009e). Management activities within the project area generally involve the maintenance of the facilities currently located in and around Harbor Bay, which would be the site for the two proposed trailheads. Common management activities in this area include grass mowing, trash pickup, and law enforcement patrols. There are no ongoing management activities on lands within the proposed trail corridor.

Management and operation of the recreation area is provided by NPS staff organized into the following divisions:

Park Management and Administration Division

The Park Management and Administration Division conducts all park-wide management and support activities, including external affairs activities, park-level planning, human resource management, information technology, and financial management.

Resource Management Division

The Resource Management Division is responsible for activities related to the management, preservation, and protection of the park's cultural and natural resources, including scientific research, management, restoration, and resource protection planning. An aspect of this division's responsibilities that is unique to the recreation area is that they must oversee the management of oil and gas operations within the parks. There are two full-time employees within this division: the chief of resource management, and one environmental protection specialist.

Southern Plains Fire Group

This group is based at the recreation area and is responsible for the implementation of the prescribed fire needs of seven parks. Prescribed fire is an essential tool for managing resources, through hazard fuel reduction and ecosystem restoration. The Fire Crew also assists all local fire departments and other nearby parks.

Visitor and Resource Protection Division

The Visitor and Resource Protection Division serves the public interest to protect resources and people, prevent crime, conduct investigations, apprehend criminals, and serve the needs of the visitors. This division is also referred to as "Law Enforcement."

Interpretation Division

The Interpretation Division's chief objective is to facilitate a personal connection between the interests of the visitor and the importance of resources in the recreation area. Interpretation staff provides educational information using such methods as guided tours, signage and kiosks, visitor center displays, and campfire programs.

Facilities Management Division

The Facilities Management Division's mission is to ensure that natural and cultural resources are sustained for the future by providing stewardship of assets through maintenance practices, preservation techniques, and the use of new technologies. Facilities staff maintain roads, paths, buildings, campgrounds, boat ramps, ORV use areas, and other facilities in the recreation area.

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 soils, vegetation, visitor use and experience, and recreation area management and operations. All remaining impact topics were dismissed as discussed in the *Purpose and Need for Action* chapter. Descriptions of the affected environment for the resource topics included in this chapter are located in the *Affected Environment* chapter. 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.

Duration describes the length of time an effect would 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 EA.

CUMULATIVE IMPACTS

CEQ regulations, which implement NEPA (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 all alternatives.

Cumulative impacts were determined by combining the impacts of the alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing

or reasonably foreseeable future projects or plans at the recreation area and, if applicable, the surrounding region. The geographic area of analysis for cumulative impacts varies slightly by impact topic, and includes elements within the recreation area's boundaries, as well as actions outside the recreation area. The National Park Service (NPS) analyzed impacts from past actions dating back to 1996, when the Resources Management Plan was completed and provided goals for managing recreation at Lake Meredith. Cumulative impacts of future planned projects were also analyzed; however the number and timeline of reasonably foreseeable future actions is limited until the NPS completes the General Management Plan for the recreation area in 2011 which contains a planning horizon of 15 to 20 years.

The following projects, plans, or actions were identified for the purpose of conducting the cumulative effects analysis.

Resources Management Plan (1996). The Resources Management Plan provides goals for the national recreation area that address preserving national recreation area resources, providing for the public enjoyment and visitor experience, perpetuating cultural resources and enhancing recreational opportunities managed by partners, and ensuring organizational effectiveness. Please refer to the *Purpose and Need for Action* chapter for a description of this plan.

Fire Management Plan (1998). Wildland fire has historically played an important part of the area's ecosystem. Its effects on vegetation and wildlife have always weighed heavily on the recreation area's natural processes. The Wildland Fire Management Plan for Lake Meredith National Recreation Area is a detailed program of action to implement a prescribed fire program and manage wildland fire. This plan is the primary reference for conducting all fire management activities and is intended to help achieve the resource management objectives as presented in the resource management plan. Protection of life (employee and public), property, cultural resources, the perpetuation of natural resources and their associated processes, and protection of cultural and historic scenes are the highest priorities for the plan. This plan is based on a strategy to use prescribed burns and mechanical methods to remove excess fuel from the system, which would reduce the likelihood of major wildfires and would also provide benefits to native vegetation and wildlife in the area.

Oil and Gas Management Plan (2002). The 2002 Oil and Gas Management Plan for Lake Meredith National Recreation Area was prepared for the purpose of guiding the management of activities associated with the exploration and development of nonfederal oil and gas within the park. The Oil and Gas Management Plan identifies those park resources and values most sensitive to oil and gas exploration and development disturbance, and defines impact mitigation requirements to protect such resources and values. In order to protect park resources and values, the plan establishes performance standards for oil and gas exploration and development, and it provides pertinent information to oil and gas owners and operators to facilitate compliance with applicable regulations (NPS 2002a). As of 2002, there were 170 active non-federal oil and gas operations in the recreation area. Construction and operation of these facilities has the potential to impact soils, vegetation, visitor use and experience, and recreation area operations.

Invasive Species Removal. Salt cedar (also known as tamarisk) is an invasive plant that occurs throughout Texas and extensively infests the national recreation area. There is anecdotal evidence that salt cedar infestations in and around Lake Meredith have reduced the inflow of runoff water from rainfall into the lake. In 2002, the Entomology Program at the Texas A&M Research and Extension Center began a cooperative effort with the Bureau of Reclamation (BOR) to develop a bio-control program for salt cedar at Lake Meredith. In 2004, as part of a research study, planned releases of *Diorhabda elongate*, a chrysomelid beetle that is an aggressive defoliator of salt cedar, were carried out at two sites at Lake Meredith. The NPS conducted aerial spraying in late August 2008 on a total of 5,298 acres. Herbicide was

applied in an area starting at the southwest boundary of the recreation area on the Canadian River at Rosita, to the Sanford Dam. This included lake-bottom (pre-drought), and much of the entire shoreline (Wimer 2009b). The aerial spraying was completed in September 2009. Treatment for salt cedar and other exotic plants will continue by hand-crews in the future.

Ongoing Maintenance Activities. Throughout the park unit, regularly-scheduled maintenance activities are conducted to ensure visitor health and safety. These activities have involved infrastructure maintenance and upkeep, such as ensuring water quality and access. Regular repairs to roads and concrete ramps have also occurred on a continuing basis. Regular park facility maintenance is continually occurring at Lake Meredith. To ensure historic structures remain in good condition, the NPS continually monitors the condition of the McBride House to ensure that if any degradation occurs, funding can be sought to stabilize and repair the structure (NPS 2008a). The potential for impacts to soils, vegetation, park operations, and visitor experience exists from maintenance activities.

Hunting. Hunting is a popular activity at Lake Meredith, with game species including dove, turkey, quail, duck, goose, white-tailed and mule deer (NPS 2009b). The use of off-road vehicles (ORVs) has been a popular means of transportation for visitors engaging in hunting within the recreation area. Portions of the proposed multi-use trail would be located in areas open to hunting.

Off-Road Vehicle Use. There are two authorized ORV use areas at Lake Meredith National Recreation Area: Blue Creek and Rosita (also known as Rosita Flats). ORV use has taken place in these areas since at least the 1950s (NPS 2007c); however, the two areas were not designated as ORV areas until the 1970s. The use of ORVs has resulted in impacts to soils, vegetation, park management, visitor experience, and visitor safety.

Sand Drag. The annual Sand Drag event, held every February, attracts thousands of spectators and hundreds of motorcycles, four wheelers, sand rails, and river buggies. Drivers of these vehicles compete against one another in ORV races. Although Sand Drag is private and is held outside of the recreation area, there is a substantial increase in visitor use at Lake Meredith associated with this annual event. This dramatic increase in visitation necessitates greater law enforcement and park management services, while the increased intensity of ORV use has the potential to negatively affect soils and other natural resources. The soils at the Blue Creek ORV use area remain in better condition than at Rosita Flats due to greater ranger presence and their ability to control ORV impacts to hillsides and slopes.

Increasing Demand for Regional Public Lands. Lake Meredith National Recreational Area is the largest area of public lands in the Texas panhandle, providing numerous opportunities for access to diverse, affordable outdoor land- and water-based recreation activities. In the State of Texas, only 3% of total land base is open to the public; this reflects a relative dearth of public recreational opportunities compared to other states (NPS 2007c). The next largest recreation area in the Lake Meredith region is Palo Duro Canyon State Park, which is located approximately 70 miles south of Lake Meredith and contains 26,275 acres of the scenic, northern-most portion of the Palo Duro Canyon. Amenities in Palo Duro Canyon State Park include an interpretive center, cabins, tent and RV sites, hiking and mountain bike trails, horse stables, and picnic areas (TPWD 2009b). Increasing demand for regional public lands can affect visitor use and experience.

General Management Plan (in development). The NPS has started an interactive planning process to develop a vision for the future of Lake Meredith National Recreation Area. This process would result in a General Management Plan that would articulate the long-term vision that would guide management of the recreation area for the next 15 to 20 years. A general management plan is the broadest level of planning in the NPS. The general management plan lays the groundwork for the more detailed planning and day-to-

day decision-making that will follow. The Lake Meredith National Recreation Area General Management Plan would provide for public use at the recreation area, identify development and management actions which satisfy recreational needs, and guide all future recreation development and management at the recreation area (Federal Register 2009). Actions arising from this plan have the potential to increase resource protection and improve visitor use/experience.

ORV Management Plan/EIS (in development). The recreation area initiated a planning effort in October of 2007 for the purpose of preparing an EIS for an ORV management plan. The plan and corresponding regulations would address ORV use at both Rosita and Blue Creek. The ORV Management Plan/EIS would be used to guide the management and control of ORVs at the Recreation Area for approximately the next 15 to 20 years. The ORV management plan/EIS would assess potential environmental impacts associated with a range of reasonable alternatives for managing ORV impacts on park resources such as soils, wetlands, wildlife, cultural resources, visitor experience, and public safety.

Demolish and Replace Comfort Station to Meet ADA Requirements. This project will consist of replacing the old comfort station at Alibates and replacing it with a concrete self-contained unit complete with all plumbing and fixtures.

Replace Fixtures at Three Comfort Stations with Water-Saving Models. This project will consist of the cyclic replacement of partitions and fixtures in the Cedar Canyon, Fritch Fortress, and Sanford Yake comfort stations. Work will be performed by a contractor. Fixtures include toilets, sinks, and partitions. These fixtures are 15 to 20 years old. The partitions are worn, soiled, and stained due to years of use. The toilets and sinks are also worn and stained and will be replaced with modern water-saving units.

Replace Roof on Visitor Contact Station and Maintenance Facility. This project involves the replacement of roofs on the Maintenance Shop, Buildings and Utilities Shop, Ranger Station, and Sanford Yake Contact Station. This job will consist of the removal and disposal of old roofing material and the installation of new steel panels, sealing of all trim, vents and areas to prevent insects and rodents from entering the attics. This project will also include the installation of additional insulation in these structures.

Replace HVAC System in Ranger Station. This project involves the complete replacement of the HVAC unit in the Ranger Station. The Ranger Station, which is 2,100 square feet in size and contains an 1,100 square-foot basement, greets approximately 3,000 visitors annually. It has offices for 6 FTE and houses natural resources maps, evidence, and artifacts. The proposed system will be an approximately 4-1/2 ton unit with a 12-13 SEER rating and will include: energy efficient dual fuel heat pump, forced air furnace, propane fired backup heat, 240 volt single phase compressor condenser assembly, all ducting, wiring, thermostat, registers and related equipment.

SOILS AND SEDIMENTATION

Intensity Level Definitions

The methodology used for assessing impacts on soils is based professional judgment and was developed through consultation with NPS staff and other sources. This section also includes a discussion of sedimentation, which could potentially occur if eroded material is deposited in the reservoir or nearby streams. The thresholds for this impact assessment are as follows:

Negligible: Soils would not be affected or the effects on soils would be below or at the lower levels of detection. Any effects to soils would be slight. Impacts to water quality from sedimentation would not be measurable.

Minor: The effects on soils would be detectable but would only occur over a relatively small area. Resulting changes in soil erosion rates would cause only detectable and localized impacts to water quality and would be within historical water quality conditions. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.

Moderate: The effect on soil would be readily apparent and result in a change to the soil character over a relatively wide area. Resulting changes in soil erosion rates could cause occasional and temporary alterations to historical or baseline water conditions during some storm events. Mitigation measures would be necessary to offset adverse effects and they would likely be successful.

Major: The effect on soil would be readily apparent and substantially change the character of the soils over a large area in and out of the recreation area. Resulting changes in soil erosion rates would cause frequent alterations in the historical or baseline water quality conditions over a large area. Mitigation measures to offset adverse effects would be needed, they would be extensive, and their success could not be guaranteed.

Area of Analysis

The area of analysis for assessment of soils impacts of the alternatives is the project area and the area of analysis for the cumulative impacts assessment is the lands within the recreation area.

Impacts of Alternative A - No Action

Under the no action alternative, the NPS would not construct the multi-use trail and no ground disturbance would occur within the project area. Therefore, there would be no impacts to soils or water quality under alternative A.

Cumulative Impacts. Continued visitation to the recreation area, combined with ongoing oil and gas development has contributed to the overall disturbance and loss of soils in the area of analysis. Use of ORVs inside and adjacent to the recreation area have previously and would continue to cause adverse impacts to soils. Natural processes such as flash-flooding increases this soil loss and resulting sedimentation potential, particularly when the soils have been loosened or disturbed by previous activity or construction. Ongoing facilities maintenance and construction would result in impacts to soils if ground disturbing activities were involved. The development of an ORV Management Plan and a General Management Plan would have long-term beneficial impacts to soils, as these plans would result in improved resource protection measures. There would continue to be adverse impacts to soils from recreational use in the Harbor Bay area where visitors operate vehicles, fish, picnic, and hike off of established roads and formal use areas. The recreational use of this area would result in localized soil erosion, which can increase the potential for transportation of sediments to the reservoir. Although there would be impacts to soils from recreational disturbance, these impacts would only occur over a relatively small area. Impacts to water quality from sedimentation would be long-term, negligible, and adverse.

Because there would be no impacts to soils or water quality under alternative A, the implementation of this alternative would not contribute to the overall effect on soils or water quality associated with any past, present or reasonably foreseeable future actions in the area of analysis.

Conclusion. Implementation of alternative A would not result in impacts to soils or water quality, as the multi-use trail would not be constructed. Because there would be no impacts to soils or water quality under the no action alternative, this alternative would not contribute to the overall effect on soils or water quality associated with any past, present or reasonably foreseeable future actions in the area of analysis.

Impacts of Alternative B - Construct a Multi-Use Trail

Under alternative B, construction activities associated with establishing the trail surface would involve ground disturbances such as grading, leveling, and filling throughout the length of the trail corridor. Construction disturbance to soils would result in readily apparent disturbance and displacement soils over a wide area. Therefore, these activities would result in minor to moderate adverse impacts to soils. These impacts would be both short and long-term, as the impact of constructing trails on steep, poorly consolidated soils increases the potential for increased soil erosion in the project area.

Increased erosion could also result in an overall increase in the potential for deposition of sediments into nearby water resources via runoff during storm events. Sedimentation of water features could result in long-term adverse impacts water quality due to increases in turbidity. Mitigation measures such as trail crew training, proper location of staging and stockpiling areas, scheduling work around storm/wind events, and flagging the boundaries of the construction area would help minimize the amount of soil disturbance or erosion during the construction of the trail.

Due to areas of steep slopes, the construction of phase five of the trail would most likely require the installation of retaining walls and other erosion control measures, which would result in short-term impacts to soils. Impacts from retaining walls would be minor, as the effects on soils would be detectable but localized over a small area. Phase one of the proposed trail corridor contains two places where a primitive bridge (flattened log) would be needed to avoid a drainage swale near the boundary of the recreation area. Installation of the crossings would result in some negligible adverse impacts to soils in the immediate area of the bridge footprint. However, impacts would be short-term, lasting only during installation of the primitive bridge.

Continued use of the proposed multi-use trail would result in some localized soil erosion and displacement as a result of mountain bike use or heavy pedestrian use. Some sections of trail would experience a greater degree of impact depending on soil composition and slope. For example, soils in the rocky, steep slope areas in phase five would be more susceptible to erosion than the more gentle slopes located in phase four. In areas of unstable soils and steeper grades, soils could be displaced and carried to lower elevations by wind and storm events. Without regular maintenance and repair, continued erosion in the trail corridor could result in sedimentation of local waterways. However, NPS and volunteer trail crews would conduct repair and maintenance activities as necessary throughout the life of the trail, which would mitigate impacts to soils, thereby reducing erosion and the potential for sedimentation. Specific mitigation measures would include installation of retaining walls, water bars, and soil stabilization through planting of vegetation where practicable. Mitigation measures directed at controlling erosion and sedimentation would be directed in areas of steep slopes and unconsolidated soils. Impacts to soils from use of the trail would be detectable and would occur over a wide area, but would gradually decline as the tread of the trail becomes more defined, established, and compacted over time. Therefore, impacts to soils from the existence and continued use of the multi-use trail would be long-term, minor to moderate, and adverse.

Resulting changes in soil erosion rates would cause detectable and localized impacts to water quality. However, impacts to water quality would not exceed minor, as the effects of sedimentation would be minimal due to the mitigation measures used and the volume of water in the reservoir.

In summary, the impacts to soils under alternative B would be moderate and adverse in the short term, and minor to moderate adverse over the long-term, with long-term, minor adverse impacts of sedimentation on water quality.

Cumulative Impacts. Impacts of past, present, and reasonably foreseeable actions would be the same as those described under alternative A. These actions and associated impacts, when combined with the minor to moderate adverse impacts associated with alternative B, would result in long-term, moderate, adverse impacts to soils in the area of analysis. Impacts on water quality from sedimentation would be long-term, negligible and adverse.

Conclusion. Construction of a multi-use trail under alternative B would involve land disturbing activities that would result in short-term, moderate, adverse impacts to soils due to the amount of ground disturbance required to complete the project. Following construction, the existence and continued use of the trail would result in long-term, minor to moderate, adverse impacts to soil resources. Cumulative impacts to soils would be long-term, moderate, and adverse. Impacts on water quality from sedimentation would be long-term, negligible and adverse.

VEGETATION

Intensity Level Definitions

The methodology used for assessing impacts to vegetation included using available mapping data and literature to identify the communities in the project area and identifying the potential effects of construction activities on the structure, composition, or distribution of plant communities. The thresholds for this impact assessment are as follows:

> **Negligible**: Individual native plants would be affected, but no measurable or perceptible changes in plant community size, integrity, or continuity would occur.
>
> **Minor**: Impacts to native plants would be measurable or perceptible and localized within a relatively small area. The overall viability of the plant community would not be affected. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
>
> **Moderate**: Impacts to native plants would result in a change in the plant community (e.g., abundance, distribution, quantity, or quality); however, the impact would remain localized. Mitigation measures, if needed to offset adverse effects, could be extensive, but would likely be successful.
>
> **Major**: Impacts to native plant communities would be substantial, highly noticeable, and long-term, and affect a sizable portion of the affected community type. Mitigation measures required to offset the adverse effects would be extensive and their success would not be guaranteed.

Area of Analysis

The area of analysis for assessment of vegetation impacts of the alternatives is the project area and the area of analysis for the cumulative impacts assessment is the lands within the recreation area.

Impacts of Alternative A - No Action

Under the no action alternative, the NPS would not construct the multi-use trail. Without construction activities, there would be no impacts to vegetation in the area of analysis because no ground disturbance would occur.

Cumulative Impacts. Past, present, and reasonably foreseeable actions in the recreation area have affected or could affect vegetation. Development associated with oil and gas operations has contributed to the disturbance and loss of vegetation. ORVs use, particularly at Rosita Flats, has resulted in large scale vegetation loss in that ORV use area, resulting in substantial adverse impacts to vegetation in that area of the park unit. Implementation of the 1998 Fire Management Plan would remove excess fuel from the system, reduce the likelihood of major wildfire events, and improve the health of native plant communities. Ongoing facilities maintenance and construction could result in impacts to vegetation if ground disturbing activities were involved. The development of an ORV Management Plan and a General Management Plan would have long-term beneficial impacts to vegetation, as these plans should result in improved resource protection measures. If successful, invasive plant species control efforts, specifically directed at salt cedar, would reduce the spread of these noxious species and open up more area for the establishment of native vegetation. This would result in long-term beneficial impacts to native vegetation in the recreation area.

There would continue to be adverse impacts to vegetation from recreational use in the Harbor Bay area where visitors operate vehicles, fish, picnic, and hike off of established roads and formal use areas. Although there would be impacts to vegetation from recreational disturbance, these impacts would only occur over the relatively small area at Harbor Bay. Impacts to vegetation from this continued recreational use would be long-term, negligible to minor, and adverse.

Although the potential exists for beneficial impacts from some of the present and future cumulative actions mentioned above, past and ongoing actions have resulted in equal or greater adverse impacts to vegetation. Therefore, the effects of the past, present, and future actions would result in long-term, negligible to minor adverse impacts to vegetation. Because there would be no impacts to vegetation under alternative A, the implementation of this alternative would not contribute to the overall effect on vegetation associated with any past, present or reasonably foreseeable future actions in the area of analysis.

Conclusion. Implementation of alternative A would not result in impacts to vegetation, as the multi-use trail would not be constructed. Because there would be no impacts to vegetation under the no action alternative, this alternative would not contribute to the overall effect on vegetation associated with any past, present or reasonably foreseeable future actions in the area of analysis.

Impacts of Alternative B - Construct a Multi-Use Trail

Phases one and five of the proposed trail would be located in primarily upland areas of vegetated cliffs, but the phase one corridor would also include areas of emergent scrub-shrub and unconsolidated shore in the portions of the trail that are in proximity to the lake. Phases two and three would primarily be located in grassy, riparian areas when near the shoreline, although some areas of mixed forest exist within these phases. Phase four would transect communities of mixed forest and some emergent vegetation near the lake shore. The dominant vegetation in the areas affected by the trail include salt cedar, Chickasaw plum (*Prunus angustifolia*), net leaved hackberry, cottonwood, sedges (*Carex* sp.), saltgrass, alkalai sacaton (*Sporobolus airoides*), vine mesquite (*Panicum obtusum*), common reed (*Phragmites australis*), kochia weed (*Kochia scoparia*) and smartweed (*Polygonum hydropiper*). Although portions of the proposed trail

corridor contain areas designated as emergent scrub-shrub, and unconsolidated shore, the final trail alignment would avoid wetlands and no wetland vegetation would be disturbed.

Construction activities under this alternative would involve ground disturbance and potential vegetation damage throughout the majority of the trail corridor. Although the trail would be aligned in such a way as to avoid native vegetation where possible, the length of the corridor would make it nearly impossible to prevent any impacts to vegetation. Therefore, some trampling and destruction of vegetation would be expected to occur in localized areas within the trail corridor. Mitigation measures such as trail crew training, locating staging and stockpiling areas in previously disturbed areas, and flagging the boundaries of the construction zone would help minimize the amount of disturbance to vegetation. Materials to be used to gain elevation and prevent erosion on the new trail would be local natural materials and may include rock, soil, and logs. Use of local materials would reduce the potential for the introduction of invasive species in the project area. Signs and kiosks would be installed along the length of the trail, but would be placed in locations that would not require removal of vegetation. Construction of the multi-use trail would result in impacts to the quantity or quality of native plants, but impacts would be localized to specific areas within the proposed corridor where avoidance of vegetation would not be possible. Impacts to vegetation from construction activities would be long-term, minor to moderate, and adverse.

Vegetation loss within the actual two to four-foot wide trail surface would be permanent, as it would need to be removed to facilitate the establishment of a suitable trail. However, revegetation of disturbed areas outside the trail surface would replace some of the vegetation lost or damaged during trail construction. Some vegetation would continue to be lost or damaged as a result of normal trail use, as trails are often widened by users who are forced to leave the designated trail in order to yield to oncoming trail users.

Invasive plant species could be inadvertently transported in and spread along the trail by hikers, and bikers. The level of impact would depend on the amount of use the trail receives and on how much imported seed successfully establishes along the trail. Following construction of the new trail, areas that were disturbed would be monitored and invasive vegetation would be removed. Conversely, the multi-use trail could provide opportunities for recreation area staff to access and manage areas that are infested with invasive species, providing a possible beneficial impact to native plant communities. Impacts from the spread of non-native species would be long-term and adverse if viable seeds are transported and become established. However, due to the low potential for impacts to native plant communities from invasive seed dispersal by individual trail users, impacts would be negligible.

Impacts to vegetation under alternative B could result in a change to the abundance or quantity of a particular plant community in specific locations within the trail corridor. Therefore, impacts to vegetation associated with the construction of the multi-use trail would be long-term, minor to moderate, and adverse.

Cumulative Impacts. Impacts of past, present, and reasonably foreseeable actions would be the same as those described under alternative A. These actions, when combined with the minor to moderate adverse impacts associated with alternative B, would result in long-term, minor to moderate, adverse impacts to vegetation in the area of analysis.

Conclusion. Construction of a multi-use trail under alternative B would result in the disturbance and permanent loss of vegetation where native plant communities could not be avoided within the proposed trail corridor. Long-term use of the trail would potentially result in damage to native vegetation, particularly when users hike or ride off of the established trail. Therefore, impacts to native plant communities would be long-term, minor to moderate, and adverse under alternative B. Cumulative impacts to vegetation would be long-term, minor to moderate, and adverse.

VISITOR USE AND EXPERIENCE

Intensity Level Definitions

The methodology used for assessing impacts to visitor use and experience is based on how construction of a new multi-use trail would affect the visitor, including levels of use, recreational experience, and public health and safety considerations. The impact on the ability of the visitor to experience a full range of park resources was analyzed by examining resources mentioned in the purpose and significance statements for the park. The thresholds for this impact assessment are as follows:

> **Negligible**: Visitors would likely be unaware of impacts associated with proposed changes. There would be no noticeable change in visitor experience or public health and safety.
>
> **Minor**: Changes in visitor experience would be slight and detectable, but would not appreciably limit or enhance any critical characteristics of the visitor. The impact to visitor safety would be measurable or perceptible, but it would be limited to a relatively small number of visitors at localized areas. There would not be an appreciable effect on public health and safety
>
> **Moderate**: Changes in visitor experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes. The impact to visitor safety would be readily apparent and would result in substantial, noticeable effects to public health and safety on a local scale.
>
> **Major**: Impacts to visitor experience would be readily apparent and have substantial consequences. The visitor would be aware of the effects associated with the alternative, and would likely express a strong opinion about the changes. The impact to visitor safety would be readily apparent and would result in substantial, noticeable effects to public health and safety on a regional scale.

Area of Analysis

The area of analysis for assessment of impacts to visitor use and experience is the recreation area. Impacts to health and safety include the recreation area and adjacent lands and communities. The area of analysis for the cumulative impacts assessment is the recreation area plus adjacent lands and communities.

Impacts of Alternative A - No Action

Implementation of the no action alternative would result in adverse impacts to visitor use and experience because the lack of land-based (non-motorized) recreational opportunities would continue if the multi-use trail was not constructed. Visitors to the recreation area would continue to have access to existing recreation resources at Lake Meredith, although existing trails and paths would provide only limited opportunities for hiking and biking. Impacts to visitor use and experience would be long-term, negligible to minor, and adverse as the visitor experience would not be enhanced under alternative A.

There would be long-term minor to moderate adverse impacts to health and safety under this alternative because the project area would continue to lack a sufficient firebreak and emergency access. Visitors and local residents would continue to experience periodic wildfire events without benefit of these preventative measures.

Overall, impacts to visitor use and experience would be long-term, negligible to minor and adverse. Impacts to health and safety would be long-term, minor to moderate and adverse.

Cumulative Impacts. Other past, present, and reasonably foreseeable future actions in the area of analysis have affected or could affect visitor experience or safety. Oil and gas operations and the use of prescribed burns for fire management have caused impacts to visitors through limiting areas available for recreation, and the creation of noise and smoke. However, implementation of the fire management plan would provide beneficial impacts to the safety of visitors and local residents, due to reduction of fuel loads through prescribed burning. Hunting is permitted in the recreation area and would continue to be allowed. While this provides beneficial impacts for hunters, there is a potential for adverse impacts to visitor experience and safety for those users recreating near hunting areas, due to noise and the potential for hunting accidents. Implementation of the Resources Management Plan has resulted in long-term beneficial impacts to visitor use and safety through additional recreational facilities and safety measures. Similar beneficial impacts to safety and visitor experience could be expected from the development and implementation of an ORV management plan and General Management Plan. Planned replacement or upgrades to comfort stations will improve the overall visitor experience, although it would be limited to the areas of the park that were served by the comfort stations in need of repair.

The effects of the actions described above—when combined with the long-term negligible to minor adverse impacts to visitor experience and long-term minor to moderate adverse impacts to health and safety under alternative A — would result in long-term negligible adverse impacts to visitor experience and long-term, minor adverse impacts to health and safety in the area of analysis.

Conclusion. Implementation of no action alternative would result in long-term negligible to minor adverse impacts to visitor experience as the lack of land-based, non-motorized recreational opportunities would continue to negatively affect the overall visitor experience. This alternative would have a long-term minor to moderate adverse impact on health and safety, as the project area would continue to lack a formal firebreak and emergency access would be limited to the current level. Cumulative impacts under alternative A would be long-term, negligible and adverse for visitor experience and long-term, minor, and adverse for health and safety.

Impacts of Alternative B - Construct a Multi-Use Trail

Under alternative B, a variety of visitors to the recreation area would experience benefits from establishment of a new multi-use trail as it would provide increased and more diverse recreational opportunities. Alternative B would result in long-term moderate beneficial impacts to visitor use and experience as it would constitute a substantial increase in mileage available for use by individuals seeking opportunities for trail hiking, bicycling, nature viewing, and resource education. Visitors would be well aware of the changes to visitor experience brought about by trail construction. Adding interpretive signs and kiosks within the trail corridor would improve visitor understanding of the natural and cultural resources by providing narratives and resources protection messages to enhance visitor enjoyment of these resources.

Short-term adverse impacts to visitor experience would be expected to occur during trail construction, but these impacts would likely be negligible to minor because, although the impacts would be perceptible, they would not appreciably limit any critical characteristics of the visitor experience. Efforts would be made to schedule construction outside of periods of peak visitation when feasible. Because the trail would be built using natural materials, it would blend into the existing landscape and not adversely impact the visual resources of the recreation area.

Due to the lack of existing recreational opportunities in the region, construction of the multi-use trail should result in a measureable increase in visitation, especially during the primary visitor use season of May through September. Increases in visitation have the potential to affect the overall visitor experience through overcrowding of trails, campgrounds, parking lots, and sanitary facilities. The Harbor Bay area, which would serve as the primary access and trailhead, contains paved parking for approximately 80 vehicles, which should be more than adequate to serve trail users. Because there would be no toilets provided along the trail outside of the Harbor Bay area, long-term negligible to minor adverse impacts to visitor experience could arise if proper waste disposal requirements are not adhered to by park visitors and excessive waste becomes an issue. Public education and patrols would help mitigate the potential adverse impacts of improper waste disposal.

Implementation of alternative B would also result in beneficial impacts to public safety. Portions of the trail would function as a firebreak at the wildland urban interface, thus providing long-term minor beneficial impacts to park visitors and adjacent communities. The trail would also provide increased access in and around the project area for first aid crews, search and rescue teams, and firefighters. This improved access would provide long-term, minor beneficial impacts to the health and safety of park visitors.

Construction of the multi-use trail would result in long-term, moderate, beneficial impacts to visitor use and experience and long-term, minor to moderate beneficial impacts to health and safety.

Cumulative Impacts. Impacts of past, present, and reasonably foreseeable actions would be the same as those described under alternative A. The impact of these actions, when combined with the long-term moderate beneficial impacts to visitor use and experience and the long-term, minor to moderate beneficial impacts associated with alternative B, would result in long-term, moderate, beneficial impacts to visitor use and experience long-term, minor to moderate impacts to health and safety in the area of analysis.

Conclusion. Construction of the multi-use trail would result in long-term, moderate beneficial impacts on visitor use and experience, as the diversity and amount of recreational opportunities at Lake Meredith and in the region would be greatly expanded. Use of the trail as a firebreak for wildfire control and to facilitate emergency response and access would result in long-term, minor beneficial impacts to the safety of visitors and area residents. Cumulative impacts would be long-term, moderate, and beneficial for visitor use and experience and long-term, minor to moderate beneficial for health and safety.

NATIONAL RECREATION AREA MANAGEMENT AND OPERATIONS

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 and who would conduct these duties; how activities should be conducted; and administrative and support procedures. The methods used to assess potential changes to recreation area operations and management are defined as follows:

> **Negligible**: Operations would not be affected or the action would not have a noticeable or appreciable effect on operations.
>
> **Minor**: Effects would be noticeable, but would be of a magnitude that would not result in an appreciable or measurable change to recreation area operations. If mitigation were needed to offset adverse effects, it would be relatively simple and successful.

Moderate: Effects would be readily apparent and would result in a measurable change in operations that would be noticeable to staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.

Major: Effects would be readily apparent and would result in a substantial change in operations that would be noticeable to staff and the public, and would 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.

Area of Analysis

The area of analysis for assessment of impacts (including cumulative impacts) to management and operations is the recreation area.

Impacts of Alternative A - No Action

Under this alternative, the trail would not be constructed, and there would be no change to the existing recreation area management and operations. Recreation area resources, including staff time and funding, would not be expended to design and construct the trail, or to monitor and maintain the trail over the long-term. Although management and operations would not change under alternative A, those divisions responsible for providing emergency response capabilities would continue to be hampered by the lack of access to the project area. Therefore, the Southern Plains Fire Group and the Visitor and Resource Protection Division would continue to experience adverse impacts from the lack of emergency access and the lack of a formalized firebreak in the project area.

Because there would be no change to recreation area operations under the no-action alternative, there would be long-term negligible adverse impacts to management and operations at the recreation area.

Cumulative Impacts. Although there would be no new trail built under alternative A, park management and operations would still be affected by past, present, and reasonably foreseeable actions within the recreation area. Implementation of the fire management plan and the removal of invasive species, as well as large, public events such as the Sand Drag, require that park staff from divisions such as the Resource Management Division and the Visitor and Resource Protection Division make commitments of time and labor. Enforcement of the interim OHV Management Plan has resulted in adverse impacts to recreation area management as it has required efforts from all divisions to develop and implement, due to the popularity of ORV use and the potential for impacts to resources and visitor safety. Implementation of the final ORV Management Plan would require substantial amounts of recreation area staff time and resources, which may result in adverse impacts to management and operations as staff may have to be reallocated from other projects as necessary. Planned improvements to the heating and cooling system in the ranger station and replacing the roof on the maintenance shop would provide some long-term, negligible benefits to park operations as working conditions should improve in these locations. Other ongoing facilities and infrastructure maintenance would continue to place demands on staff and resources. Depending on the amount of staff time needed and the number of these efforts occurring at the same time, there would be adverse impacts to operations, but assuming existing and future funding sources would be adequate to support these activities, the effects on overall management and operations would be long-term, minor and adverse.

Implementation of alternative A would result in long-term negligible impacts to park management and operations. Because there would be negligible impacts to park operations and management under the no action alternative, this alternative would not contribute appreciably to the overall effect on park

operations and management associated with any past, present or reasonably foreseeable future actions in the area of analysis.

Conclusion. Because the trail would not be constructed, there would be no change to management and operation of the recreation area under this alternative. However, there would continue to be adverse impacts to emergency response capabilities associated with limited access to the project area and the lack of an established firebreak. Cumulative impacts under alternative A would be long-term, minor, and adverse.

Impacts of Alternative B – Construct a Multi-Use Trail

The impacts of alternative B would fall into two categories: those associated with the construction of the trail, and those associated with its management and maintenance after construction is complete.

Trail construction would impose a short-term, minor, adverse impact on management and operations. This is due to the diversion of staff and other management resources toward trail construction activities. There are three groups that would be involved in the construction of the trail: an external contractor, NPS trail crews, and volunteer groups. The first two of these would have a short-term, minor, adverse impact upon park management due to their cost. All three of these groups would require that park staff devote time to managing and overseeing construction work. Such a diversion of staff time and resources would constitute a short-term, minor, adverse impact on recreation area management and operations. Affected divisions would include the Resource Management Division and the Facilities Management Division, both of whom would be responsible for overseeing the construction process.

Facilities and features to be added to the trail would include small signs marking the trail and denoting the skill level required to proceed, bike racks, and kiosks. Although bike racks and kiosks would be installed in areas that would be fairly easy to access, the small informational signs would need to be installed along the entire length of the trail. Installation of these amenities would result in short-term, minor adverse impacts to recreation area management and operations. Therefore, the overall impact of construction activities would be short-term, minor, and adverse, due to the diversion of park resources and the additional effort required.

Once the trail is completed, it is reasonable to expect that visitation to the recreation area would increase, due to the substantial mileage of new trail that would be accessible to multiple user groups. Increased visitation would necessitate additional patrols by the Visitor and Resource Protection Division. Such patrols could be composed not only of division staff, but of volunteers. This increased responsibility would have a long-term, minor, adverse impact on the Visitor and Resource Protection Division's operations due to the additional labor it would require.

The existence of the new trail would provide some benefits to the management of the recreation area, as it would provide increased access for crews to treat invasive species and would increase mobility and access for emergency and fire crews.

Maintenance of the completed trail would require additional effort from the Facilities Management Division, constituting a long-term, minor, adverse impact on this division's operations due to the extra effort required. The trail could be extremely steep in some areas, and it is 22 miles long; therefore, erosion would be a frequent problem during rainy periods, requiring maintenance. Additionally, any trail facilities (the aforementioned signs, kiosks, and bike racks) in need of maintenance would require repairs from the Facilities Management Division, further increasing the additional effort required of them. There

would be adverse impacts on operations during the trail construction, but only in the short-term. However, impacts over the long-term associated with trail maintenance could require a change in operations. However, impacts would most likely be mitigated as user groups and volunteer organizations contribute more time and effort to trail maintenance as time passes. Therefore, with the help of volunteer groups, construction and maintenance of the proposed multi-use trail would result in short and long-term, minor adverse impacts to recreation area management and operations.

Cumulative Impacts. Under alternative B, the same past, present, and future actions that have the potential to affect management and operations would occur, and impacts would be the same as described under alternative A. These actions, when combined with the short and long-term minor adverse impacts associated with alternative B, would result in long-term, minor to moderate, adverse impacts to recreation area management and operations.

Conclusion. Due to the necessary diversion of park resources during trail construction, alternative B would result in short-term, minor, adverse impacts on recreation area management and operations. Once completed, the multi-use trail would have long-term minor adverse impacts on management and operations due to the potential for substantial maintenance activities that would be required throughout the life of the trail. However, these impacts would be mitigated by using crews of volunteers to assist with trail maintenance. Cumulative impacts to recreation area management and operations under alternative B would be long-term, minor to moderate, and adverse.

IMPAIRMENT

NPS *Management Policies 2006* require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006a). The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the NPS the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

Although Congress has given the NPS the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is

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

Impairment may result from NPS activities in managing the park unit, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the recreation area. The NPS's threshold for considering whether there could be an 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 A (No Action) or alternative B (Preferred).

UNACCEPTABLE IMPACTS

The impact threshold at which impairment occurs is not always readily apparent. Therefore, the NPS will apply a standard that offers greater assurance that impairment will not occur. The NPS 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 unit's environment. Park managers must not allow uses that would cause unacceptable impacts; they must evaluate existing or proposed uses and determine whether the associated impacts on park resources and values are acceptable.

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

- be inconsistent with a park's 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.

In accordance with NPS *Management Policies 2006*, park managers must not allow uses that would cause unacceptable impacts to park resources. To determine if unacceptable impacts could occur to the resources and values of Lake Meredith National Recreation Area, the impacts of proposed actions in this EA were evaluated based on the above criteria. Overall, the analysis of effects on soils/sedimentation, vegetation, employee and visitor health and safety, and park management and operations, 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).

CONSULTATION AND COORDINATION

INTERNAL SCOPING

Internal scoping was conducted by an interdisciplinary team of resource, planning, and management professionals from Lake Meredith National Recreation Area, NPS Intermountain Region, and the private contractor working on the EA. Interdisciplinary team members met at the recreation area on December 9, 2008 to discuss the purpose, need, and objectives for the project; various alternatives; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and the geographic boundaries for the area of analysis. The team also gathered background information and discussed potential methods for public outreach for the project. Team members also conducted site visits to review and evaluate the proposed project site and discuss resource impacts, potential mitigation measures, and other planning issues.

EXTERNAL SCOPING

The NPS conducts public scoping to identify resources that may be affected by the proposed project and to gather new information and ideas that may result in new alternatives to achieve the proposal while minimizing adverse impacts. External scoping was initiated with the distribution of a scoping brochure to inform the public, varies agencies, and interested user groups of the proposal to construct a multi–use trail at the national recreation area, between Fritch Fortress and South Turkey Creek. The NPS wished to obtain feedback on alternatives, identify issues related to the development of a multi-user trail and/or additional information about the resources and concerns, and allow the public to comment and provide other suggestions for consideration in the planning process. This brochure was distributed to recipients on the recreation area's mailing list and was posted on the NPS Planning, Environment, and Public Comment (PEPC) website. The scoping brochure was distributed on February 4, 2009 and the public was given 30 days to provide initial comments on the proposal.

The following federal and state agencies, Native American tribes, and affiliated interests were sent scoping information or were contacted for information regarding this EA.

Federal Agencies
United State Fish and Wildlife Service
National Park Service, River, Trails, and Conservation Assisting Program, Santa Fe, New Mexico

State Agencies
Texas Parks and Wildlife Department
Texas Historical Commission

Affiliated Native American Groups
Apache Tribe of Oklahoma
Caddo Nation of Oklahoma
Cheyenne-Arapaho Tribe of Oklahoma
Comanche Nation
Delaware Nation of Oklahoma
Fort Sill Apache Tribe of Oklahoma

Jicarilla Apache Nation
Kiowa Indian Tribe of Oklahoma
Mescalero Apache Tribe
Wichita & Affilliated Tribes

During the 30-day scoping period, six pieces of correspondence were received containing a total of six signatures. The public submitted five correspondence letters through the PEPC website and one letter was submitted directly to the recreation area. Four commenters supported the establishment of the multi-use trail. The Wichita and Affiliated Tribes supported the trail, under the condition that they be informed in the event of the unearthing of cultural resources or human remains. One commenter also expressed concern over the potential for impacts to hunting opportunities in areas near the proposed trail. All public comments were considered in the development of this EA.

LIST OF RECIPIENTS AND PUBLIC REVIEW

This EA will be released for public review in **January 2010**. To inform the public of the availability of this EA, the NPS will publish a press release and place a copy on their website. Copies of the EA will be provided to members of the recreation area's mailing list and to interested individuals upon request. Copies of the document will also be available for review at the recreation area's visitor center and on the NPS PEPC website at http://parkplanning.nps.gov/lamr.

The EA is subject to a 30-day public comment period ending **February 19, 2010**. During this time, the public is encouraged to submit their written comments to the NPS address provided at the beginning of this document. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. The NPS will issue responses to substantive comments received during the public comment period, and will make appropriate changes to the EA, as needed.

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