ALTERNATIVE C

CONCEPT

This alternative, which is illustrated in the Alternative C Management Zones map, would expand opportunities for visitors to enjoy easier access to a wider range of park settings than currently exist. New park access and facility improvements would be more dispersed and would provide opportunities for a less-challenging wilderness experience that would accommodate more diverse visitor populations. Promoting wilderness values also would be emphasized.

Easier access to multiple settings would provide visitors with a wider range of overnight and multi-day destination activities. Wilderness experiences would still be available in the park's interior, but most areas around the existing developed sites would be zoned as frontcountry rather than the more primitive wilderness threshold. The frontcountry zone would include

- most of the area near the developed zones at Pine Springs, Frijole Ranch, Dog Canyon, and McKittrick Canyon to Pratt Cabin
- the area around the Salt Basin Dunes trailhead facilities
- the old Signal Peak housing area
- the Williams Ranch, Guadalupe Canyon, and PX Well staging areas

These frontcountry zones would provide some transition from developed to natural settings while improving access to the backcountry and designated wilderness zones. Additional trails and developed staging areas would enhance access. The new trails would be designed to accommodate larger numbers of visitors, sometimes including those with impaired mobility.

Increases in dispersed visitor use outside development centers would require more aggressive resource impact mitigation to maintain natural ecosystem processes. Cultural resources, including historic structures, would be stabilized and/or preserved or rehabilitated, with the goal of protecting them from impacts while accommodating visitor use.

FACILITIES AND ASSOCIATED VISITOR ACTIVITIES

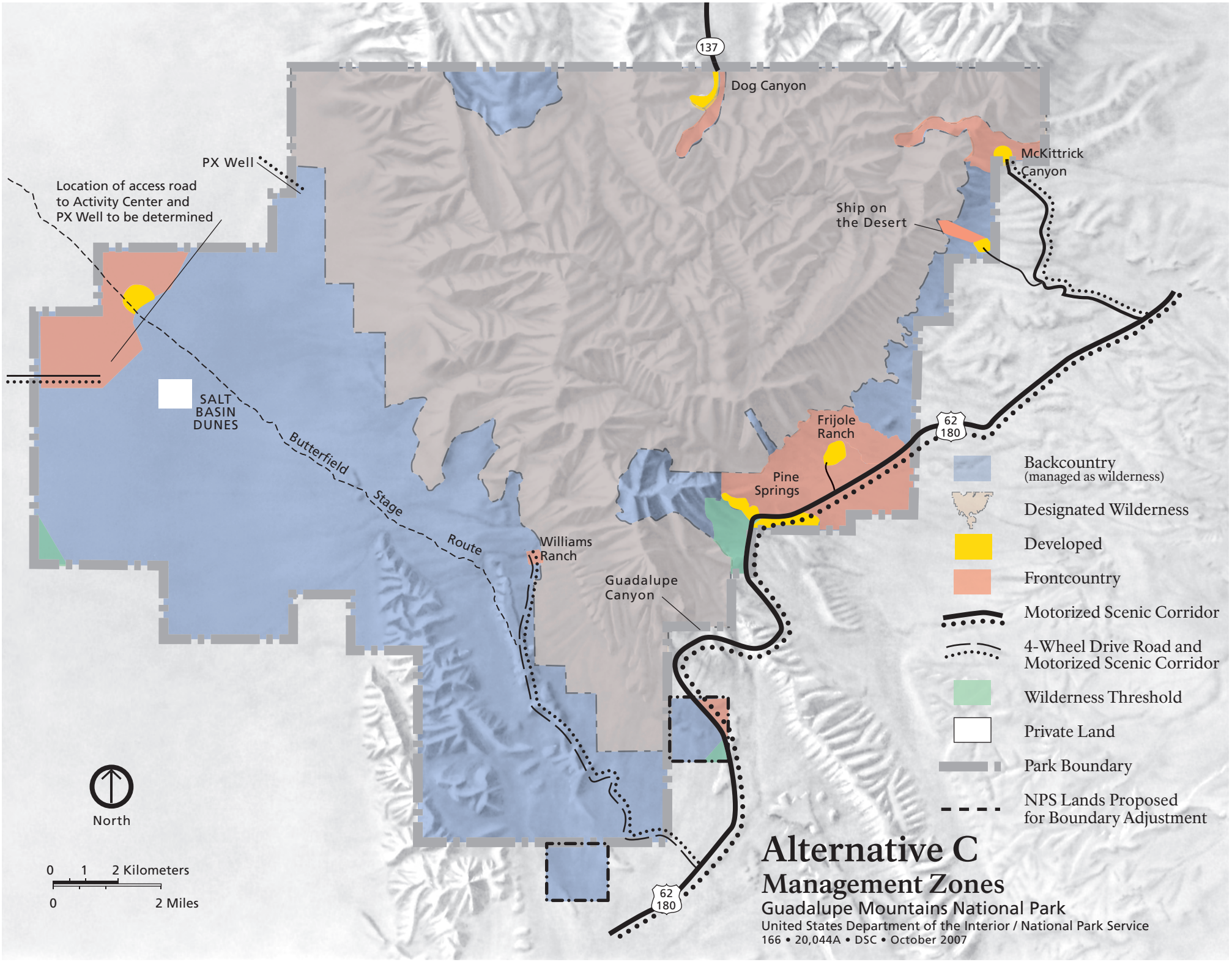
Pine Springs

Management Zoning. The management zones that would be applied to the Pine Springs area are shown in the Alternative C Management Zones map. Zoning in the Pine Springs vicinity would be the same as the preferred alternative.

Visitor Center Area. The area outside the visitor center would be managed much as described for the preferred alternative, with continued use of the tent campground and picnic area. The interior of the Pine Springs visitor center would be remodeled to accommodate new and relocated cultural resource exhibits and space for educational programs, classrooms, and group events. The existing exhibits would continue to provide a basic understanding of the park's geological and natural history. Exhibits also would stress wilderness values and leave-no-trace standards. Expanded orientation would familiarize visitors with the enhanced facilities, increased interpretive opportunities, and expanded activities throughout the park.

The Pinery Area. The interpretive walk at the Pinery would be improved by

- upgrading the trail surface
- improving interpretation by delineating the original floor plan


137
Dog Canyon
PX Well
Location of access road
to Activity Center and
PX Well to be determined
McKittrick
Canyon
Ship on
the Desert
SALT
BASIN
DUNES
Butterfield
Stage
Route
Frijole
Ranch
62
180
Pine
Springs
Williams
Ranch
Guadalupe
Canyon
Backcountry
(managed as wilderness)
Designated Wilderness
Developed
Frontcountry
Motorized Scenic Corridor
4-Wheel Drive Road and
Motorized Scenic Corridor
Wilderness Threshold
Private Land
Park Boundary
NPS Lands Proposed
for Boundary Adjustment
North
0 1 2 Kilometers
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62
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Alternative C
Management Zones
Guadalupe Mountains National Park
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- adding seating and a shade structure
- adding a new facility to exhibit a stagecoach

Pine Springs Trailhead Area. Management of the trailhead area would be identical to the preferred alternative. This would include continuing tent camping, moving other camping to a new campground, and managing the trailhead area for picnickers and backcountry hikers.

New Campground. Alternative C would include a new campground that would have the same characteristics that were described in the preferred alternative.

New Group Picnic Area. Alternative C would include a new group picnic area. The siting and layout of this facility could be included in the same development concept plan as the campground. It would involve the same considerations, such as avoidance of archeological sites and habitat for special-status species, that would be employed in designing the campground.

Administration Facilities. As described in the preferred alternative, new administration facilities would be constructed within the park south of U.S. Highway 62/180. These would include headquarters offices, new curatorial storage, a parking lot, and utility infrastructure upgrades.

Frijole Ranch

Management Zoning. Management zoning around Frijole Ranch would include applying the developed zone in the immediate area of the ranch facilities and zoning the surrounding lands as frontcountry.

Facilities and Activities. Frijole Ranch would become a visitor gateway trailhead for expanded, dispersed day use and overnight camping, consistent with the settings and experiences prescribed in the developed and frontcountry zones. In addition, interpretation at the ranch would be substantially expanded. This area may also have a developed zone for the campground in the Pine Springs vicinity.

The Frijole Ranch house and landscape would be rehabilitated and established as a living history working ranch. A refurnished ranch house, new ranching exhibits, and a rehabilitated garden and orchard would provide visitors with an in-depth understanding of the workings and values of a west Texas ranch in the early 1900s. Ranching history would be interpreted by staff and volunteers conducting living history and interpretive programs. The open hours of access would be extended to allow after-hour programs and experiences.

Ranching history exhibits would remain in the Frijole Ranch area but would be relocated from the ranch house to a different structure that would be more suitable for exhibits. Candidate sites could include a rehabilitated barn, another outbuilding, or a new structure. In addition, these new exhibits would enhance visitor opportunities to understand the workings and values of the ranch more than a century ago.

The upgrades that currently are underway at Frijole Ranch for parking, picnicking, and restrooms were described in alternative A. These upgrades represent the existing condition for alternative C.

The loop trail to Smith Spring would be improved, such as providing additional interpretive exhibits. Manzanita Spring would be maintained as part of the cultural landscape. As under alternative A, Manzanita Spring would be dredged occasionally to prevent silting from changing its character.

A small low-country hike-in campground, identical to that described in the preferred alternative, would provide a backcountry experience with wildland characteristics but without a strenuous climb.

The NPS pack horse operations would be relocated from Frijole Ranch to the new facility in the Pine Springs operations area south of U.S. Highway 62/180, and the site would be restored to a natural condition. The public corral area south of Frijole Ranch could be expanded for potential commercial packers or a horse concession.

McKittrick Canyon

Management Zoning. Zoning in the McKittrick Canyon area would be the same as that described for the preferred alternative, except that the canyon from the trailhead to Pratt Cabin would be zoned as frontcountry.

Facilities and Activities. McKittrick Canyon would be improved as a visitor gateway that would provide access to a wider variety and number of day use opportunities. In addition to upgrading the exhibits at the visitor contact station, as described in the preferred alternative, new exhibits and more dispersed interpretive programs would be added. The open hours of access to McKittrick Canyon would be extended to allow after-hour programs and experiences. The goal would be to increase visitor opportunities to experience the park and learn about its resources.

The McKittrick Nature Trail would be redesigned and improved to provide access to the seep for visitors with impaired mobility. Management of the McKittrick Canyon Trail would be much like that described in the preferred alternative. However, this alternative would also include the construction of bridges across the creek to prevent damage to limestone precipitate formations and prevent turbidity.

In addition to its use as an interpretive center, Pratt Cabin would be adapted to accommodate some overnight use to support educational objectives. Additional visitor programs such as walks and interpretive talks, would originate from this location. The Pratt Cabin cultural landscape would be rehabilitated to the Pratt family era.

Restrooms and potable water system would be available for public use in the Pratt Cabin area. Energy would be provided by an enlarged solar power system.

Dog Canyon

Management Zoning. This alternative would assign the frontcountry zone to Upper Dog Canyon south of the developed zone to the switchbacks on the Tejas Trail. Otherwise, zoning in the Dog Canyon area would be the same as that described for the preferred alternative.

Facilities and Activities. Dog Canyon would become a visitor gateway for expanded, dispersed day use and overnight camping. In addition, NPS operational faculties would be expanded to improve visitor safety and resource protection throughout the northern part of the park. The National Park Service may consider concessioner operations of the expanded camping and horse facilities under a commercial services agreement. Regardless of the operator, the Dog Canyon area would not include any facilities such as a gasoline station or a store.

The visitor contact station would be improved as described for the preferred alternative. In addition, the exhibits along the Indian Meadow Nature Trail would be improved and the trail would be made accessible to visitors with impaired mobility, including those in wheelchairs.

The Dog Canyon trailhead would be expanded, and a new picnic area would be constructed to encourage day use. The picnic area would include six sites, three of which would have shade shelters. In addition, the sanitary facilities at the trailhead would be upgraded.

A new trail would be built along Manzanita Ridge between the Tejas and Bush Mountain Trails. The new trail segment would complete a loop that would enhance the day use potential at Dog Canyon. This would involve the construction of approximately 1.5 miles of new trail.

No changes would be made to the tent camping area. The recreational vehicle camping facilities would be upgraded, and a sanitary dump station would be constructed. This alternative also would include the construction of one additional group campsite like that described for the preferred alternative.

The NPS pack horse facilities would remain at Dog Canyon. The corral for public use would be retained and expanded for commercial packers or a horse concession.

Alternative C would include the enlargement of the Dog Canyon water storage system and construction of a new fire building. These features would be the same as those described in the preferred alternative.

Salt Basin Dunes

Management Zoning. The area from the boundary to about a mile inside the park would be zoned frontcountry. On the western part of this area, near the Butterfield Stage Route, the developed zone would be applied to a new activity center. The road from the park boundary to PX Well would be within the Motorized Scenic Corridor zone. The remainder of the area, including the dunes, were found eligible for future consideration as wilderness and would be zoned backcountry.

Facilities and Activities. The Salt Basin Dunes staging area would be improved as a visitor destination for day use and overnight camping. The road from the boundary to the new activity center would be substantially upgraded to provide access using low-clearance automobiles and would include a scenic overlook with a wayside exhibit.

Surveys of natural and cultural resources would be conducted prior to the installation of any facilities to protect them by avoidance. Thereafter, the following facilities would be constructed within the developed zone:

- a contact station
- a gravel parking area
- a trailhead providing access to the dunes
- a comfort station with potable water and flush toilets
- a campground that would be available to tent campers and recreational vehicles
- stabilized pedestrian walks
- utilities, including a wastewater treatment system

Because of the increased activity level at this site, the trail to the Salt Basin Dunes would be improved. Wayside exhibits would be similar to those described for the preferred alternative.

A ranger staff residence would be constructed within the developed zone. This structure would allow the National Park Service to have a 24-hour-per-day presence at the site. A three-bedroom, single-family structure would provide maximum flexibility.

Williams Ranch

Management Zoning. Management zoning would be the same as described for the preferred alternative. However, because the road would be extended beyond the ranch to the west boundary of the park, a larger area would be within the motorized scenic corridor zone than in the other action alternatives.

Facilities and Activities. Williams Ranch would be improved so that the ranch would be a visitor destination for day use. This

would involve substantial changes to the road, as follows:

- A permit would no longer be required to use the road.
- The road would still be single lane but would be upgraded and resurfaced to allow travel by low-clearance vehicles under all weather conditions.
- The installation of drainage structures and pullouts would reduce water damage and would better accommodate travel in both directions.
- An old road trace from Williams Ranch to the west boundary of the park would be improved and developed as an all-weather, low-clearance vehicle road. The National Park Service would coordinate with others, potentially including Hudspeth County, Dell City, and the Texas Department of Transportation, to provide outside-the-park roadway connections from the boundary to Dell City.

The Williams Ranch house interior and exterior would be rehabilitated and would function as a museum. The cultural landscape around the ranch house also would be rehabilitated. The parking lot would be expanded to accommodate 10 vehicles on a gravel-surface.

Other Visitor Facilities

Ship-on-the-Desert would be assigned to the developed zone. The road into the site would be in the motorized scenic corridor zone.

The building and its cultural landscape would be rehabilitated and reused adaptively as the centerpiece for an expanded research and education program that could include cooperative partners in additional facilities. This would be a residential facility supported by partnerships with regional benefactors, scientists, educators, historians, and others. An enlarged and upgraded utility infrastructure would be needed for this development.

PX Well would be zoned and improved as described in the preferred alternative. In addition, a small, primitive camping facility would be constructed so the area would support overnight use.

At **Dell City**, the visitor contact station would be closed. This function would be relocated to the new park contact station at Salt Basin Dunes.

At the **Guadalupe Pass trailhead area**, the National Park Service would formalize an access agreement with landowners as described in the preferred alternative, and would provide minimal improvements for signage. Alternative C would include a larger parking lot at this site than the other action alternatives.

NATURAL RESOURCES

Healthy natural resource conditions would be present with evident mitigation measures associated with more widespread visitor access. Management of threatened or endangered species and other species of concern, and management of air quality would be the same as described for alternative A.

Wilderness

Except for the following changes, the management of wilderness in alternative C would be the same as described in the preferred alternative.

- Alternative C would increase the number and level of development at trailheads that provide access to backcountry and designated wilderness zones.
- Additional developed trails could be constructed within the backcountry and designated wilderness zones and added to the park trail system.
- More widely dispersed waysides and interpretive programs would describe the ecological importance of wilderness.

- Primitive sanitary facilities could be provided at some or all of the 10 designated backcountry campsites.

Geological and Paleontological Resources

Geological and paleontological resources would be managed in a manner similar to that described in alternative A. However, the protection of specific stratotype and fossil locations would be enhanced by developing minimum impact visitor use education programs.

Plants and Wildlife

The goal of all management actions for plants and wildlife would be identical to that described for alternative A.

Management of Human-Disturbed Ecosystems. These areas would be managed as described in alternative A. In addition, the recovery of previously grazed areas could be accelerated through a native seed harvest, multiplication, and reseeding program, augmented with aggressive exotic plant control.

Management of Exotic Species. The management of exotic plant and animal species, including aoudads, that threatened park resources or public health would the same as alternative A. Also like alternative A, conditions would be created for natural revegetation. Changes from alternative A would include the following.

- This alternative would have the broader goal of eradicating target species of exotic plants throughout the park.
- It would use mitigation measures to protect plant and animal species and communities from impacts from exotic species.
- Horse use would be expanded to include overnight use in all zones, including the designated wilderness and backcountry zones. More aggressive monitoring and mitigation measures would be used to control the spread of exotic plant species.

Management of Wetland and Aquatic Environments. Wetland and aquatic environments and water quality would be protected by mitigating the impacts of use at developed sites such as trail improvements to protect the fragile wetland resources. The trail at Smith Spring would be improved.

Management of Research Natural Areas. Management of these area would meet NPS standards for resource protection, monitoring, and scientific study. However, in addition to being used for scientific and educational purposes, they would be open to the public on a restricted basis. Park staff would provide research and education activity permits.

Water Quality and Quantity

The management of water resources for this alternative would be similar to those described for the preferred alternative. However, providing for appropriate visitor use would be stressed in the NPS' water management strategy.

CULTURAL RESOURCES

Cultural resource management would emphasize preservation and rehabilitation of all resources (other than ethnographic resources) for enhanced visitor experiences. Management of ethnographic resources would be the same as described for alternative A.

Archeological Resources

Management of archeological resources would be the same as the preferred alternative.

Historic Structures and Landscapes

Historic structures and landscapes listed in or eligible for listing in the National Register of Historic Places would be rehabilitated and potentially adaptively used. Most cultural sites in the backcountry and wilderness zones would be managed as discovery sites, and their national register eligibility would be determined. As necessary, they would be stabilized and maintained for visitor safety.

The management of historic structures and landscapes associated with visitor facilities throughout the park was described previously under the heading "Facilities and Associated Visitor Activities." A summary of the key changes that would occur under alternative C includes the following.

- Frijole Ranch and Williams Ranch would be rehabilitated and potentially adaptively used.
- The Pratt Cabin interior would be rehabilitated and adaptively used for overnight accommodations to support educational programs.
- Ship-on-the-Desert would be rehabilitated for adaptive use as discussed under facilities.

The Hunter Line Cabin, Cox Cabin, and Bowl Cabin would be stabilized and/or preserved, as appropriate, as discovery sites. All or part of the Butterfield Stage route would be rehabilitated as a hiking trail.

Collections

Collections would be stored in conditions consistent with NPS preservation and security standards within the region. This would be accomplished by consolidating a substantial portion of the collections and archives in a state-of-the-art facility developed in a regional community. Collection would be jointly managed with a research and education institution outside the park.

VISITOR USE AND UNDERSTANDING

Many elements of visitor use and understanding already have been described in other elements of alternative C, particularly including "Facilities and Associated Visitor Activities." To avoid repetition, this section focuses on the broad nature of visitor use and understanding that would be associated with this alternative, plus features that contribute to visitor use and understanding that were not covered previously.

Alternative C would expand opportunities for visitors to enjoy a wider range of park settings. New park access and facility improvements would provide activities, interpretation, and visitor gateways to the interior of the park from the south, west, and north, with recreation opportunities for more diverse visitor groups.

Visitor Experience

Exhibits would provide a basic understanding of the park's geological and natural history in the park's main visitor center at Pine Springs. However, this alternative would place less emphasis on exhibits, and opportunities to understand the major interpretive themes in the park would remain unchanged from alternative A.

Frijole Ranch would be interpreted as a living history working ranch. A refurnished ranch house, new cultural exhibits and a rehabilitated garden and orchard would provide visitors with an in-depth understanding of the workings and values of a turn-of-the century west Texas ranch. Visitors also would come into contact with abandoned farm and ranch ruins throughout the park. Through these experiences, they would have the opportunity to explore and better understand the nature of ranching in a severe environment.

An understanding of wilderness values and leave-no-trace standards would be available to all visitors seeking a backcountry experience either through day hikes into the park's backcountry or through a backcountry permit allowing overnight use. An understanding of wilderness values and ethics would be emphasized in all interpretive activities. More visitors would be able to develop an understanding and experience of solitude because of the improved ease of access to some currently more remote areas of the park.

A wider diversity of visitors would be accommodated in the campgrounds in the park. This would lead to opportunities for increased understanding of the value of clear night skies.

Visitor Education, Interpretation, and Orientation

Consistent with this alternative's theme of enhanced experience opportunities, the park's education, interpretation, and orientation would be expanded not only in centralized visitor facilities, but also on trails and in other use areas. Exhibits at the visitor center, Pratt Cabin, and contact stations in McKittrick Canyon and Dog Canyon would be enhanced to orient visitors to the increased interpretive opportunities throughout the park. The presentation of a living history working ranch at Frijole Ranch would provide a dynamic education and interpretation opportunity that currently is not available in the park.

Pratt Cabin would be adapted to accommodate some overnight use to support educational objectives. Ship on the Desert would become the centerpiece for an expanded research and education program that could include cooperative partners in additional facilities. In addition, there would be dispersed enhanced interpretive programs and activities.

A substantially expanded and improved interpretive wayside exhibits program that was more widely dispersed park-wide would emphasize the ecological importance of wilderness and the park's significance. This would include new visitor orientation and wayside exhibits at the Salt Basin Dunes. The Salt Basin Dunes facilities and exhibits would replace the need for the Dell City contact station, which would be closed.

Interpretive and Educational Outreach Programs and Media

Education, outreach, interpretive and orientation programs, and media would focus on personal services and activities dealing with an outreach to a wider range of audiences. These would include people who have not traditionally used the park.

- Interpretive programs emphasizing better orientation would be developed for major visitor centers and contact stations. A greater emphasis would be placed on field interpretation.
- Programs would be developed in coordination with park visits from groups, such as those providing environmental education.
- Outreach and partnership programs would be expanded to El Paso and Juarez.
- The park staff would increase interaction with regional and national media, including newspapers, radio, and television.
- Internet sites that highlight park resources and values with an emphasis toward local and regional populations would be developed.

Visitor Access, Circulation, and Parking

Visitor Access. Alternative C would expand overnight access to the park through the addition of new or expanded camping facilities, other overnight accommodations, and increased horse use.

- Expanded opportunities for overnight stays for all levels of camping would be available in the new, larger campground that would be located in the vicinity of Pine Springs or Frijole Ranch.
- A small, low-country, hike-in campground below the eastern escarpment about 2 miles from the Frijole Ranch parking lot would provide a less challenging backcountry experience.
- Pratt Cabin in McKittrick Canyon would be adapted to accommodate some overnight use to support educational objectives.
- An additional group campsite would be added at Dog Canyon to encourage groups, particularly from the west Texas and southern New Mexico area, to use the site.
- A small campground that would be available to tent campers and recreational vehicles would be constructed at the Salt Basin Dunes trailhead.
- At Ship-on-the-Desert, the building would be reused adaptively as the centerpiece for an expanded research and education program that could include overnight stays in this and additional facilities.
- At PX Well, a small primitive camping facility would be constructed to support overnight use.
- Overnight horse use in the backcountry and designated wilderness zones would be allowed under this alternative.

Circulation. Internal circulation would be improved by upgrading or constructing roads in three areas.

- The single-lane road from the park's west boundary to an area about mile west of the Salt Basin Dunes would be improved to provide access by low-clearance vehicles. This road would then be extended from the Salt Basin Dunes parking area several miles north and east to PX Well.
- Access to Williams Ranch would be improved by upgrading the single -lane road to provide all-weather access by low-clearance vehicles.
- This road would be extended along an old road trace from Williams Ranch to the west boundary of the park.

Parking. Additional parking would be provided at several sites throughout the park.

- Additional parking also would be available in the trailhead parking lot at Pine Springs trailhead parking lot because recreational vehicle campers would be moved to the new campground.
- Additional parking would be available in the Pine Springs visitor center parking lot because hikers and backpackers would be able to use the trailhead parking lot. Additionally, most use by NPS staff would move to the new administrative facility south of U.S. Highway 62/180, which would include a parking lot.
- The Salt Basin Dunes trailhead parking lot about a mile east of the park boundary would be improved with a gravel surface.
- A small, gravel-surfaced parking lot would be constructed in association with the new PX Well trailhead.
- Outside the cultural landscape at Williams Ranch, the parking lot would be expanded to accommodate 10 vehicles on a gravel-surface.

Hiking Trails, Trailheads, and Horse Use

Hiking Trails. Hiking trails would be added or modified in the developed, frontcountry, and wilderness threshold zones. The goal would be to provide a wider variety of more accessible walking and hiking trails to more diverse destinations. Developed and frontcountry trails would be maintained at a higher standard of width and grade than the wilderness trails in the backcountry and designated wilderness zones. Trail changes could include, but may not be limited to, the following:

- Trails would be constructed from the new campground to the Pine Springs and Frijole Ranch areas and would provide access to the park's existing trail network.
- The interpretive trail at the Pinery would be improved.
- At Frijole Ranch, the loop trail to Smith Spring would be improved.
- A new trail would be constructed from the Frijole Ranch trailhead to the new hike-in campground below the eastern escarpment.
- The McKittrick Nature Trail would be redesigned and improved to provide access to the seep for visitors with impaired mobility.
- Bridges would be constructed across the McKittrick Creek Trail to prevent damage to limestone precipitate formations and prevent turbidity.
- At Dog Canyon, the Indian Meadow Nature Trail would be improved to provide access for visitors with impaired mobility.

Additional trails may be developed for use by the physically challenged. Hiking and riding trails of more moderate grades may be developed on the southern and western side of the park in both the frontcountry and backcountry zones. Additions to the system of developed trails would occur in the backcountry and designated wilderness zones and could include the following:

- A 1.5-mile-long, new trail would be built along Manzanita Ridge between the Tejas and Bush Mountain Trails.
- All or part of the Butterfield Stage route would be rehabilitated as a hiking trail. The distance from the southern park boundary near the Williams Ranch road to the northwest boundary of the park is about 14 miles.
- The PX Trail would be developed from PX Well to its connection with the Bush Mountain Trail in the high county, a distance of about 3 miles.
- The Kincaid Trail from the foothills on the west side of the park would be improved to its connection with the Bush Mountain Trail in the high county. This developed trail would be about 5.5 miles long.
- An abandoned road from PX Well to Williams Ranch would be developed as a horse and hiking trail. This road is approximately 9 miles long, and the relatively gentle grade would provide a moderate hike or horse ride.
- The Four Peaks Trail would be developed to connect Guadalupe Peak with three other high points and end at Bush Mountain. This 4-mile-long trail would provide a strenuous hike.

The park's primitive trail inventory also may be increased by mapping hiking trails along other abandoned trails and road traces on the park's west side that date from the area's ranching period.

Trailheads. New trailheads would be constructed at PX Well and in the newly developed area west of the Salt Basin Dunes. The existing trailhead would be improved at Dog Canyon. The Guadalupe Pass trailhead would be minimally improved by adding signage and an enlarged parking area.

A shuttle system would be considered to serve trailheads to allow one-way hiking trips. The shuttle could be operated by the NPS or by a concessioner under a commercial services agreement.

Horse Use. The public corral areas south of Frijole Ranch and at Dog Canyon could be expanded for commercial packers or a horse concession. Overnight horse use could be allowed on some trails in the backcountry and designated wilderness zones.

PARK OPERATIONS

Many elements of park operations would remain the same as in alternative A. Most of

the changes that would occur already have been described in other elements of alternative C, particularly including "Facilities and Associated Visitor Activities." They include the following:

- A new administrative facility would be constructed south of U.S. Highway 62/180. Most administrative offices would be moved from the visitor center building to this new facility.
- Sanitation facilities in wilderness threshold zones could be provided or improved. Sanitary facilities would be provided at backcountry and designated wilderness zone campsites.
- Ship-on-the-Desert would be rehabilitated and would become the centerpiece for research and education programs that could include cooperative partners in additional facilities.
- Operations improvements at Dog Canyon would include an enlarged water storage system and a fire building.
- A ranger staff residence would be constructed in the vicinity of the new campground and trailhead at the Salt Basin Dunes.
- A shuttle system to serve trailheads would be considered to allow one-way hiking trips.
- A sanitation facility would be constructed at Pine Top patrol cabin in the backcountry zone.

A commercial services plan would be prepared to evaluate the potential for providing park services that are necessary and appropriate through concessioners. Opportunities could include, but would not be limited to, operation of the new campground in the vicinity of Pine Springs or Frijole Ranch, commercial horse operations at Frijole Ranch and/or Dog Canyon, and a hikers' shuttle. However, they would not include any facilities such as a gasoline station or a store.

BOUNDARY ADJUSTMENT

Alternative C would include a boundary adjustment like that described in alternative A.

COSTS

The estimated costs to fully implement alternative C were shown in table 4. The costs in the table provide a relative sense of the resources necessary to implement this alternative. The cost estimate is in 2006 dollars and has been rounded to the nearest thousand dollars. These estimates should not be used for budgetary purposes.

The total one-time cost to implement alternative C would be $18,743,000. This alternative would include extensive facility and non-facility costs, including a new administrative facility, a new campground in the vicinity of Pine Springs or Frijole Ranch, improved visitor contract stations, and improvements to the historic Ship-on-the-Desert and Pratt Cabin structures. The total estimated cost for one-time construction-related actions would be $16,563,000.

This alternative would include resource management actions, and orientation and interpretation materials. The total for one-time non-facility costs would be $2,180,000, including $2,030,000 for resource management and $150,000 for visitor experience and orientation.

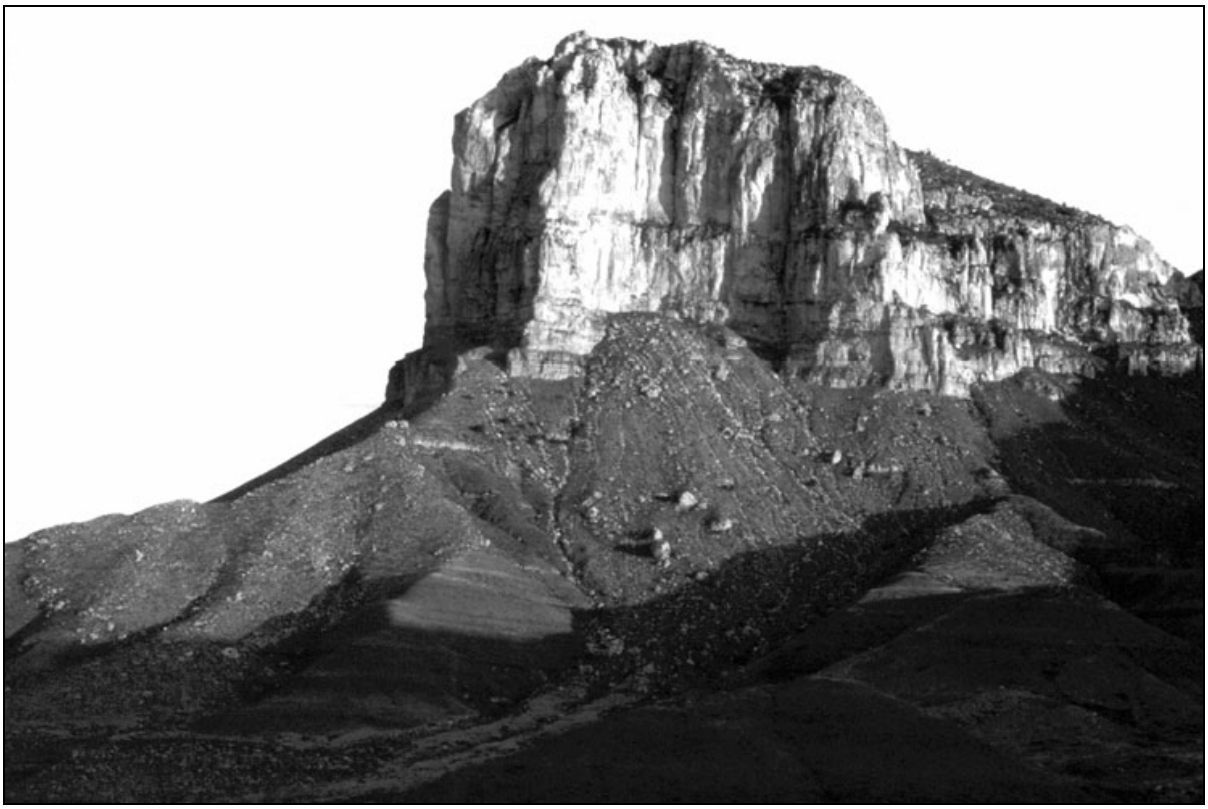
To meet annual operating costs, the estimated base budget would need to be $3,623,000. The increase would cover the costs of additional employees.

The total number of full-time employees would be 44, which would exceed the target number identified in the core operations strategy. Under this alternative, the number of full-time NPS employees would increase to address the additional resource management, maintenance, and visitor services.

There may be less operational flexibility because of the increased number of staff necessary to implement the alternative.

The total amount of deferred maintenance in the park would likely remain relatively constant over time. The housing units currently being used for administrative office space would be converted back into housing once the headquarters building was completed. Rehabilitating these structures so that they could again be used as housing would address any deferred maintenance on these structures. Because the contribution of the housing structures to the total deferred maintenance is small, there would be only a nominal change in the deferred maintenance needs at the park.

Over time, new deferred maintenance demand could develop from the increase in facilities at trailheads and more intensive use of some facilities. The National Park Service probably would have less flexibility to address deferred maintenance actions in a timely manner or to implement priority actions that could be funded from the park budget.



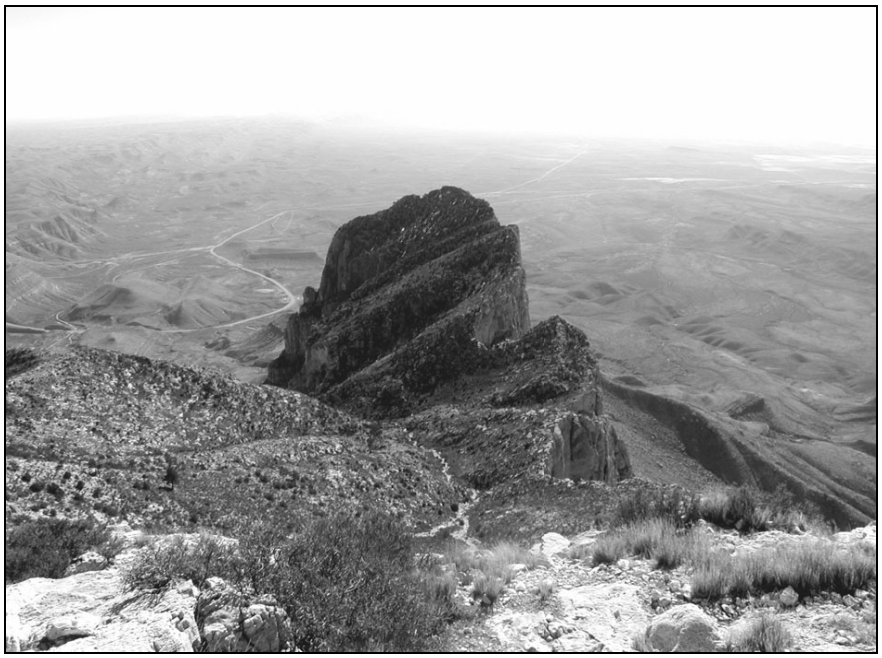
El Capitan

IMPLEMENTATION

Implementation of the actions proposed in the general management plan would be based on the availability of funding and would occur over time. The park would prioritize implementation to focus on visitor experience and safety, resource protection, and operational efficiency and effectiveness.

It is unlikely that the operating budget for the park would change substantially during the planning horizon for this general management plan. Therefore the park staff would seek ways to increase operational flexibility and efficiency, which would allow park staff to accomplish some tasks proposed in this plan within the existing operational budget. Some additional sources of funding could be available, but such funds would be limited and could not be relied on to fully implement the selected alternative.

To fully implement the general management plan, the National Park Service would consider other mechanisms, including partnerships and providing some visitor services through a concession operation. It is a priority for park management to build partnerships with park neighbors and others to help preserve common resources, build and sustain a community of volunteers who are actively engaged in stewardship of park resources, and enhance visitor education. Concession operations would be considered for actions determined to be necessary and appropriate commercial visitor services and would be implemented in accordance with a commercial services plan.



El Capitan from Guadalupe Peak

MITIGATIVE MEASURES

Congress charged the National Park Service with managing the lands under its stewardship "in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (Organic Act, 16 United States Code 1). As a result, the National Park Service routinely evaluates and implements mitigation whenever conditions occur that could adversely affect the sustainability of national park system resources.

To ensure that implementation of the action alternatives would protect unimpaired natural and cultural resources and the quality of the visitor experience, a consistent set of mitigation measures would be applied to actions proposed in this plan. The National Park Service would prepare appropriate environmental review, as required by the National Environmental Policy Act, National Historic Preservation Act, and other relevant legislation, for future actions. As part of the environmental review, the National Park Service would avoid, minimize, and mitigate adverse impacts when practicable. The implementation of a compliance-monitoring program could be considered to stay within the parameters of such requirements as National Environmental Policy Act and National Historic Preservation Act compliance documents, and U.S. Army Corps of Engineers Section 404 permits. The compliance-monitoring program would oversee these mitigation measures and would include reporting protocols.

The following mitigation measures and best management practices would be applied to avoid or minimize potential impacts from implementation of the alternatives. These measures would apply to all alternatives. Although this plan does not provide for extensive construction, any construction or other actions would meet these mitigative measures.

NATURAL RESOURCES

Air Quality

- Implement a dust abatement program. Standard dust abatement measures could include watering or other measures to stabilize soils, covering haul trucks, employing speed limits on unpaved roads, minimizing vegetation clearing, and revegetating after construction.
- Encourage construction contractors to use low-pollution fuels and low-emission vehicles.
- Encourage construction companies to use equipment that has been retrofitted to reduce emissions.
- Limit the amount of time construction vehicles idle.
- Encourage drivers of recreational vehicles and tour buses to not let their engines idle.

Exotic Species

Implement a noxious weed abatement program. Standard measures could include ensuring construction-related equipment arrives on the site free of mud or seed-bearing material, certifying all seeds and straw material as weed-free, identifying areas of noxious weeds before construction begins, requiring visitors to certify that all horse feed, including hay, that is carried into the park is weed free, treating noxious weeds or noxious weed topsoil before construction, and revegetating with appropriate native species.

Soils

Build new facilities on soils suitable for development. Minimize soil erosion by limiting the time that soil is left exposed. Apply erosion control measures, such as erosion mat-

ting, silt fencing, and sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies. To conserve available organic matter, any topsoil that is present would be retained and replaced. Once work was completed, revegetate construction areas with native plants in a timely period. Monitor for visitor impacts, particularly in sensitive or highly visited areas.

Paleontological Resources

Collect and/or stabilize (in place) fossils that might be destroyed or damaged by construction and maintenance activities.

Rare, Threatened, and Endangered Species

Mitigation actions would occur during normal park operations as well as before, during, and after construction to minimize immediate and long-term impacts to rare, threatened, and endangered species. These actions would vary by specific project and area of the national park affected. Many of the measures listed below for vegetation and wildlife would also benefit rare, threatened, and endangered species by helping to preserve habitat. Mitigation actions specific to rare, threatened, and endangered species would include the following:

- Conduct surveys for rare, threatened, and endangered species, as warranted.
- Site and design facilities or actions to avoid adverse effects on rare, threatened, and endangered species. If avoidance is infeasible, minimize and compensate for adverse effects on rare, threatened, and endangered species as appropriate and in consultation with the appropriate resource agencies.
- Develop and implement restoration and/or monitoring plans, as warranted. Plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.
- Implement measures to reduce adverse effects of nonnative plants and wildlife on rare, threatened, and endangered species.

Plant Communities and Vegetation

- Monitor areas used by visitors, such as trails, for signs of native vegetation disturbance, such as trampling of vegetation, social trails, and widening of trails beyond constructed width through use. Use public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers to control potential impacts on plants from trail erosion or social trailing.
- Use barriers and closures to prevent trampling and loss of riparian vegetation.
- Develop revegetation plans for the disturbed area and require the use of native species. Revegetation plans should specify measures such as seed or plant source, seed and plant mixes, and soil preparation. Salvage vegetation should be used to the maximum extent possible.

Water Resources

- To prevent water pollution during construction, use erosion control measures, minimize discharge to water bodies, and regularly inspect construction equipment for leaks of petroleum and other chemicals.
- Build a runoff filtration system to minimize water pollution from larger parking areas.
- Work to minimize erosion from trails.

Water Quality

Continue to remove horse manure from the park operations corrals daily to reduce the potential for water quality impacts associated with nonpoint source pollution. Park staff will also remove horse manure from public corrals if visitors fail to do so. Horses

are not allowed in McKittrick Canyon, the only area of the park with a trail close to a primary perennial source of water.

Wetlands

Delineate wetlands and apply protection measures during construction. Wetlands would be delineated by qualified NPS staff or certified wetland specialists and clearly marked before construction work. Perform construction activities in a cautious manner to prevent damage caused by equipment, erosion, or siltation.

Improve trails through wetland areas to minimize impacts on vegetation.

Wildlife

- Employ techniques to reduce impacts on wildlife, including visitor education programs, restrictions on visitor activities, and park ranger patrols.
- Implement a natural resource protection program. Standard measures would include construction scheduling, biological monitoring, erosion and sediment control, the use of fencing or other means to protect sensitive resources adjacent to construction, the removal of all food-related items or rubbish, topsoil salvage, and revegetation. This could include specific construction monitoring by resource specialists as well as treatment and reporting procedures.
- Schedule activities in or near water sources to minimize disturbance to wildlife. For example, when water is scarce, the park would seek to avoid activities that would cause wildlife to avoid what water is available.

CULTURAL RESOURCES

The National Park Service would preserve and protect, to the greatest extent possible, resources that reflect the human occupation of what is now Guadalupe Mountains National Park. Specific mitigation measures, if needed, would include the following:

- Subject projects to site-specific planning and compliance. Make all efforts to avoid adverse impacts through use of the Secretary of the Interior's (1983) *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*, and by using screening and/or sensitive design that would be compatible with historic resources. If adverse impacts could not be avoided, mitigate these impacts through a consultation process with all interested parties.
- Before disturbing or modifying any cultural resources that are eligible or listed in the National Register of Historic Places, consult with the Texas state historic preservation officer, the Advisory Council for Historic Preservation, and any appropriate traditionally associated American Indian tribes.
- Inventory all unsurveyed areas in the park for archeological, historical, and ethnographic resources as well as cultural and ethnographic landscapes. Conduct archeological surveys in unsurveyed areas where development would occur to determine the extent and significance of archeological resources in the areas.
- Document cultural and ethnographic landscapes in the park and identify treatments.
- Conduct archeological site monitoring and routine protection. Conduct data recovery excavations at archeological sites threatened with destruction, where protection or site avoidance during design and construction is infeasible.
- Avoid or mitigate impacts on ethnographic resources. Mitigation could include identification of and assistance in accessing alternative resource gathering areas, continuing to provide access to traditional use and spiritual areas, and

screening new development from traditional use areas.

- Continue ongoing consultations with traditionally associated American Indian tribes. Protect sensitive traditional use areas to the extent feasible.
- Implement mitigation measures for structures and landscapes, including documentation according to standards of the Historic American Buildings Survey / Historic American Engineering Record / Historic American Landscape Survey (HABS/HAER/HALS). The level of this documentation, which includes photography, archeological data recovery, and/or a narrative history, would depend on significance (national, state, or local) and individual attributes (such as an individually significant structure, or individual elements of a cultural landscape). The appropriate level of documentation would be determined in consultation with the state historic preservation officer. When demolition of a historic structure is proposed, architectural elements and objects may be salvaged for reuse in rehabilitating similar structures, or they may be added to the park's museum collections. In addition, the historical alteration of the human environment and reasons for that alteration would be interpreted to national park visitors.
- Whenever possible, modify project design features to avoid effects on cultural resources. New developments would be relatively limited and would be located on sites that blend with cultural landscapes and that are not adjacent to ethnographic resources. If necessary, use vegetative screening to minimize impacts on cultural landscapes and ethnographic resources.
- Encourage visitors through the park's interpretive programs to respect and leave undisturbed any inadvertently encountered archeological resources, and to respect and leave undisturbed any offerings placed by American Indians.
- Strictly adhere to NPS standards and guidelines on the display and care of artifacts. This would include artifacts used in exhibits in the visitor facilities. Irreplaceable items would be kept above the 500-year floodplain.

VISITOR SAFETY AND EXPERIENCES

- Implement a traffic control plan, as warranted. Standard measures include strategies to maintain safe and efficient traffic flow during the construction period.
- Implement measures to reduce adverse effects of construction on visitor safety and experience.
- Implement an interpretation and education program. Continue directional signs and education programs to promote understanding among national park visitors.
- Based on the completed accessibility study that identifies barriers to park programs and facilities for people with impaired mobility, implement a strategy to provide the maximum level of accessibility.

HAZARDOUS MATERIALS

Implement a spill prevention and pollution control program for hazardous materials. Standard measures could include hazardous materials storage and handling procedures; spill containment, cleanup, and reporting procedures; and limitation of refueling and other hazardous activities to upland or nonsensitive sites.

NOISE ABATEMENT

Implement standard noise abatement measures during construction and daily park operations. Standard noise abatement measures could include a schedule that minimizes impacts on adjacent noise-sensitive uses, the

use of the best available noise control techniques wherever feasible, the use of hydraulically or electrically powered impact tools when feasible, and the location of stationary noise sources as far from sensitive uses as possible.

Mitigation measures would be applied to protect the natural sounds in the national park. Specific actions could include, but would not be limited to siting and designing facilities to minimize objectionable noise, and exploring opportunities to reduce the sounds of human-caused noise.

SCENIC RESOURCES

Design and implement mitigation measures to minimize visual intrusions. These include the following:

- Where appropriate, use facilities fences to route people away from sensitive natural and cultural resources, while still permitting access to important viewpoints.
- Design, site, and construct facilities to avoid or minimize adverse effects on natural and cultural resources and visual intrusion into the natural and/or cultural landscape.
- Provide vegetative screening, where appropriate.
- Work with owners of adjacent properties to protect air quality, which affects scenic views.

SOCIOECONOMIC ENVIRONMENT

During the future planning and implementation of the approved general management plan for Guadalupe Mountains National Park, the National Park Service would work with local communities and county governments to further identify potential impacts and mitigation measures that would best serve the interests and concerns of both the National Park Service and the local communities. Partnerships would be pursued to improve the quality and diversity of community amenities and services.

SUSTAINABLE DESIGN AND AESTHETICS

Avoid or minimize adverse project impacts on natural and cultural resources. Development projects, such as buildings, utilities, roads, bridges, or trails, or reconstruction projects, such as road reconstruction, building rehabilitation, or utility upgrades, would be designed to work in harmony with the surroundings, particularly in historic landscapes. Projects would reduce, minimize, or eliminate air and water nonpoint-source pollution. Projects would be sustainable whenever practicable, by

- recycling and reusing materials
- minimizing materials
- minimizing energy consumption during the project construction
- minimizing energy consumption throughout the lifespan of the project

FUTURE STUDIES AND IMPLEMENTATION PLANS

A number of studies and plans are required to implement this general management plan.

SPECIFIC PLANNING DOCUMENTS

The documents that would be necessary to implement this general management plan under the various alternatives are as follows.

Alternative A

As situations arise, the National Park Service will prepare environmental compliance actions and other planning-related documents, as necessary.

Preferred Alternative

The following specific planning documents would be necessary to implement the actions that would be part of the preferred alternative.

1. A Pine Springs campground development concept plan would identify the location and design of a new campground for the Pine Springs area.

2. A Salt Basin Dunes development concept plan would identify access routes, trails, and the facility and public services layout for visitors.

3. A Frijole Ranch development concept plan would identify parking, picnic area, and restroom locations and would determine how best to preserve the historic cultural landscape.

4. Exhibits plans would be prepared for the expanded natural, geological, and cultural resources and wilderness exhibits at the Pine Springs visitor center, and for the new ranching history exhibits at the Frijole Ranch house.

5. A wilderness study would be completed on those areas identified as eligible for wilderness, and a wilderness study recommendation would be made to Congress.

6. A site plan and construction plans would be prepared for the construction of a new administration complex to be built in the Pine Springs developed zone near the maintenance area.

7. A commercial services plan would be prepared to evaluate the potential for providing park services that are necessary and appropriate through commercial services agreements.

8. A site plan, construction plans, and exhibit plan would be completed for the building to house the stagecoach at the Pinery.

Alternative B

In addition to plans 2, 3, 4, and 5 under the preferred alternative, the following specific planning document would be necessary to implement actions identified as part of alternative B.

1. A restoration plan would be prepared for the oak woodland after removal of the Pine Springs campground.

2. A restoration plan would be prepared for the area from which horse operations were removed at Pine Springs and Dog Canyon.

Alternative C

In addition to plans 5, 6, and 7 listed under the preferred alternative, the following specific planning documents would be necessary to implement actions identified as part of alternative C:

1. The Pine Springs campground development concept plan would be expanded to identify the location and design of a new group picnic area also in the Pine Springs area.

2. A development concept plan for the Salt Basin Dunes would plan the location and design of the contact station, campground, ranger station, access routes, trails, roads, parking and picnic areas, and the facility and public services layout.

3. A Frijole Ranch development concept plan would identify the site characteristics and location of a cultural museum, and would locate the parking area, picnic area, and restroom to preserve the historic cultural landscape.

4. Frijole Ranch cultural museum construction plans would guide the construction of a new museum facility for ranching exhibits.

5. A historic furnishings plan would guide the rehabilitation and furnishing of the interior of Frijole Ranch house to interpret the site as a living history ranch.

6. A trail development plan would identify the location and construction plans for proposed new trails and for bridge construction on McKittrick Trail.

7. An exhibit plan would guide cultural exhibits for the Williams Ranch interior.

IMPLEMENTATION PLANS

The following implementation plans would be needed for different aspects of park management under all alternatives. Implementation plans are needed to fulfill the requirements to adequately manage the park, and are identified as requirements by Department of the Interior or NPS policy, government regulation, or other sources. The content of these plans may vary, depending on the alternative selected. However, the goals, objectives, and overall direction for all implementation plans are established in this general management plan, which is the umbrella document from which all future planning efforts will tier.

Implementation plans require periodic review and revision, as well as environmental compliance and public review. Implementation plans will include, but may not be limited to, the following:

- *Cave Management Plan, Guadalupe Mountains National Park* — last revised in 1991
- *Land Protection Plan* — last revised in 1992
- *Backcountry/Wilderness Management Plan* — last revised in 1995
- *Superintendent's Statement for Management* — last revised in 1995
- *Fire Management Plan for Guadalupe Mountains National Park* — last revised in 2005
- resource stewardship strategy, currently in progress
- desert bighorn sheep reintroduction plan
- long-range interpretive and program management plan, which would define specific goals and recommendations for interpretation
- McKittrick Canyon management plan
- nonnative species (aoudad) removal plan

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will best promote the national environmental policy expressed in Section 101 of the National Environmental Policy Act of 1969. The environmentally preferred alternative is determined by applying the criteria in the National Environmental Policy Act, which are listed in table 5, in a manner consistent with the Council on Environmental Quality's (1978) implementing regulations. According to section 101, the environmentally preferred alternative would also "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."

Table 5: Environmentally Preferred Alternative Analysis

CRITERIA	ALTERNATIVE A	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.	X	X	X	X
2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.		X	X	X
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.		X		
4. Preserve important historical, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.	X	X	X	X
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.		X		
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.	X	X	X	X
Total criteria met	3	6	4	4

In the National Park Service, the requirement to identify the environmentally preferred alternative is met by

- disclosing how each alternative meets the criteria (in table 5) set forth in section 101(b) of the National Environmental Policy Act
- presenting any inconsistencies between the alternatives analyzed and other environmental laws and policies (NPS 2001a DO-12)

Alternative A, No Action / Continue Current Management, meets criterion 1 (fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations) and criterion 4 (preserving important natural and cultural resources). The establishment of the park removed park lands and their natural and cultural resources from human-caused change, preserving natural resources in their natural state and cultural resources in their present condition for future generations to appreciate and enjoy. Alternative A also meets criterion 6 (to enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources). All facilities

rehabilitated would achieve the maximum in sustainability, would conserve resources and energy use, and would achieve the longest life possible.

Alternative B is a minimal development, maximum preservation alternative. Alternative B has all of the advantages of alternative A in meeting criteria 1 and 4, and would be more effective in meeting criterion 6 because any new facilities would be constructed to achieve the maximum in sustainability, conserve resources and energy use, and achieve the longest life possible. In addition, alternative B meets criterion 2 by taking a more aggressive posture in preserving natural conditions while providing minimal developed or formalized amenities and upgrading or removing dilapidated, unused, or dangerous facilities.

Alternative C also would preserve most undeveloped areas, protect natural resources, and safeguard cultural resources. However, to achieve the goal of enhanced visitor experiences and opportunities, this alternative would provide for the most development at more sites compared to the other alternatives. Alternative C would meet criteria 1, 4, and 6, although not as well as the no action alternative or alternative B, and would be as effective as alternative B in meeting the second criterion.

The preferred alternative would achieve a balance of resource preservation similar to alternative B while providing many of the enhanced experience opportunities of alternative C. Therefore, it would be as effective as these alternatives in meeting criteria 1,2, 4, and 6. The preferred alternative also meets criterion 3 by attaining the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences through the balanced use of natural and cultural resources and human developments. The preferred alternative meets criterion 5 by achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities while conserving and protecting resources for use and enjoyment. Working with surrounding landowners to achieve mutual land management objectives is consistent with the alternative.

The environmentally preferred alternative in this environmental impact statement is the NPS' preferred alternative. The preferred alternative exceeds the other alternatives in realizing the full range of the Section 101 National Environmental Policy Act goals, based on greater improvements to natural and cultural resource preservation, visitor and employee safety, and park operations and long-term operational costs.

ALTERNATIVES OR ACTIONS CONSIDERED BUT DISMISSED FROM DETAILED EVALUATION

Public involvement, including scoping, that was conducted in association with preparing this general management plan is described in Chapter 5: Consultation and Coordination. Some of the alternatives or actions suggested during scoping were not incorporated into this general management plan. Consistent with Section 1502.14 of the Council on Environmental Quality (1978) guidelines for implementing the National Environmental Policy Act, this section identifies those alternatives or actions and briefly discusses the reasons why they were eliminated.

As described in Chapter 5, the identification of issues and development of alternatives provided opportunities for public and agency input through responses to newsletters, at meetings, and via the Internet. However, not all actions suggested by the public and agencies were incorporated into the alternatives that are analyzed here. Actions or alternatives were eliminated from further consideration because they:

- were not feasible
- are already prescribed by law, regulation, or policy
- would be in violation of laws, regulations, or policies
- were too detailed for the broad scope of a general management plan

The complete list of public suggestions from scoping, summarized by category, is provided in appendix F. This section briefly describes each of these suggestions and the basis for excluding each from this general management plan.

Resource Management

- Preserve unique flora, fauna, geologic, and paleontological resources — This already is required by federal law.
- Protect historical, archeological, and ethnographic resources — This already is required by federal law.
- Protect air quality — Although the park is classified as a class 1 air quality management area, the park staff has limited ability to address air pollution that drifts to the park from regional sources, particularly pollution sources in Mexico.
- Actions that impair resources — Federal law requires that park resources must be protected from impairment.
- Allow grazing, fishing, and hunting — When these activities are not specifically included in the park's enabling legislation, they are prohibited by federal regulation. The enabling legislation for Guadalupe Mountains National Park does not include hunting and grazing.
- Provide artificial water sources for wildlife — Unjustified intervention in natural water sources could impact the natural ecological system in violation of NPS policies.
- Control park weed and predator impacts on neighboring ranches — Specific resource management measures that address park impacts on adjacent lands would be addressed in the park's resource stewardship plan that would tier from this general management plan.
- Protect resources on adjacent private lands — NPS policy directs park managers to work with adjacent owners to promote land management that is compatible with NPS resource preservation values.

Public Use and Understanding

- Reduce or expand designated wilderness areas — Park lands can only be designated or undesignated as wilderness by Congress.

- Eliminate public access and use — Public use that is consistent with resource preservation must be provided as required by federal law.
- Allow motor vehicle access to the high country — Most of the high country lands have been designated by Congress as wilderness, which prohibits motor vehicle use.
- Allow mountain bike use on trails — Mountain bike use is prohibited on park trails by federal regulation; however, mountain biking is permitted on all park roads open to motor vehicles.

Facilities and Operations

- Quality of park facilities — NPS policy requires park facilities to be harmonious with park resources, compatible with natural processes, aesthetically pleasing, functional, energy-efficient, cost-effective, and as accessible as possible to all segments of the population (federal law).
- Sell or lease portions of park lands — This would violate federal law.
- Relationship with park neighbors — NPS policy directs park managers to work with adjacent owners on shared resource preservation issues.
- Public trespassing or uses outside the boundaries — NPS policy directs park managers to work with adjacent owners on issues of concern that could include trespassing.

Other Considerations

A preliminary alternative, designated "D," was discussed in *Newsletter 2*. This preliminary alternative was eliminated from further consideration because the National Park Service determined that while coordination of management objectives with neighboring landowners (federal and private) is a goal of park management, all of the coordination, cooperation, and partnership activities emphasized in that alternative should take place whenever possible in all alternatives.

The master plan for managing and developing Guadalupe Mountains National Park (NPS 1976) included a proposal to develop a tram to the top of Guadalupe Peak. An impact analysis identified many unresolved questions regarding the tram. The wilderness boundaries designated in the 1978 wilderness designation excluded the route of the proposed tram from wilderness designation because of these unresolved issues. Subsequently, formal engineering studies were conducted on the tram proposal. They concluded that it was not feasible to construct a tram in this area because of the high winds, and that a tram would be economically infeasible to construct and maintain. As a result, the tram proposal has been dropped from further consideration, and the tram corridor can now be included for consideration in the planned wilderness study.

The possibility of rerouting Highway 62/180 was suggested, so that highway traffic would not be going through the park and the road through the park could be a more leisurely, scenic route. This was dismissed as economically unfeasible.

It was suggested that a road should be constructed from Williams Ranch north along the bajadas to near the northern boundary at PX Well. This road was dismissed from further consideration because it would require construction of numerous bridges and culverts to cross many arroyos and other drainages, resulting in prohibitive costs. In addition, it would cross lands that have been found eligible for future consideration as wilderness.

SUMMARIES

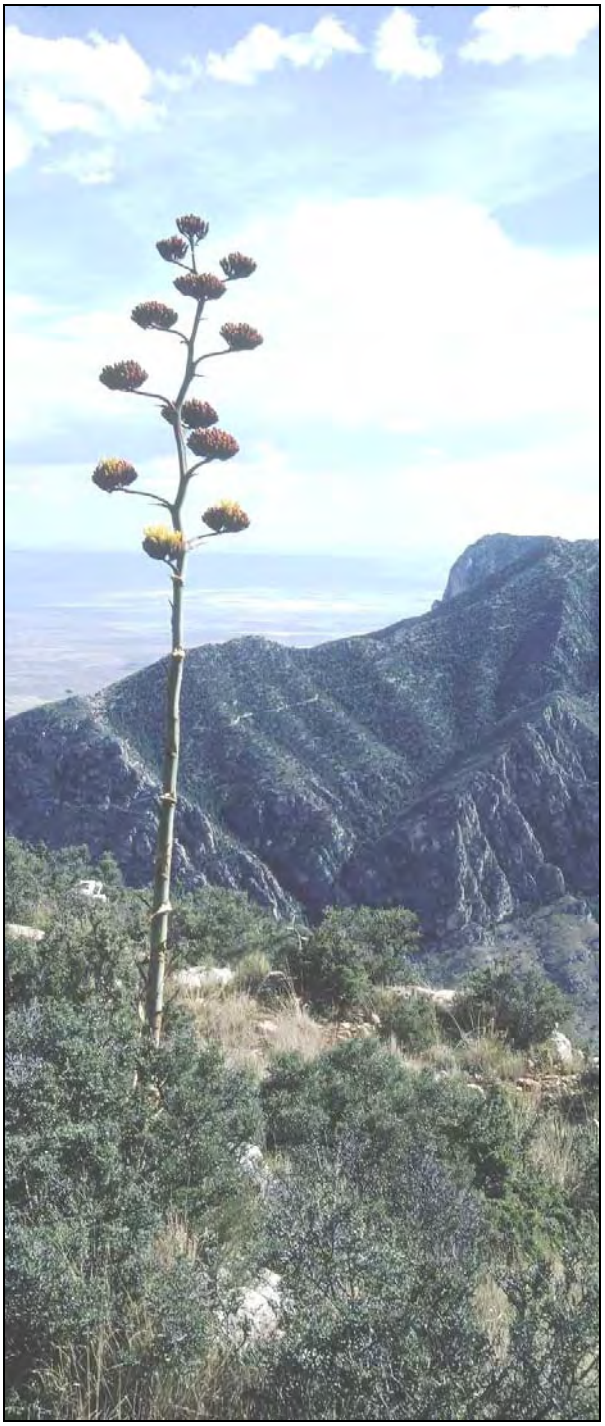
NPS guidance in *Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001a) requires that environmental impact statements include several summaries that will facilitate reader understanding. The important features of each alternative are summarized in table 6. Detailed descriptions of the features of each alternative were provided earlier in this section.

The NPS guidance in Director's Order #12 states that another summary should present "the impacts of each alternative, including a determination of potential improvement to park resources." Table 7 provides a brief summary of the effects of each of the alternatives on the impact topics retained for analysis.

- Table 7 includes both adverse and beneficial effects of the alternatives and identifies their intensity (negligible, minor, moderate, or major), duration (short-term or long-term), geographic area of effect, and whether they would be direct or indirect.
- The table also summarizes whether unacceptable impacts or impairment would occur to the park's scenery, natural and historic objects, or wildlife such that they could not be enjoyed by future generations.

More detailed information supporting table 7 on the effects of the alternatives is provided in Chapter 4: Environmental Consequences.

A summary of how each alternative would achieve the requirements of Sections 101 and 102(1) of the National Environmental Policy Act was included in the text and table 5 under the heading "Environmentally Preferred Alternative."



Sotol in high country

Table 6: Features of the Alternatives

Feature	Alternative A: No Action	Preferred Alternative	Alternative B	Alternative C
Facilities and Associated Visitor Activities				
Pine Springs	Continue current management.	Apply management zoning to include developed, frontcountry, wilderness threshold, and backcountry zones. Move most office space out of the visitor center and remodel to add exhibit space and areas for other interpretation and education activities. Enhance existing exhibits and add cultural resource exhibits from Frijole Ranch. Construct a new facility in the Pinery area to exhibit a stagecoach. Move recreational vehicle camping from the trailhead parking lot. Manage the trailhead area for hikers and picnickers. Construct a new, larger campground. Consider contracting the operation of this facility under a commercial services agreement. Construct new administrative facilities south of U.S. Highway 62/180.	Apply management zoning to include developed, frontcountry, wilderness threshold, and backcountry zones. Enhance existing exhibits and add cultural exhibits from Frijole Ranch and new wilderness exhibits. Eliminate all camping in the area and restore tent campground to a natural condition. Manage the trailhead area for wilderness hikers and picnickers. Address administrative needs by adapting existing structures in the housing area south of U.S. Highway 62/180.	Apply management zoning to include developed, frontcountry, wilderness threshold, and backcountry zones. Remodel the visitor center for new exhibits and space for programs, classrooms, and group events. Keep existing exhibits and add cultural, wilderness, and leave-no-trace exhibits. Expand orientation. Improve interpretive walk at the Pinery area. Construct a new facility to exhibit a stagecoach. Move recreational vehicle camping from the trailhead parking lot. Manage the trailhead area for hikers and picnickers. Construct a new group picnic area. Construct a new, larger campground. Consider contracting the operation of this facility under a commercial services agreement. Construct new administrative facilities south of U.S. Highway 62/180.

Table 6: Features of the Alternatives (Continued)

FEATURE	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Frijole Ranch	Continue current manage-ment.	Apply management zoning to include developed, frontcountry, and wilderness threshold zones. Move the cultural resource museum from Frijole Ranch house to the visitor center. Rehabilitate the house, outbuildings, garden, and orchard as an integrated cultural landscape that interprets west Texas ranching history from around 1900. Continue to dredge Manzanita Spring periodically to maintain an open pond. Develop a small, hike-in campground below the eastern escarpment that was accessible from the parking lot trailhead. Maintain the public corral.	Apply management zoning to include developed, frontcountry, and wilderness threshold zones. Continue to manage for day use only. Allow Manzanita Spring to naturally fill with sediment and return to a natural wetland. Remove the public corral and NPS pack animal operations.	Apply management zoning to include developed and frontcountry zones. Change the area to be a visitor gateway for ex-panded, dispersed day use and overnight camping. Established a living history working ranch with a refurnished ranch house, new cultural exhibits, and a rehabilitated cultural landscape. Relocate the ranching exhibits from the ranch house to another onsite structure. Improve the trail to Smith Spring. Continue to dredge Manzanita Spring periodically to maintain an open pond. Develop a small, hike-in campground below the eastern escarpment that was accessible from the parking lot trailhead. Expand the public corral for commercial packers or a horse concession. Consider contracting the op-eration of this facility under a commercial services agreement.
McKittrick Canyon	Continue current manage-ment, includ-ing removal of the power line and solar system.	Apply management zoning to include developed, wilderness threshold, and designated wilderness zones. Upgrade the visitor contact station. Improve the McKittrick Nature Trail Use Pratt Cabin as an interpretive center, prefera-bly without sanitary facilities. If this proves not feasible, consider a new, small, minimum-impact restroom. Rehabilitate the Pratt Cabin cultural landscape. Remove the power line and solar system.	Apply management zoning to include developed, wilderness threshold, and des-ignated wilderness zones. The visitor contact station would empha-size self-discovery opportunities, wilder-ness, and leave-no-trace use of the land. Restrooms would not be provided in the Pratt Cabin area. Remove the power line and solar system.	Apply management zoning to include developed, frontcountry, and designated wilderness zones. Develop the area as visitor gateway with a wider variety and number of opportunities. Upgrade the visitor contact station. Improve the McKittrick Nature Trail to provide ac-cess to the seep for visitors with impaired mobility. Manage the McKittrick Canyon Trail to improve resource protection, despite increased use. Con-struct bridges across the creek to protect limestone precipitate formations and prevent turbidity. Provide water and restrooms at Pratt Cabin and use the building as an interpretive center with some overnight use and visitor programs. Expand the solar system to provide electricity to this facility. Remove the power line.
Dog Canyon	Continue current	Apply management zoning to include developed, wilderness threshold, and designated wilderness	Apply management zoning to include developed, wilderness threshold, and des-	Apply management zoning to include developed, frontcountry, and designated wilderness zones.

Table 6: Features of the Alternatives (Continued)

Feature	Alternative A: No Action	Preferred Alternative	Alternative B	Alternative C
	manage-ment.	zones. Improve and expand the visitor contact station. Construct one new group campsite. Enlarge the water storage system. Construct a fire building.	ignated wilderness zones. Improve and expand the visitor contact station. Remove recreational vehicle camping and restore the site to a natural condition. Enlarge the water storage system. Remove the public horse corral and NPS pack horse operation, and restore the sites to a natural condition.	Develop the area as a visitor gateway with a wider variety and number of day use and overnight camping opportunities. Improve and expand the visitor contact station. Improve the Indian Meadow Nature Trail to provide access for visitors with impaired mobility. Construct a new trail segment between the Tejas and Bush Mountain Trails to create a loop trail. Expand the trailhead and construct a picnic area. Construct one new group campsite. Upgrade the recreational vehicle camping area and provide a sanitary dump station. Expand the public corral for commercial packers or a horse concession. Consider contracting the operation of the camping and horse facilities under a commercial services agreement. Enlarge the water storage system. Construct a fire building.
Salt Basin Dunes	Continue current manage-ment.	Apply management zoning to include frontcountry, motorized scenic corridor, and backcountry zones. Minimally upgrade the road. Create a new trailhead about a mile within the park with a parking lot, picnic tables, and restroom. Visitors could hike about a mile to the dunes on a primitive trail. Improve orientation and interpretation. Improve Dell City visitor contact station to provide visitor access even when the contact station is not staffed. Improve orientation and interpretation at the Dell City contact station.	Apply management zoning to include frontcountry, wilderness threshold, and backcountry zones. Create a new trailhead just inside the park boundary with a parking lot, picnic tables, and restroom. Visitors could hike about 2 miles to the dunes on a primitive trail. Improve orientation and interpretation for this natural feature at the Dell City interpretive facility.	Apply management zoning to include developed, frontcountry, motorized scenic corridor, and backcountry zones. Substantially upgrade the road to provide use by low-clearance vehicles. Within the developed zone, construct a new contact station, ranger station, parking area, trailhead, comfort station, and campground. Visitors could hike about a mile to the dunes on a developed trail. Improve orientation and interpretation.
Williams Ranch	Continue current manage-	Apply management zoning to include frontcountry, motorized scenic corridor, backcountry, and designated wilderness zones.	Apply management zoning to include frontcountry, motorized scenic corridor, backcountry, and designated wilderness	Apply management zoning to include frontcountry, motorized scenic corridor, backcountry, and designated wilderness zones.

Table 6: Features of the Alternatives (Continued)

FEATURE	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
	ment.	Upgrade road design to better resist water damage, but continue to limit use to high-clearance vehicles. Rehabilitate the exterior of the Williams Ranch house and the cultural landscape. Expand the parking lot.	zones. Manage the road and parking lot as described in alternative A. Rehabilitate the exterior of the Williams Ranch house and stabilize the cultural landscape.	End the permit requirement for the road. Upgrade the road to be a single-lane, all-weather, low-clearance vehicle road. Extend the road from Williams Ranch to the western boundary of the park. Rehabilitate the exterior and interior of the Williams Ranch house and use it as a museum. Rehabilitate the cultural landscape. Expand the parking lot.
Other visitor facilities	Continue current management.	At Ship-on-the-Desert, apply developed and motorized scenic corridor management zones. Rehabilitate the building and cultural landscape; use them to support research, education, and operation activities; and construct a nearby administrative campground. At PX Well, apply frontcountry, motorized scenic corridor, and backcountry zones. Upgrade the road with a new base course. Construct a new trailhead that provides access to primitive hiking and riding trails, including some former ranch road traces. Upgrade the Dell City visitor contact station. In the Guadalupe Pass area, minimally improve the trailhead by providing signage and an enlarged parking area.	At Ship-on-the-Desert, apply developed and motorized scenic corridor management zones. Preserve the building and cultural landscape. Assign PX Well to the backcountry zone and maintain it as a discovery site. Upgrade the Dell City visitor contact station. In the Guadalupe Pass area, provide the same improvements described for the preferred alternative.	At Ship-on-the-Desert, apply developed and motorized scenic corridor management zones. Rehabilitate the building and cultural landscape and use them as the centerpiece for an expanded research and education program that could include cooperative partners in additional facilities. Manage PX Well as described in the preferred alternative. In addition, construct a small, primitive camping facility. Close the Dell City visitor contact station. In the Guadalupe Pass area, provide the same improvements similar to those described for the preferred alternative, but with a larger parking lot.

Table 6: Features of the Alternatives (Continued)

Feature	Alternative A: No Action	Preferred Alternative	Alternative B	Alternative C
Natural Resources				
Wilderness	Continue current management.	Apply management zoning to include backcountry and designated wilderness zones. Prepare a recommendation for study for formal wilderness designation for the areas that were found eligible for future consideration as wilderness. Expand education regarding wilderness importance and protection. Consider installing primitive sanitary facilities when they are needed to protect resources.	Similar to alternative A, but provide less extensive development of trailheads.	Similar to alternative A, but provide more extensive development of trailhead, additional developed trails with mapping of primitive trails, and more widely dispersed waysides and interpretive programs. Potentially provide sanitary facilities at designated backcountry campsites.
Geological and paleontological resources	Continue current management.	Same as alternative A.	Similar to alternative A, but implement a permit system to provide access to specific stratotype and fossil locations.	Similar to alternative A, but enhance protection of specific stratotype and fossil locations by developing minimum impact visitor use education programs.
Plants and wildlife	Continue current management.	Apply some active manipulation to human-disturbed ecosystems to hasten restoration. Eradicate target invasive species of exotic plants throughout the park and implement more strict prevention measures. Use aggressive management to prevent or minimize the spread of exotics, particularly along trails used by horses. This could include an active planting program for native plant revegetation using locally collected seed. Protect wetland and aquatic environments as natural ecosystems, except when they occur as cultural landscape components. In that case they would be assessed for significance and managed accordingly. Add additional research natural areas to the system.	Manage human-disturbed ecosystems the same as the preferred alternative. In addition, restore vegetation at all sites where facilities were removed. Eradicate all species of exotic plants throughout the park and implement more strict prevention measures. Use locally collected seed in an active planting program for native plant revegetation. Prohibit horse use throughout the park. Protect wetland and aquatic environments as natural ecosystems. Improve protection of Smith Spring and allow Manzanita Spring to naturally return to a wetland. Add additional research natural areas to the system.	Apply some active manipulation to human-disturbed ecosystems to hasten restoration. Accelerate recovery of previously grazed areas through reseeding with native plants. Eradicate target species of exotic plants throughout the park and use mitigation measures to protect natural communities from impacts from exotic species. Expand horse use to include overnight use on some trails in all zones, and use more aggressive monitoring and mitigation measures to control the spread of exotic plant species. Address adverse impacts to wetland and aquatic environments by mitigation. Open research natural areas to the public on a restricted basis under a permitting system.
Water quality and quantity	Continue current management.	More aggressively protect water quality and quantity. Implement a groundwater monitoring program on the west side of the park.	Same as preferred alternative.	Similar to preferred alternative, but stress providing for appropriate visitor use.

Table 6: Features of the Alternatives (Continued)

FEATURE	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Cultural Resources				
Archeological resources	Continue current management.	Same as alternative A except that archeological sites would be protected and stabilized.	Same as alternative A except that archeological sites would be protected and preserved.	Same as the preferred alternative.
Historic structures and landscapes	Continue current management.	Preserve national register-listed or -eligible sites while providing appropriate visitor access. Manage historic structures and landscapes as described above under "Facilities and Associated Visitor Activities." Stabilize and preserve the Hunter Line Cabin. Delineate the Butterfield Stage Route. Remove the Cox Cabin and Bowl Cabin and restore their sites, pending determinations of significance, or if they become unsafe.	Preserve national register-listed or -eligible sites while providing minimum visitor access. Manage historic structures and landscapes as described above under "Facilities and Associated Visitor Activities." Manage the Hunter Line Cabin, Butterfield Stage route, Cox Cabin, and Bowl Cabin as described in the preferred alternative.	Rehabilitate and potentially adaptively reuse national register-listed or -eligible sites. Manage historic structures and landscapes as described above under "Facilities and Associated Visitor Activities." Stabilize and/or preserve the Hunter Line Cabin, Cox Cabin, and Bowl Cabin and use as discovery sites. Rehabilitate sections of the Butterfield Stage route for use as hiking trails.
Collections	Continue current management.	Keep most museum specimens in the park in new storage space constructed south of U.S. Highway 62/180.	Keep most museum specimens in the park in existing facilities that have been adapted for museum collections storage use.	Store a significant portion of the museum collections outside the park in a regional facility.
Visitor Use and Understanding				
Visitor experience	Continue current management.	Provide an improved understanding of the park's natural, geologic, and cultural resources through improved and expanded exhibits. Provide new camping opportunities to accommodate a wider diversity of visitors.	Provide an improved understanding of the park's natural, geologic, and cultural resources through improved and expanded exhibits. Emphasize an understanding of wilderness values and ethics in all interpretive activities.	Improve exhibits, but focus on getting larger numbers of visitors and more diverse visitors groups involved in outdoor activities through expanded facilities and improved ease of access. Provide new camping opportunities to accommodate a wider diversity of visitors.
Visitor education, interpretation, and orientation	Continue current management.	Improve opportunities by using accessible, enhanced visitor facilities, additional and improved wayside interpretive exhibits, and targeted interpretive programs and activities.	Concentrate education, interpretation, and orientation opportunities in accessible, enhanced visitor facilities.	Improve opportunities by using accessible, enhanced visitor facilities, improved and substantially expanded wayside and trail interpretive exhibits, and targeted interpretive programs and activities.

Table 6: Features of the Alternatives (Continued)

Feature	Alternative A: No Action	Preferred Alternative	Alternative B	Alternative C
Interpretive and educational outreach programs and media	Continue current management.	Expand programs and media at visitor facilities and on the Internet. Expand educational outreach program to target a wider audience, including people who have not traditionally used the park.	Enhance programs and media at visitor facilities and on the Internet.	Expand programs and media at visitor facilities and on the Internet. Expand educational outreach program to target a wider audience, including people who have not traditionally used the park. Increase interaction with regional and national media.
Visitor access, circulation, and parking	Continue current management.	Expand overnight access to the park through the addition of new or expanded camping facilities. Upgrade the roads to the Salt Basin Dunes trailhead, PX Well trailhead, and Williams Ranch. Provide additional parking at several sites throughout the park.	Decrease overnight access to the park through the removal of existing camping facilities. Remove the road from the park's west boundary to the Salt Basin Dunes parking area. Construct a new parking lot for the new Salt Basin Dunes trailhead	Expand overnight access to the park through the addition of new or expanded camping facilities. Upgrade the road to Williams Ranch and extend it to the park's west boundary. Upgrade the road to the Salt Basin Dunes activity area and PX Well trailhead. Provide additional parking at several sites throughout the park.
Hiking trails, trailheads, and horse use	Continue current management.	Rehabilitate or realign problem segments on existing trails to reduce erosion and maintenance. Map two trails that lead from PX Well to the park's interior along former ranch routes. Manage them as primitive trails. Potentially add to the park's trail inventory by mapping hiking trails along abandoned ranch trails and road traces on the park's west side. Manage them as primitive trails in a wilderness setting. Construct new trailheads for the Salt Basin Dunes area and PX Well. Upgrade the Frijole Ranch trailhead. Provide signage and a small parking area at Guadalupe Pass. Continue to restrict horse use to day use only in the designated wilderness and backcountry zones.	Rehabilitate or realign problem segments on existing trails to reduce erosion and maintenance. Potentially add to the park's trail inventory by mapping hiking trails along abandoned ranch trails and road traces on the park's west side. Manage them as primitive trails in a wilderness setting. Construct a new trailhead for the Salt Basin Dunes area. Provide signage and a small parking area at Guadalupe Pass. Eliminate visitor horse use and remove the public use corrals.	Rehabilitate or realign problem segments on existing trails to reduce erosion and maintenance. Add or improve hiking trails in the developed, frontcountry, and wilderness threshold zones. Develop additional trails for use by the physically challenged. Construct or upgrade hiking trails in the backcountry and designated wilderness zones to provide up to 37 miles of additional, developed trail. Manage other abandoned ranch trails and roads on the park's west side as primitive trails in a wilderness setting. Construct new trailheads for the Salt Basin Dunes area and PX Well. Upgrade the Dog Canyon trailhead. Provide signage and a parking area at Guadalupe Pass. Allow overnight horse use on some trails in all zones. Expand the public use corrals at Frijole Ranch and Dog Canyon.
Park Operations				

Table 6: Features of the Alternatives (Continued)

FEATURE	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Park operations	Continue current manage-ment.	Construct a new administration facility. Provide new or upgraded sanitation facilities only where need is clearly demonstrated. Adaptively reuse Ship-on-the-Desert for research, education and operations. Construct an adminis-trative campground at this site. Enlarge the water storage system and provide a fire building at Dog Canyon.	Adaptively reuse existing facilities. Provide new or upgraded sanitation facili-ties only where need is clearly demon-strated. Move NPS pack horse operations to leased sites outside the park. Enlarge the water storage system at Dog Canyon. Remove the Pine Top patrol cabin and restore the site.	Construct a new administration facility. Provide new or upgraded sanitation facilities at backcountry and designated wilderness zone camp-sites. Provide in other zones as needed. Adaptively reuse Ship-on-the-Desert as the center-piece for research and education programs that could include cooperative partners in additional facilities. Enlarge the water storage system and provide a fire building at Dog Canyon. Construct a ranger staff residence near the Salt Basin Dunes trailhead and campground. Consider a shuttle system to serve trailheads.
Boundary Adjustment				
Boundary adjustment	No-cost boundary adjustment to include two parcels of NPS-owned land.	Same as alternative A.	Same as alternative A.	Same as alternative A.

Table 7: Summary of Impacts

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Natural Resources				
Soils	Soil disturbance from ongoing use and maintenance of park facilities would have minor, adverse, long-term impacts. Removing the power line in McKittrick Canyon would result in a negligible to minor, short-term, adverse soil disturbance, and long-term, beneficial impacts on soils of the utility corridor. Trail use and its related soil erosion would result in minor, long-term, adverse impacts. Impacts from past development would continue to be long-term, adverse, and minor. Regionally, cumulative impacts on soils would be moderate to major, long-term, and adverse. This alternative's contribution to these effects would be negligible. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to soils.	Many impacts would be the same as alternative A. In addition: Construction activities would result in short-term, adverse, minor impacts. Long-term, negligible to minor, adverse impacts would result from development of new facilities on about 200 acres. The long-term impacts of trail rehabilitation and realignment would be beneficial. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to soils.	Many impacts would be the same as alternative A. In addition: Long-term, beneficial impacts would result from restoring sites from which facilities had been removed and from trail rehabilitation and realignment. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to soils.	Many impacts would be the same as alternative A. In addition: Construction activities mostly would result in short-term, adverse, minor impacts. Long-term, minor impacts would result from development of new facilities on most of the 500 acres. The long-term impacts of trail rehabilitation and realignment would be beneficial. Because of unique soil properties, disturbances along the proposed roads from Williams Ranch to the west boundary and from the west boundary to Salt Basin Dunes and PX Well would have moderate, long-term, adverse impacts. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to soils.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Plant communities and vegetation	Maintenance and ongoing visitor use would continue to have negligible to minor, long-term, adverse effects on vegetation. Removing the power lines at McKittrick Canyon would result in negligible to minor, short-term, adverse vegetation disturbance in the utility corridor and a long-term, beneficial impact. Continued irrigation of shade trees and lawns at the Frijole Ranch would encourage non-native species, a minor to moderate, long-term, adverse impact. Continued periodic dredging of Manzanita Spring to maintain the open pond would have negligible impacts. The proposed boundary change would have negligible impacts on vegetation, and beneficial impacts could result from arrangements that protected vegetation and plant communities outside the park. The cumulative impacts on vegetation would continue to be long-term, moderate to major, and adverse. This alternative's contribution to these effects would be very small. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to plant communities and vegetation.	Many impacts would be the same as alternative A. In addition: There would be minor to moderate, adverse, short-term impacts related to construction, long-term, minor, adverse impacts from the permanent removal of about 200 acres of native vegetation from sites that would be occupied by new development, and long-term beneficial impacts from more aggressive control of invasive, exotic plants. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to plant communities and vegetation.	Many impacts would be the same as alternative A. In addition: Long-term beneficial impacts would result from restoring native vegetation on about 200 acres from which park facilities had been removed, allowing a natural wetland to develop at Manzanita Spring, eliminating grazing and the spread of non-native seed by horses, and aggressively controlling exotic plants. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to plant communities and vegetation.	Many impacts would be the same as alternative A. In addition: There would be long-term, minor, adverse impacts from permanent removal of about 500 acres of native vegetation from new development sites; minor to moderate, adverse, short-term impacts and minor, adverse, long-term impacts related to construction; and minor to moderate, long-term, adverse impacts from allowing overnight horse use throughout the park. Long-term beneficial impacts would result from more aggressive control of invasive, exotic plants. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to plant communities and vegetation.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Wildlife	Activities associated with the use and operation of the park would continue to have long-term, negligible to minor, adverse impacts on wildlife. Removing the power lines at McKittrick Canyon would result in negligible to minor, short-term, adverse wildlife disturbances in the utility corridor and a long-term, beneficial impact. Collisions of vehicles with wildlife would continue to have in a minor, long-term, adverse impact on wildlife. The proposed boundary change would have negligible impacts on wildlife, and beneficial impacts could result from arrangements that protected wildlife outside the park. The cumulative impacts on wildlife would be moderate to major, long-term, and adverse. This alternative's contribution to these effects would be very small. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to wildlife.	Many impacts would be the same as alternative A. In addition: There would be minor, adverse, short-term impacts related to construction and long-term, minor, adverse impacts from the permanent removal of about 200 acres of wildlife and habitats from sites that would be occupied by new development. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to wildlife.	Many impacts would be the same as alternative A. In addition: Long-term beneficial impacts would result from restoring wildlife habitat on about 200 acres from which park facilities had been removed, and allowing very high quality wetland habitat to develop at Manzanita Spring. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to wildlife.	Many impacts would be the same as alternative A. In addition: There would be minor, adverse, short-term impacts related to construction and long-term, minor, adverse impacts from the permanent removal of about 500 acres of wildlife and habitats from sites that would be occupied by new development. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to wildlife.
Geological resources	Long-term, adverse impacts of negligible to minor intensity would result from continued park operation, particularly from the use and maintenance of trails. Long-term adverse impacts would continue to be negligible for caves and negligible to minor for the three areas of geologic formation reference stratotypes. The proposed boundary change would	Many impacts would be the same as alternative A. In addition: Indirect, long-term, minor, adverse impacts would result from changes in drainage patterns on and around the approximately 200 acres that would be occupied by new development. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts.	Impacts would be the same as alternative A.	Many impacts would be the same as alternative A. In addition: There would be indirect, long-term, minor, adverse impacts on geology from changes in drainage patterns on and around the approximately 500 acres that would be occupied by new development; indirect, long-term, minor to moderate, adverse impacts from upgrading the utility infrastructure in McKittrick Canyon and Pratt Cabin;

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
	have negligible impacts on geology, and beneficial impacts could result from arrangements that protected geological resources outside the park. The cumulative impacts on near-surface geologic resources would be long-term and adverse, and locally could be of moderate intensity. This alternative's contribution to these effects would be very small. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to geologic resources.	The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to geological resources.		and long-term, minor to moderate, adverse impacts on sand dune formation and dune stability. Water crossings over McKittrick Creek would beneficially allow precipitation of natural travertine formations but could result in moderate, adverse, short- and long-term impacts during construction and floods. Development in the Salt Basin Dunes area could alter sand dune formation and dune stability, resulting in adverse, long-term, minor to moderate impacts. Visitor use education programs would have long-term, minor to moderate, adverse impacts relating to increased loss of the park's reference stratotypes and benefits from better education of visitors. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to geological resources.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Paleontological resources	Adverse, minor, long-term impacts on park paleontological resources would continue to occur because of hiking trail use, trail use by horses, use of caves, and access to type fossil localities. Indirect beneficial impacts would result from activities that exposed fossils in the park for research and visitor interpretation. The proposed boundary change would have negligible impacts on paleontological resources, and beneficial impacts could result from arrangements that protected paleontological resources outside the park. The cumulative impacts on near-surface and cave paleontological resources would be long-term and adverse, and locally could be of moderate intensity. This alternative's contribution to these effects would be very small. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to paleontological resources.	Many impacts would be the same as alternative A. In addition: Long-term, minor, adverse impacts would result from establishing a low-country camping area below the eastern escarpment and from improving the McKittrick Nature Trail. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to paleontological resources.	The elimination of the hammering action of horseshoes on fossil deposits in trails would have a long-term, beneficial impact. All other impacts would be the same as alternative A. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to paleontological resources.	Many impacts would be the same as alternative A. In addition: Long-term, minor or moderate, adverse impacts would result from establishing a low-country camping area below the eastern escarpment; improving the McKittrick Nature Trail and Smith Spring Trail; constructing new trails, widening trails, and redeveloping abandoned roads; increasing the potential for vandalism or unauthorized fossil collecting; and increasing the use of horses. Visitor use education programs would provide a beneficial impact. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to paleontological resources.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Cultural Resources				
Archeological resources	Avoidance of national register-listed or -eligible archeological resources during the construction of trail segments would result in no adverse effects. Few if any adverse effects would result from inadvertent disturbance or vandalism. The cumulative impacts on archeological resources would result in adverse effects. This alternative's contribution to these effects would be very small. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to archeological resources.	Many impacts would be the same as alternative A. In addition: Adverse effects could result from the construction of new facilities on about 200 acres, site restoration, and removal of national register-eligible structures or other remnants of historic ranching activities. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to archeological resources.	Many impacts would be the same as alternative A. In addition: Adverse effects could result from site restoration, the construction or expansion of two small parking facilities, and removal of national register-eligible structures or other remnants of historic ranching activities. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to archeological resources.	Many impacts would be the same as alternative A. In addition: Adverse effects could result from the construction of new facilities on about 500 acres and from site restoration. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to archeological resources.
Historic structures	Few if any adverse effects would be anticipated. Cumulative impacts on historic structures would result in adverse effects. This alternative's contribution to these effects would be very small. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to historic structures.	Many impacts would be the same as alternative A. In addition: Adverse effects could result from removing national register-listed or -eligible structures or allowing them to deteriorate naturally. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to historic structures.	Many impacts would be the same as alternative A. In addition: Adverse effects could result from removing national register-listed or -eligible structures or allowing them to deteriorate naturally. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to historic structures.	Many impacts would be the same as alternative A. In addition: No adverse effects on the park's historic structures would result from any of this alternative's stabilization, preservation, or rehabilitation efforts. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to historic structures.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Cultural landscapes	Implementation would result in no adverse effects on the park's cultural landscapes. Cumulative impacts on cultural landscapes would be adverse, but this alternative would not contribute to cumulative impacts. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to cultural landscapes.	Many impacts would be the same as alternative A. In addition: The structure to exhibit a stagecoach could have an adverse effect on the Pinery's cultural landscape. Other aspects of this alternative would result in no adverse effects on the park's cultural landscapes. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to cultural landscapes.	Many impacts would be the same as alternative A. In addition: An adverse impact on the Frijole Ranch cultural landscape would result from allowing the human-made pond of Manzanita Spring to fill in naturally with silt and return to a wetland. The other elements of this alternative would result in no adverse effects on the park's cultural landscapes. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to cultural landscapes.	Many impacts would be the same as alternative A. In addition: The structure to exhibit a stagecoach and walkway improvements could have an adverse effect on the Pinery's cultural landscape. Other aspects of this alternative would result in no adverse effects on the park's cultural landscapes. Cumulative impacts would be the same as for alternative A. This alternative would contribute a very small increment to these cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to cultural landscapes.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Ethnographic resources	Continued park-related use of the sand dunes would result in moderate, adverse, long-term impacts. Visitors using other areas of the park would have minor adverse effects on American Indians observing sacred rituals or seeking solitude to practice traditional beliefs. The alternative would have negligible impacts on visitor patterns of viewing the Our Lady of Guadalupe image. Impacts from increased park staff knowledge about indigenous plants would be beneficial and long-term. The cumulative impacts would be long-term, minor to moderate, and adverse. This alternative's contribution to these effects would be minor to moderate. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to ethnographic resources.	Many impacts would be the same as alternative A. In addition: Increased park-related use of the sand dunes would result in moderate, adverse, long-term impacts on the sensitivities of the Tigua Indians of Ysleta del Sur Pueblo. Cumulatively, there would continue to be adverse effects on the region's ethnographic resources. This alternative would result in a minor to moderate, long-term, adverse contribution to the cumulative impacts. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to ethnographic resources.	Many impacts would be the same as alternative A. In addition: Natural restoration of the wetland at Manzanita Spring could make this area more favorable to the Mescalero Apaches as a traditional-use area, a beneficial, long-term effect. Cumulatively, there would continue to be adverse effects on the region's ethnographic resources. This alternative would result in a minor to moderate, long-term, adverse contribution to the cumulative impacts. Alternative B would not result in any unacceptable impacts or impairment of park resources or values related to ethnographic resources.	Many impacts would be the same as alternative A. In addition: Increased park-related use of the sand dunes would result in moderate, adverse, long-term impacts on the sensitivities of the Tigua Indians of Ysleta del Sur Pueblo. Cumulatively, there would continue to be adverse effects on the region's ethnographic resources. This alternative would result in a minor to moderate, long-term, adverse contribution to the cumulative impacts. Alternative C would not result in any unacceptable impacts or impairment of park resources or values related to ethnographic resources.
Museum collections	Insufficient space in the park would result in negligible to minor, adverse, short-term impacts on museum pieces during moving and a minor to moderate, adverse, long-term impact on the ability of park staff to use offsite collections for research or study. The cumulative impacts on the museum collections would be long-term and beneficial. This alternative's contribution to these effects would be beneficial. Alternative A would not result in any unacceptable impacts or impairment of park resources or values related to	A beneficial, long-term impact would result from improved park staff access to museum collections for research or study. Other effects, including cumulative impacts, would be the same as alternative A. The preferred alternative would not result in any unacceptable impacts or impairment of park resources or values related to museum collections.	Impacts would be the same as for the preferred alternative.	Impacts would be the same as alternative A.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
	museum collections.			
Visitor Use and Experience, Socioeconomics, and Park Operations				
Access, activities and destinations, and scenic views	Alternative A would have negligible to minor, long-term, adverse impacts on visitor access and beneficial impacts for visitors desiring solitude. It would have beneficial impacts on activities and destinations and on scenic views. Removing the electrical lines along McKittrick Creek would have long-term, beneficial impacts on the scenic view. Cumulatively, actions of others would have generally adverse impacts. Implementation of alternative A would continue to be important in protecting scenic views outside the park.	Many impacts would be the same as alternative A. In addition: Beneficial, long-term effects on access, activities and destinations, and/or scenic views would occur at numerous sites within and associated with the park, including Pine Springs, Frijole Ranch, McKittrick Canyon, Dog Canyon, Salt Basin Dunes, Williams Ranch, Ship-on-the-Desert, PX Well, Guadalupe Pass, and Dell City. There could be minor, long-term, adverse impacts on visitors who desire more solitude. Cumulative impacts would be the same as the no action alternative.	Many impacts would be the same as alternative A. In addition: Minor to moderate, long-term, adverse impacts on access would result from closing the road to the Salt Basin Dunes parking area, eliminating camping except in the backcountry, and eliminating horse use. Beneficial, long-term impacts on access would be associated with providing additional parking at Williams Ranch and the Salt Basin Dunes trailhead and from the possible addition of primitive trails to the park's inventory. A major, long-term, adverse impact would result from eliminating camping except in the backcountry. Eliminating horse use usually would be perceived as a major, long-term, adverse impact by riders and a negligible or beneficial impact by hikers. Increased opportunities for solitude would be a long-term, beneficial impact. Beneficial impacts on scenic views would result from removing camping from the Pine Springs area. Cumulative impacts would be the same as the no action alternative.	Many impacts would be the same as alternative A. In addition: Beneficial, long-term effects on access, activities and destinations, and/or scenic views would occur at numerous sites within and associated with the park, including Pine Springs, Frijole Ranch, McKittrick Canyon, Dog Canyon, Salt Basin Dunes, Williams Ranch, Ship-on-the-Desert, PX Well, and Guadalupe Pass. There could be minor, long-term, adverse impacts on visitors who desire more solitude. Cumulative impacts would be the same as the no action alternative.

Table 7: Summary of Impacts (Continued)

IMPACT TOPIC	ALTERNATIVE A: NO ACTION	PREFERRED ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C
Interpretation, education, and orientation	Impacts would be beneficial. Limited access to information at the Dell City contact station would have continuing minor, long-term, adverse impacts on visitors to the park's west side. Cumulative impact with other information sources would be beneficial.	Many impacts would be the same as alternative A. In addition: Additional beneficial impacts on interpretation, education, and orientation would occur. The cumulative impact with other information sources would be negligible compared to no action.	Many impacts would be the same as alternative A. In addition: Additional beneficial impacts on interpretation, education, and orientation would occur. The cumulative impact with other information sources would be negligible compared to no action.	Many impacts would be the same as alternative A. In addition: Additional beneficial impacts on interpretation, education, and orientation would occur. The cumulative impact with other information sources would be negligible compared to no action.
Socio-economic environment	Impacts on regional economic and demographic conditions, area housing, and community infrastructure would be beneficial. Cumulative effects on regional socio-economic conditions generally would be beneficial and this alternative's contribution to these effects would be very small.	Many impacts would be the same as alternative A. In addition: Increased visitation from park improvements would have beneficial impacts on regional economics. Long-term, beneficial impacts would result to community infrastructure. Cumulative effects generally would be beneficial but very small.	Many impacts would be the same as alternative A. In addition: Beneficial impacts on the regional economy would occur because of increased demand for commercial camping and other overnight lodging. Cumulative effects would be beneficial but very small.	Impacts would be the same as alternative A.
Park operations	Insufficient administrative space that resulted in a loss of efficiencies, and the conversion of housing to office space that reduced the park's ability to meet housing needs for critical staff have resulted in long-term, moderate, adverse impacts on operations Deferred maintenance would represent a long-term, minor, adverse impact on park operations. A long-term benefits result from use of consolidated administrative functions in a "town office" in Carlsbad and relocation of the pack animal operations to the Pine Springs area. The cumulative impacts would be minor, adverse, and long-term, and this alternative's contribution would be slight.	Some impacts would be the same as alternative A. In addition: Long-term, beneficial impacts would result from the new, consolidated headquarters complex near Pine Springs, the ability to reclaim two Pine Springs housing units for their original purpose, improved fire management resources at Dog Canyon, reduced maintenance of rehabilitated or re-aligned trail segments, and implementation of efficiencies identified in the core operations analysis. Increased maintenance associated with new or upgraded facilities would have a long-term, moderate, adverse impact on park operations. Cumulative impacts would be the same as in the no action alternative and this alternative's contribution would be slight.	Some impacts would be the same as alternative A. In addition: The lack of space that would result from alternative B would have a moderate to major, long-term, adverse impacts on management and administration. Moderate, long-term, adverse impacts would occur on the maintenance aspect of operations. Cumulative impacts would be the same as in no action alternative, and this alternative's contribution would be slight.	Impacts would be the same as alternative A.